COMMODORE

SPECIAL GLOBAL ISSUE

NOW INCORPORATING COMMODORE & AMIGA HORIZONS UK

COMPUTING INTERNATIONAL

JUNE 1986

USA $3.25 GERMANY DM 7.5 BELGIUM FR1.30 £1

COMPUTING WORLDWIDE

Freeze frames of an electronic age

EXCLUSIVES!

The new Joycard Control – Amazing Amiga/PC games and software – The Commodore Show Preview

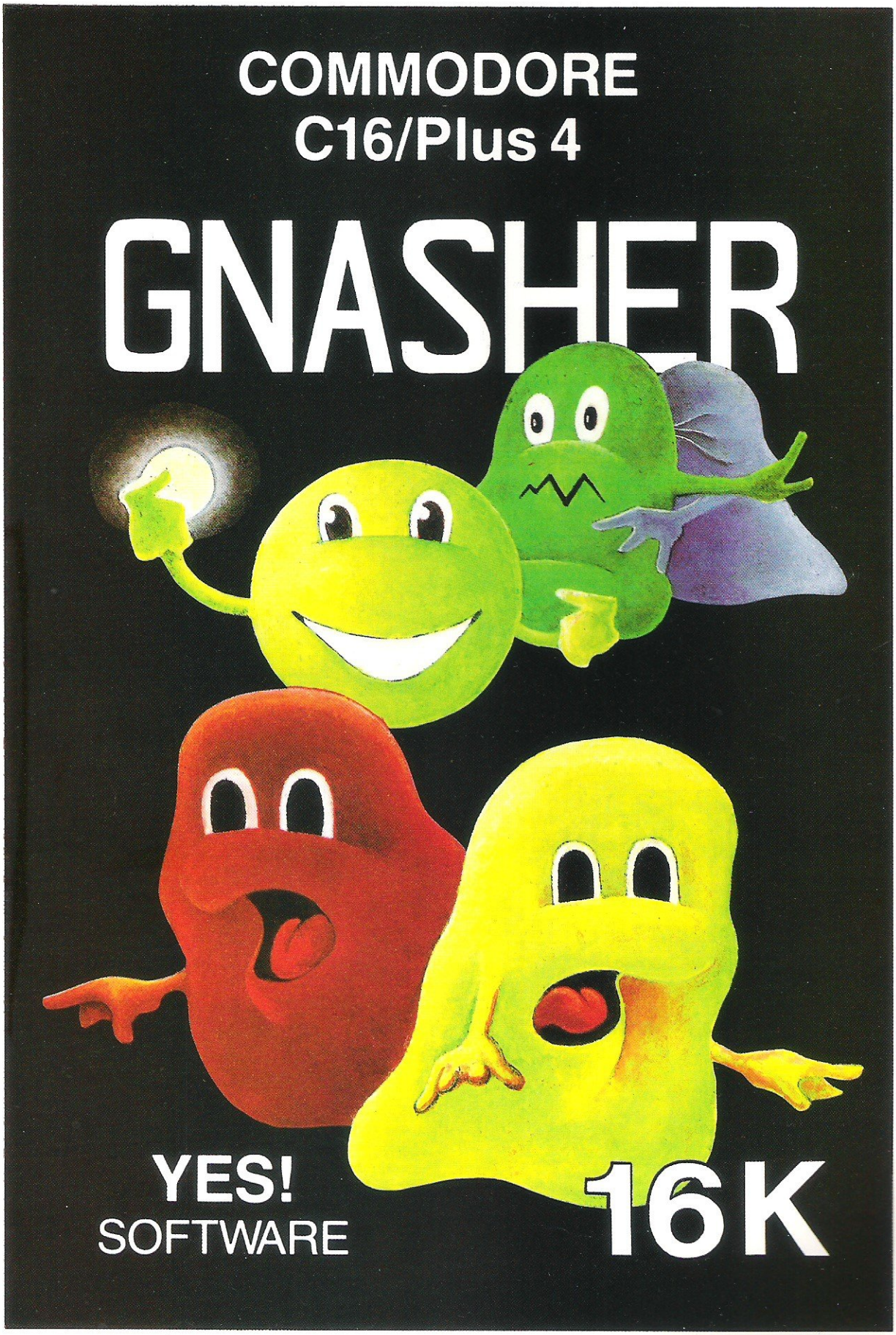
64/128 and Plus/4 reviews and features

GamesWorld the latest MegaReviews

Computing Books Guide and much, much more

FREE MONEY-OFF VOUCHERS

WIN JOYCARDS, PAPER CLIP WORD PROCESSING, MPS UTILITY CARTRIDGE, COMMODORE MODEM AND COMPUNET SUBSCRIPTIONS, LOADS OF C16 & 64 GAMES


COMMODORE
C16/Plus 4
GNASHER
YES!
SOFTWARE
16K

OUT NOW!

YES SOFTWARE
UNIT 4
NORSIDE
OLD MIXON CRESCENT
WESTON SUPER MARE
AVON

YES SOFTWARE

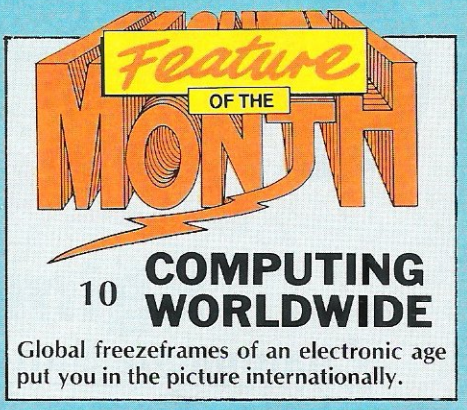
SEND £1·00 FOR A2 POSTER AND FULL LIST OF SOFTWARE
DEALER ENQUIRIES WELCOME

Probably the best Commodore magazine in the universe says "Welcome aboard, Horizons Readers!" (see page 5)

Inside

COMMODORE COMPUTING INTERNATIONAL

Vol 4 No 11
June 1986



10 **COMPUTING WORLDWIDE**
Global freezeframes of an electronic age put you in the picture internationally.

...NEWS

OVERVIEW 8
Commodore profit?... One to One go to war.... More Data Protection... Computer Stars.

PRODUCT UPDATE 77
Compact Disc news... Hackers beware... Printers, printers and more printers.

GAMESWORLD

GAMES NEWS 30
Poor Sinclair's dead, ooh! This and more scandals from the Secret Diary of the Commodore world.

MEGA-REVIEWS 33
Ping Pong your way through space, or rush your way to the Superbowl, shudder in haunted castles, pumpison with the Muscle-men, glare at glorious graphics, boil in the couldron, hole out at golf or strip with Samantha Fox. It's the gamesworld out its yours!

THE C16 SELECTION 40
A tempting array of delicacies for the enormous appetite of the C16 owners.

CHARTS 42
What's up what's down, NEW!!! Top 10 C16.

...FEATURES

SHOW PREVIEW 17
What you can enjoy at the 7th official Commodore computer show, starring the all-singing, all dancing AMIGA! and featuring a host of exciting new products.

BOOK GUIDE 23
Want to get clued up on a specific or general computing subject?? You'll be amazed at what you can find in our comprehensive book guide starting this month.

UTILITIES 52
Part two of CCI's 'Get the best from your computer' utilities guide.

COMPETITIONS 43
You can win terrific prizes like loads of C16 and 64 games, a Commodore Modem and free subscription to Compunet, £250 of holiday vouchers, Paperclip Word Processor, and, believe it or not, the brand new Samatha Fox limited edition picture record.

MIDI MEANINGS 49
Almost everyone has heard of MIDI, we explain in layman's terms what MIDI is.

...CONSTANT FACTORS

MUD PAGE 45
Soon it's name change time, more details on the MUG game for mere mortals. Zaphod reveals all.

MACHINE CODE 61
Bounce your 64 amazingly into an Amiga-clone with this astounding routine!

BEGINNERS BASIC 55
Travelling further along the path to Basic expertise.

BASIC 58
We reveal all about 128 keyword tokens.

HINTS AND TIPS 64
More useful info for all 128 owners who want to 'Get The Best' from their machine.

LETTERS 47
"If you've got a problem, no matter how small it is", to quote Elvis... We can help!

...REVIEWS

PLUS/4 INSIGHTS 70
A disk drive specifically for the Plus/4 we examine the 1551 in depth.

CCI's MOVIE SCENE 29
Absolute Disasters, or Clockwise successes, and Kids with chipped-up minds we let you into the latest releases.

BOOK REVIEWS 63
BEWARE!! One of this month's books bytes!

128 BUSINESS 20
Comprehensive word processing with PaperClip, and a Swift.

NEXT MONTH

What's new in the world of electronics... What really happened at the Commodore Show.... C16/Plus 4/C64/C128 special features... GamesWorld with more reviews and hot news than ever before including the astonishing V and the game and audio cassette Doomdark's Revenge... terrific prizes in easy competitions... and what you need to know about the new wave of communications and much, much more... Place your order with your newsagent now...

The event every Commodore user is waiting for . . .

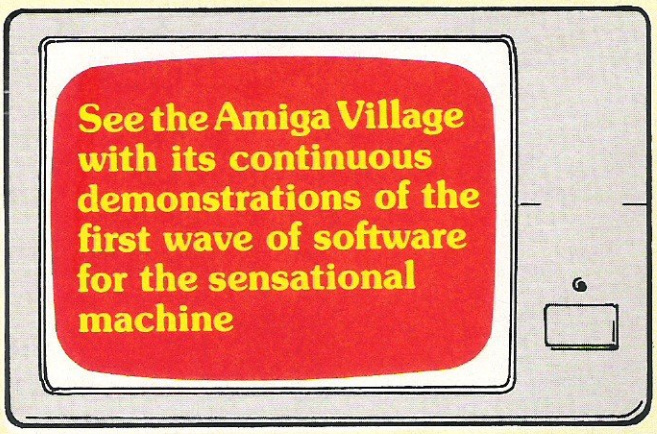
Organised by Database Exhibitions

The 7th official Commodore computer show

–featuring the UK launch of the fabulous Amiga

Champagne Suite and Exhibition Centre, Novotel, Hammersmith, London W6

This is YOUR chance to see the very latest developments for the ENTIRE Commodore range



Visit the 100-seat Show Theatre, where non-stop events will be held including music from top groups

How to get there:

Novotel London is right by the A4/M4 and is only two minutes from Hammersmith underground station (for the West End, City and airport). For those bringing their own car, there is a large underground car park at the hotel.

Tickets – £3 (Adults), £2 (Children under 16). Special rates for group bookings (over 10 in a party).

SHOW HOTLINE: 061-456 8835

or write to:
Seventh Official Commodore Show Tickets,
Europa House,
68 Chester Road,
Hazel Grove,
Stockport SK7 5NY.

The 7th official Commodore computer show

1st PRIZE The Commodore 128 Compendium (Commodore 128k, cassette and four pieces of software) worth £300.

2nd PRIZE Music Expansion System for the Commodore 64 or 128 (5 octave keyboard, sound expander and sound studio software) worth £150.

Come to the show and enter the FREE DRAW

All you need to do is to cut this coupon out and hand it in at the door when you arrive.

Name _____

Address _____

_____

_____

Tel. No. _____

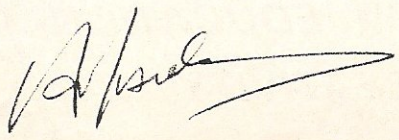
COMMODORE COMPUTING INTERNATIONAL

Now Incorporating

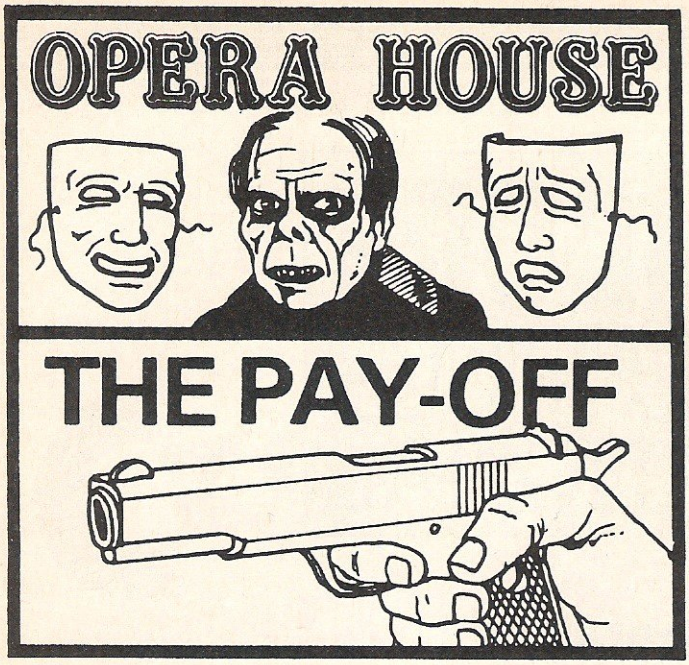
Commodore & Amiga Horizons

As our masthead this month announces, CCI now incorporates Commodore and Amiga Horizons, one of the leading magazines in the Commodore field. Readers of both will now benefit from an even stronger and more exciting publication. It will feature the very best of the news, reviews, informed coverage and programs of CCI and Horizons.

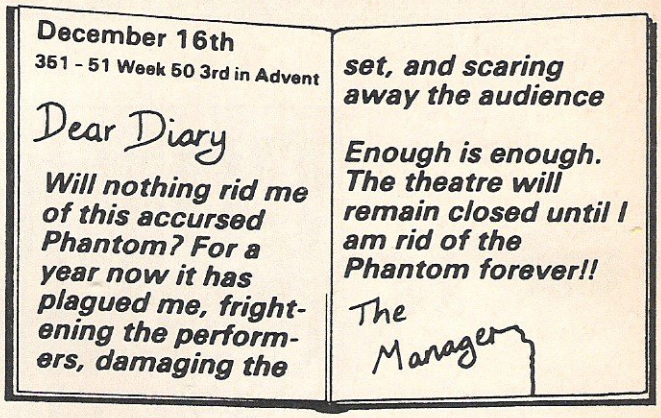
CCI readers already know that they are "getting the best" in excitment, value and readability. We are sure that Horizons' readers will also enjoy their new and, we hope, even more exhilerating Commodore experience.



ANTONY H. JACOBSON - PUBLISHER



2 EXCITING ADVENTURE GAMES

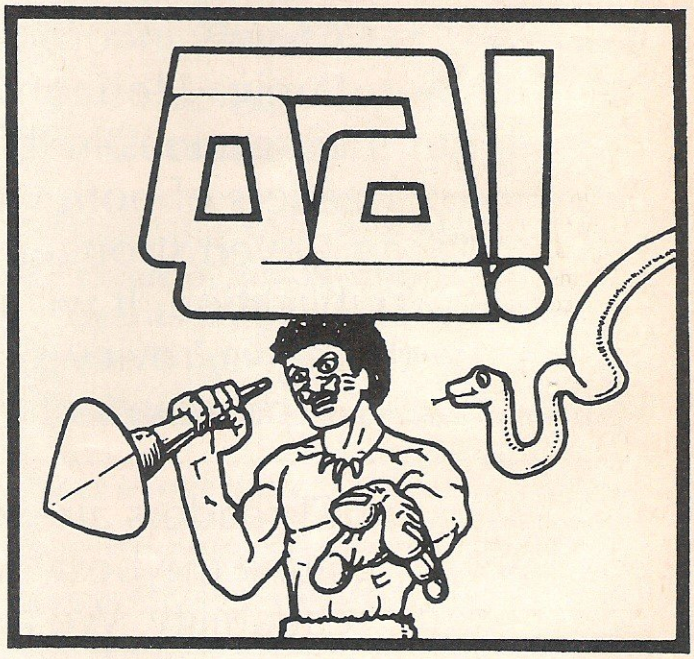


OPERA HOUSE/PAY OFF
CASS .....AT/C64..... **£4.99**

IN 2 COMPUTER FORMATS

OPERA HOUSE/QA!.....DISK....AT/C64..... **£6.99**

QA!



A THRILLING NEW ADVENTURE
CASS .....AT/C64..... **£2.99**

COMMODORE 64

ENTERTAINMENT, EDUCATION, BUSINESS & CREATIVITY .... IT'S ALL FROM ..... ,

SCS

IT'S WHAT YOUR HARDWARE HAS BEEN WAITING FOR!!!

DEALERS CALL (021) 328 3585 FOR A DEALER PACK

TELECOM GOLD GO ONE TO ONE.

Not for much longer will Telecom Gold be able to say they are the undisputed leaders in electronic communications. One to One, the London based company have changed their pricing structure to make them even more competitive.

Currently, One to One is about a sixth the size of Gold, with 5000 mailboxes, to Gold's 30000. What OTO have really set out to do is provide services that will make them more valuable to the average individual or small business.

The new services launched include private noticeboards, and same day delivery of letters throughout the UK, a service run in conjection with TNT couriers. Although it will be a while before OTO's noticeboards rival Gold's, companies such as Pace and Sage are already signed up.

COMPUTER STARS

It seems that the degrees to which computers affect are lives are getting truly over the top. Aliens, a follow up to the hugely successful Alien film, has a starring role for three portable computers.

The computers, Grid Compass's, are used to control robot sentry guns, and shoot anything that moves, a sort of Gridbo?

DOWN, DOWN, UP???

Anyone who reads newpapers will undoubtedly have heard a great deal about Commodore's supposed dramatic fall in public favour. It will come as quite a shock therefore to the people pointing their fingers to hear this fact recently uncovered by 'Business' magazine.

For the 1984-5 period Commodore made more profit per employee than any other computer company, and that includes the IBMs and Amstrads of this world. The actual figure was £56.582 per employee, IBM however were in fifth place with a lowly £18.565.

Do IBM look quite so invincible?

WIDER RANGING ACT

Many people have failed to realise just how wide ranging the Data Protection Act in the UK really is. Even if all a company uses its PC for is to store a few names and addresses, it is essential to register, or you may be fined up to £1000.

Even companies whose employees use portable computers to research information need to be registered..... Are you reading this Messrs Murdoch and Maxwell?

MAGAZINE BOREDOM

This quote was spotted while reading a CTW, computer trade magazine. Made by Peter Benjamin of Entrepo Services, he summed up the current computer magazine market thus:

"Spectrum owners will always need their Sinclair Users or Crashes or 'Your Sinclair Peripheral beginning with F' or whatever, in the same way that C64 owners will need their equivalents.

Fair enough.

"But this cannot excuse the downright dullness of virtually all the monthlies.

"Far too many of them are given up to reviews followed by more reviews, with yet more reviews turning up later – with the occasional cacky competition separating the reviews from the ads.

The effect is BORING."

We at CCI wonder which magazines Mr Benjamin could possibly be referring to?

HACKER CRACKERS

With the number of companies using computers multiplying, the fear of hackers illicitly gaining entry to confidential material is becoming general. Some new devices promise greater levels of protection. Modular Technology have released Interminder M4000 a standard 1275/300 baud modem. It has however been preprogrammed with up to 160 passwords and phone numbers.Whenever a call comes in, it asks the caller for a password and then promptly hangs up. If the password is accepted, it immediately calls back the phone number associated with the password. In this way, it stops anyone from accessing the system unauthorised. Modular Technology program in the passwords and phone numbers. They charge £25 for the first 10 and £1 each after that. Interminder costs £495.

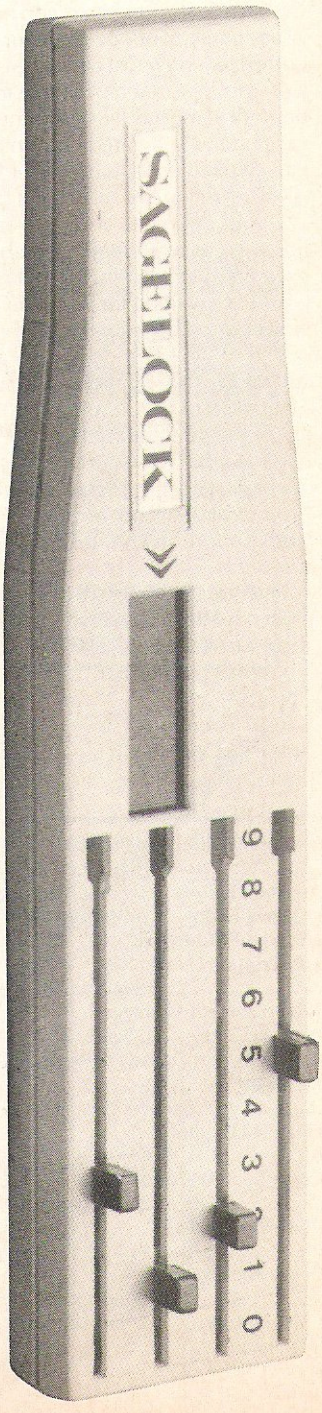
Response

For bigger companies concerned about security, Motorole has come up with "Response" a special security unit that sits between computer and a modem and contains up to 1200 passwords or phone numbers. It too carries out the same procedure of checking and calling back but it has other extras such as restricting selected callers to certain times of the day or night and logging all calls and time recording them. It can deal with up to 56 calls simultaneously. For public systems, where it may be complicated to receive calls, Response can come up with temporary passwords which it tells the caller who then has to call in again and state the new password! Sounds good business for the phone companies. Response costs £6,000 plus £250 per exta line.

Sagelock

A very unusual security device has been created by Sagesoft. It is a hand-held decoder which can come with any program or file. It looks a little like a small plastic abacus and is made up of four strips of polarised plastic. Each strip can be shifted into nine different settings. By overlapping the strips different colour sequences are shown through a small window.

The Sagelock program predicts which colour sequences will be produced by each combination to a randomly-generated number, which will then be the code key for the file. If a requesting user gets the sequence wrong, access to the file is refused. Sagelock costs £2 per unit.



Comment...

Dear Reader,
This is the seventh time that the Commodore world has come together at a major U.K. show. Thousands of eager owners pour through and flood around the 80 or so stands, hungry for what is there and what is new for their Commodores.

Each year, with the rapid change that is a constant factor of computing, the show has been very different... Early on, it was little more than the first business micro, the PET. Then the VIC 20 was the star. Last year, it was smaller on one floor only; a reflection of the sudden fall in the fortunes of the computer industry. Last year too, it was haunted by rumours of the imminent demise of the world's biggest selling computer, the C64, and its replacement by the 128. This year...

Well, the C64 is still with us and - as a member of Commodore's very changed management team tells CCI in this issue, it will continue to be for some time yet. The price of that computer - now just half of last year's - and all things that go with Commodore machines have fallen sharply. The Plus/4, after a hesitant start, has taken an important role in the Commodore range - and software companies, partly due to CCI's urging, have woken up to its potential. But perhaps the UK launch of the AMIGA will prove this year's most notable event.

Commodore, as you can read in the International feature in this issue, is surely staking its corporate future on this technically exciting but commercially risky computer. People all over the world are waiting for the AMIGA to take off and, in effect, waiting for a decision on Commodore's future.

The AMIGA is undoubtedly an amazing machine but for it to succeed in the UK and around the globe will require a return of what used to be Commodore's great strength - marketing - giving the public something they want, something they feel they need at a price they are willing to pay for it and promoting, advertising, selling it in a fiercely competitive market. The AMIGA alone is not enough, the question is whether Commodore still has the corporate will and can commit the resources.

The coming year will not be easy for Commodore and probably the only thing you can be sure of is that when the eighth show comes along, it will be very different from this year's and the others before that.

Yours sincerely,
Antony H. Jacobson
Publisher

Managing Editor and Publisher ..... Antony Jacobson
Assistant Editor ..... Francis Jago
Features Editor .. Anthony Mael
Editorial/Production/ Subscription Controller ..... Sharon Gilkes
Advertisement Manager ..... James Mack
Assistant Advertisement Manager ..... Max Jacobson-González
Finance Director B.J. Lewis M.Sc. F.C.A.
Consultant Art Editor ..... Graham Baldock
Illustration/Artwork ..... M.J./M.L. Arts
Cover Photography ..... Paget Joseph
Contributors ..... Ian Bennett
Bill Donald
Sherri Gilkes
Jeremy Hall
Mick Jones
Julian Rosen
John Smith
Austin Spreadbury
Rae West
Telephone: 01-278 0333
Editorial ext: 274/275
Advertising ext: 280/286
Subscriptions ext: 274

Address: Finsbury Business Centre
40 Bowling Green Lane
London EC1R 0NE

Distributed by: Comag, Tavistock Road, West Drayton, Middx UB7 7QE

Printed by Chase Printers Group, London and St Austell
Typesetting: Merton Graphics

Published by Croftward Limited

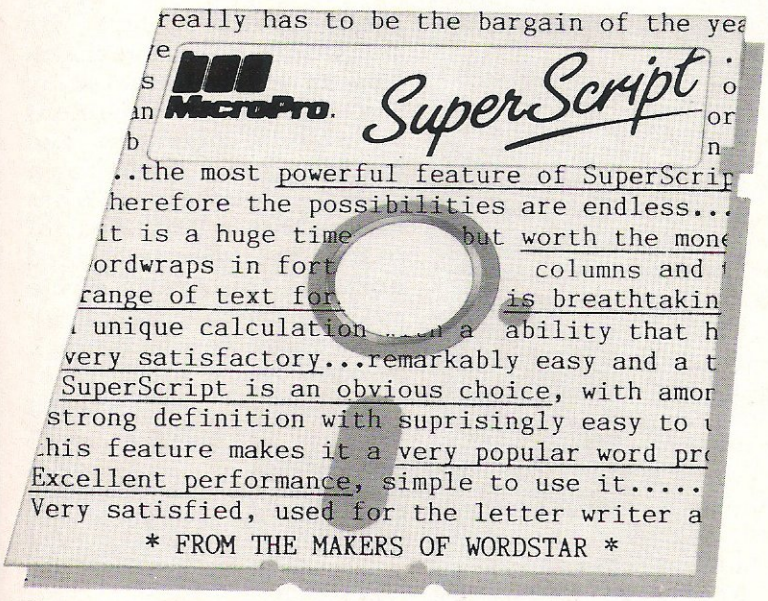
Commodore Computing International - an independent magazine for Commodore computer users - is not connected in any way with Commodore Business Machines UK Ltd. It is published 12 times per year by Croftward Limited. The publishers do not accept liability for any incorrect statement or errors contained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

© Croftward Limited 1985

ADVERTISERS DIRECTORY JUNE 1986

Adamsoft	76
Anco	41
Ariolasoft	35
Arrow Micro Services	73
Cascade Games	78
Calco Software	16
Cas Distribution	51
Cockroach Software	76
Compumart	46
Computer Support UK Ltd	73
Database Publications	4
Datel Electronics	16
Dimension Computers	18,19
Dosoft	76
Dynamite Software	38
Eurosystems	78
Evesham	69
FCC Systems	48
First Publishing	48
Gemini Marketing	25
Glentop Publishers	22
Graffix	38
Grafsales	13
H & P Computers	57
Information Developments	54
Konix	32
Micropro Int	9
Modehart	72
MPS Software	38
Pitman Publishing	IBC
Precision Software	46
Rae West	78
Selec Software	38
Supersoft	OBC
Trojan Products	48
Wizard Software	73
Yes Software	IFC

WORDAHOLIC



SUPERSCRIPT
WORDPROCESSING
From the makers of WORDSTAR

Most wordprocessing packages will do the bare minimum. SuperScript can't wait to do the lot!

JUST LOOK AT THIS WORKLOAD

Takes on	writing, storing and editing all your correspondence and other documents.
And	produces letters, invoices, price lists, contracts, labels etc.
Next	runs personalised mailings with lists or database output.
Then	creates and revises top quality presentations reports and tables.
On to	typing term papers, technical reports or notes.
And even	adds, subtracts, multiplies, divides and does percentages.
At the same time	giving all round editing and printing facilities such as block-cut-paste, insert and typeover, full search and replace.
Not to mention	print review, layout options and simplified document selection. And much, much more!

*** SPECIAL MAIL ORDER PRICES ***
COMMODORE 64, ATARI 800XL/130XE £49.95
COMMODORE 128, APPLE IIc/IIe £79.95
UPGRADE FROM EASYSCRIPT £39.95

SuperScript comes complete with Comprehensive User Manual.

ORDER NOW

By calling MicroPro on 01-879 1122 Ext 210
quoting your Access or Visa no.

Also available from all good dealers.

MicroPro.

To Dept CC 6 MicroPro International Ltd, Haygarth House, 28-31 High Street, Wimbledon Village, London SW19 5BY

Please supply the following: (All prices include VAT & Postage) QTY ____ SuperScript package(s), for computer (state model)
Commodore 64, Atari 800XL/130XE £49.95; Commodore 128, Apple IIc/IIe £79.95 QTY ____
+ Upgrade for Easy Script £39.95 for computer (state model)
+ Your existing Easy Script disk should be returned with this order)
I enclose remittance for £ ____ (Cheques made payable to MicroPro International Ltd).
Or charge my credit card
Access/Visa No.
Signature
Name
Address
Postcode
Tel

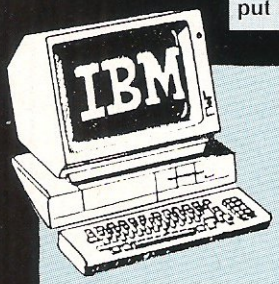
UPGRADE FROM EASYSCRIPT TO SUPERSCRIPT – JUST £39.95

* Improved performance *
* Maths *
* Spelling checker *
* Print or view *
* Integrate with SuperBase *
(on Commodore 128)

Feature OF THE MONTH

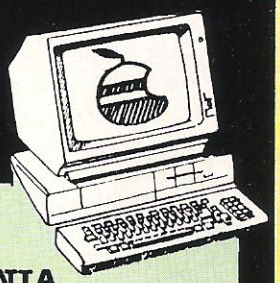
COMPUTING WORLDWIDE

Global freezeframes of an electronic age put you in the picture internationally.



EUROPE.

Commodore, perhaps suprisingly, were recently placed joint third (with Hewlett-Packard) in a survey of the top PC compatible producers. Although IBM are said to control nearly 40% of the over £1000 computer system sales, Commodore's PC 10 and 20 are considered to be amongst the best - especially in Germany where it is assembled and sells as many as other!



CALIFORNIA.

Apple, still one of the names synonimous with home computers, are having a little trouble with religion. Having recently sold $700,000 worth of Apple Computers (1500 machines) at a discount to the Catholic Archdiocese of San Francisco - it then became aware that only 400 computers were ever installed, the rest having been sold at a great profit - not to Apple but to the Church.

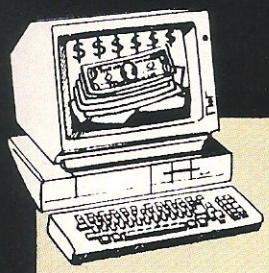
Apple, who sold the computers at a special low price hoping, no doubt, to clean up their reputation with the Deity (Adam and Eve, you know!), are understandably annoyed.

SWEDEN.

One company in Sweden is in the lucky position of never having to worry about making sure its computers don't overheat! Norcap were contacted by the Swedish Government to provide computers and training for a small town called Gallivare. What makes this a little special is that the town is located north of the Arctic circle with tempertures often 60° or so below zero! Although Sweden has a plethora of regulations surrounding data protection in computing, the government has recently come under criticism due to the apparent frequent abuse of the laws.

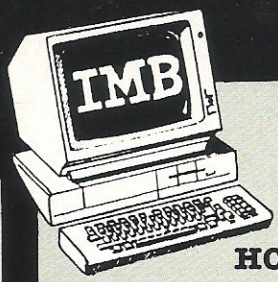
The most publicised of these abuses was a recent exposure of a scandal at Stockholm University; where there was a project holding personal details on over 15,000 people, who had not been informed nor was the profect registered with the Data Inspectorate! This led to the resignation of the Director of the Inspectorate, along with five others.

COMPUTING WORLDWIDE



U.S.

Multi-User systems are believed by many to be the one computer standard that will help to save Americans from becoming obsessed with new technology (aren't they already?). Using the new Motorola 68000 and Intel 80286, the Multi-user section of the market has grown to 400,000 computers, or just less than 10%. Currently IBM have the lion's share of the market with their AT computers, but it is expected that many others will soon be catching up with them. Commodore's recent lauch of an AT alone will bring them into the leading competition.

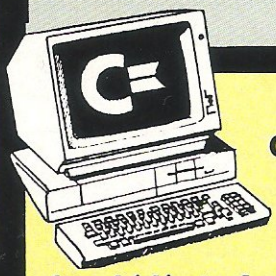


HONG KONG.

Think about it..... In the UK, many people are still buying twin drive IBM PC's for £2000. In Hong Kong, things are a little different! To the extent that if you look around you could get a IBM alone, with 256k, twin drives and a keyborad, all for less than £400, with a 10 megabyte hard disk version it costs around £500. Unfortunately the shop does not offer IBM stickers for sale as a separate item.

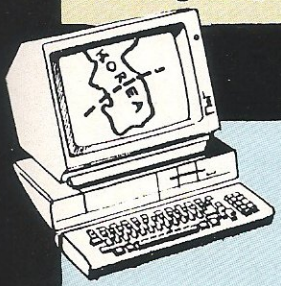
ENGLAND/HOLLAND.

Although not confirmed by the MoD (Ministry of Defence), it has been strongly rumoured that a small band of Dutch hackers managed to break into a high security computer at an RAF training base. It is believed to have happened while the kids were on a visit organised by Lincoln County Council, although it is claimed they saw nothing classified (so we are led to believe), security experts are now busy trying to find out how they did it!



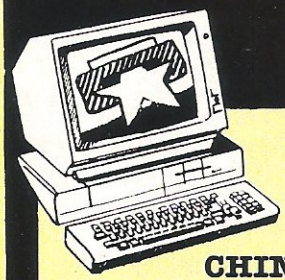
CANADA.

As a bi-lingual society, the French-Canadians, getting a little worried that one of their languages might fall into neglect. They have decided to catalogue a vast amount of data banks.....in French! This is taken so seriously that mass translations will soon be taking place to stand side by side with English.



KOREA.

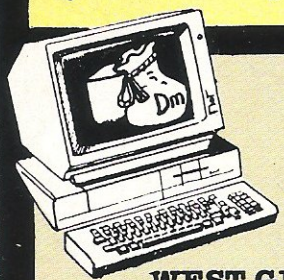
Korea, a country better known for exports of computers that are sold under many famous labels has just announced a $10M deal to import RISC (Reduced Instruction Set Computer) superminis. The computers will be distributed by well known 4WD car manufacturers, Hyundai, over three years.



CHINA

British computers companies, hopeful of being allowed to export more freely to China received a boost recently when Plasma Technologies were finally granted an export license. The delay (the saga has been going for 17 months) was due to Cocom, the NATO organisation whose rules are the restrictions for this type of export, who finally agreed to allow licenses to be granted by the individual countries.

Also in China recently, a joint venture between the Jiannan Machinery factory and the Hangzhou Magnetic Recording Development Centre has resulted in a new and amazingly thin 3.5" disk drive. Measuring only 30mm in height it is compatible with most home computers.

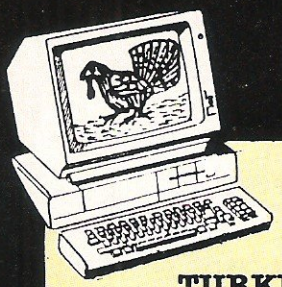


WEST GERMANY.

BASF, in an unusually competitive move have announced details of their move into the laser printer market. It is aimed at, they claim, the lower end of the mainframe market, but still the price of around £90,000 plus circa £5,500 per month seems likely to put most people's bank accounts under a little stress, a bit over the top!

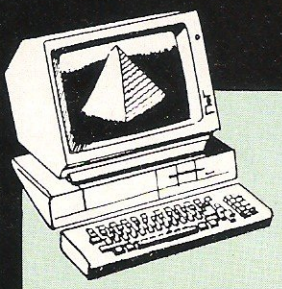
SCOTLAND.

Taking a lead against computer fraud, Scotland is to make unauthorised access to a computer a criminal offence. This will mean that any of the estimated 200 'heckers' practising in Scotland could risk an unlimited fine or 2 years in prison, upon conviction.



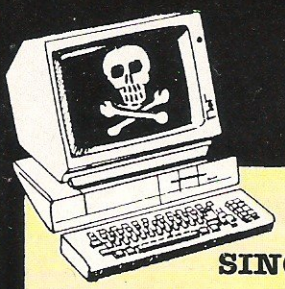
TURKEY.

Not a country normally associated with high technology, Turkey has recently signed agreements with two large British computer firms to supply them with large amounts of equipment. One order is for a £200,000 deal with the airforce, and the other a £250,000 contract to supply computers for schools.



MIDDLE EAST.

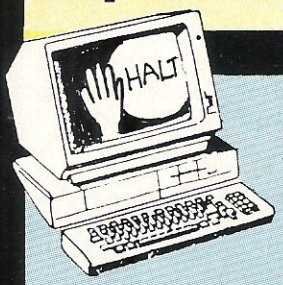
Computer users who deal with the Middle East, or who need to communicate with the Middle East will be glad to hear that you can now buy a bilingual Arabic/ English database. Costing £400, plus £45 to have a keyboard engraved, it will allow you to produce reports and letters in both languages.



SINGAPORE.

Apple have decided to increase the size of their production plant in Singapore by 55%. The plant, due to be opened in mid 1987, will have nearly 200,000 square feet of floor space!

Also in Singapore, Big Blue (alias good ol' IBM) has won a series of legal battles to stop pirates from producing copies of IBM software and manuals, at substantially lower prices.



HUNGARY

Budapest Airport - a queue of 50 or more people at the Red Something to Declare entrance. Are they preparing to pay custom's duty on scotch whisky? French perfume or Japanese cameras? No. computing equipment. Commodore computers, disk drives, perihperals. All Commodore. And there is always a queue, with boxes bearing the famous Commodore logo of red and blue.

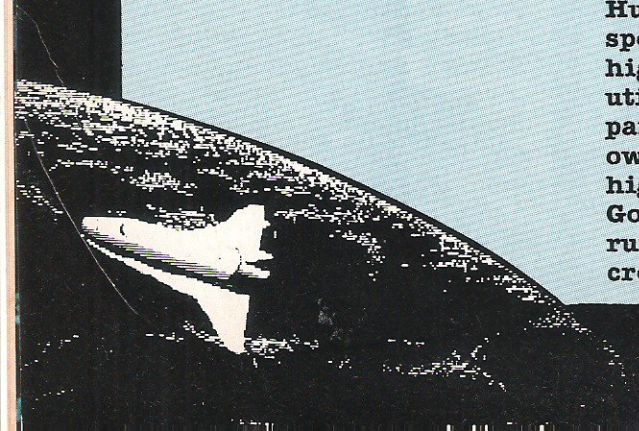
Possibly no other country has a computer scene so dominated by one manufacturer. And Hungary, in spite of the official dearth of hard currency, seems always able to find the necessary dollars to pay for its Commodore computing. There are large numbers, probably many thousands, of Commodore computers in use, and there is a constant appetite for more. When a large consignment of C16 computers was rumoured to be about to go on sale recently, the business-like Hungarians quickly turned it to commercial advantage by writing and selling thousands of copies of a C16 book even before the computers had arrived in the country!

When the C16s did get to the shops, on a Monday, they were all sold out by Tuesday afternoon and shop assistants were threatened with punishment if they sold more than one per person or held any back for special customers.

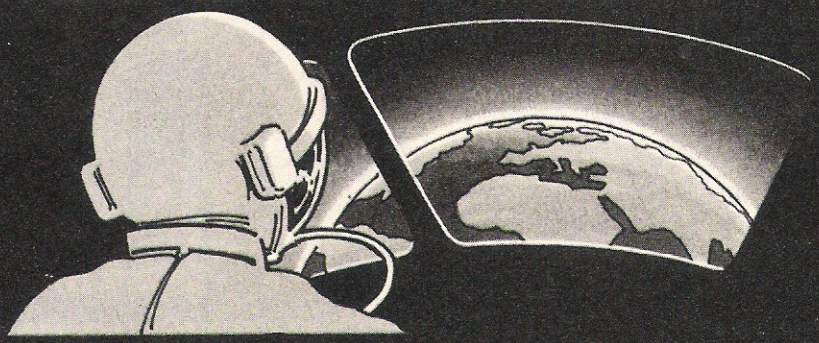
The name Andromeda is known to the well informed all over the world for the quality of its software. What many do not know is that it is a Hungarian company that specialises in creating high quality games and utilities for other companies to sell under their own labels. A certain and highly rated brand new Golf Simulation Game is rumoured to have been created in Hungary.

Another company with close Hungarian connections but operating out of the UK, is Vulcan Electronics. Vulcan specialises in exporting from and to Hungary, as well as other countries, mainly computer peripherals. Well-established, they have long been successful in developing a market for the popular products created in Hungary.

The USA places a great many restrictions on the export of computers and electronic equipment to the Eastern Bloc. There is no bar on Commodore equipment but the export of such computers as VAX or PDP 11's which the USA uses for military purposes are very positively discouraged or banned completely. However, CCI was told by a reliable source that not only does Hungary act as a gateway through which pass Commodores and other computers on their way to Russia and other Eastern Bloc countries but if you know where to go you can see PDPs and VAX computers at work in Hungary itself. There is a saying. "What a Hungarian wants, a Hungarian gets..."



EXPLORE THE EXCITING WORLD OF COMPUTER GRAPHICS WITH THE UNIQUE LOW COST

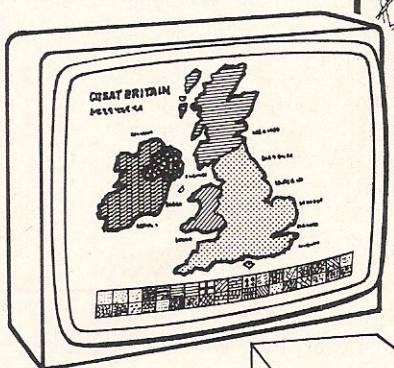


GRAFPAD 2

The Ultimate in graphic input devices for the Commodore CBM64 micro

Grafpad 2 is the first low-cost graphic tablet to expand the boundries of computer graphics for the home, business and educational user. The scope of this unique product is only limited by the imagination of the user. Create your own Games, Graphics, Illustrations, Pattern Designs, Plans, Circuit Diagrams etc. in high resolution colour. With full instructions, the Grafpad 2 is an extremely easy product to master.

- **Near A4 size drawing area**
- **High resolution colour**
- **Home, educational and business use**
- **Variety of optional programmes**
- **FREE ICON DRAWING SOFTWARE WITH EACH GRAFPAD 2**

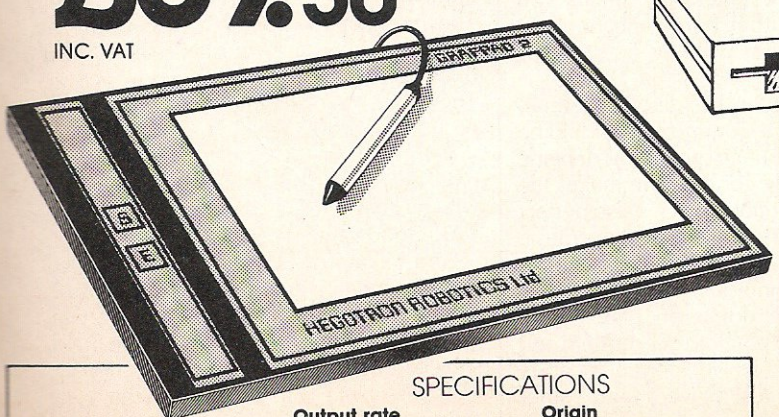


Applications include:

- **Option Selection**
- **C.A.D.**
- **Form Input**
- **PCB Design**
- **Data Collection**
- **Education**
- **Picture Creation**
- **Picture retrieval**
- **Games**
- **Construction Design**
- **Logic Design**

£59.50

INC. VAT



Available from most Computer Dealers or direct from Grafsales Ltd.

SPECIFICATIONS

Resolution
1280 × 1024 pixels

Repeatability
1 pixel

Output rate
2000 co-ordinate pairs per second

Interface
Parallel

Origin
Left-hand corner or selectable

Dimensions
350 × 260 × 12mm

TO: GRAFSALES LIMITED
Unit Q2, Penfold Works, Imperial Way, Watford, Herts. WD2 4YY.
Telephone: (0923) 43942 Telex: 946024

Please supply me with ___ GRAFPAD 2(s) for my COMMODORE Micro at £59.50 **plus** £2.50 p&p, or **plus** £10 for Datapost delivery. Please allow 28 days for delivery. **Tick** ☐ DISC or ☐ CASSETTE.

NAME: _____

ADDRESS: _____

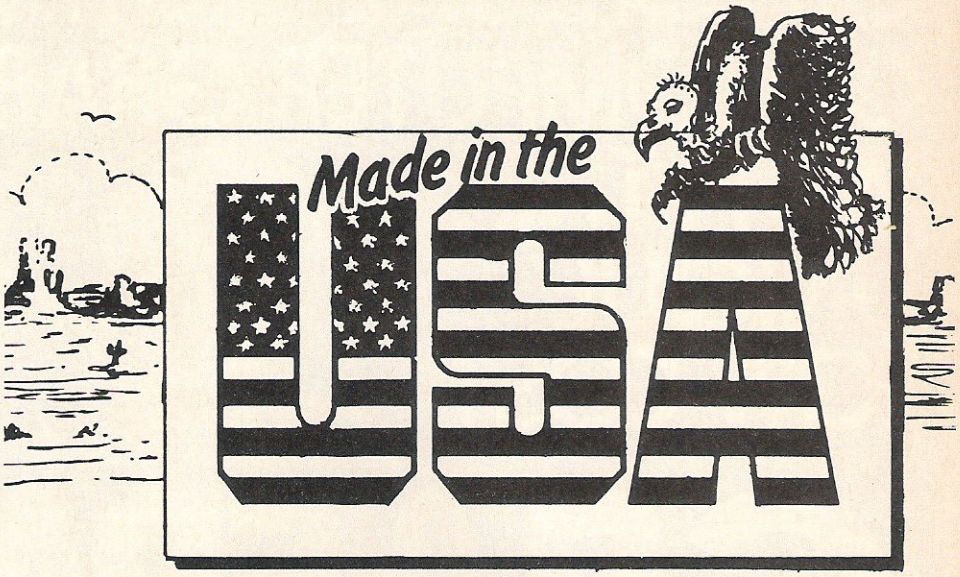
_____

_____

I enclose cheque value £ _____

If you prefer to pay by Access or Barclaycard, please state which...

BARCLAYCARD/ACCESS Card No: _____



You've got to realise how privileged you are. Top programs, and especially games, all make it juicy and fresh onto the Commodore range. But others, like Mac, Atari and the humble Apple, are often shut out in the cold or left with only the wormy core. Top 1985 games in the US were the Epyx trio, Summer Games 1 and II and Winter Games. You got a Mac? You don't get either of the Summer Games, Buster. Dad bought you on Atari? Tough. No Summer Games II or even Winter Games for you, bub! C64/128? You've got it made with S.G. I and II and W.G., It's all there for you. Just thought I'd let you know, you're up there where you belong, kid.

Two original shoo-ins out of the galloping Trimicro stable: "Ghost Town", specially created for the Plus/4, is the game for the out-of-school ghoul - or anti-ghoul. You're a graduate parapsychology student and you've got to quiet the restive spirits haunting the town of Rosedale. Eat your heart out, Ghostbusters! Aspiring 64 weather people can learn the trade with "Snowdrifts and Sunny Skies". Predict tomorrow's weather by maps, folklore, historical patterns. Get it wrong and you've frozen out Florida's orange groves. Naughty, naughty. No breakfast juice for you!

Magic Minstrel

By the way, that follow up to Wizardry, Ultima II and Electronic Arts (CCI April 1985) is called 'The Bard'. Evil wizard Mangen has cast an eternal winter spell (or did you really mess the weather up?). Monsters prowl the streets and what's worse - there's only one tavern left that serves wine ! But the Bard with his trusty harp and a few rowdy minstrel songs, he claims are magic, is ready to boogie. It costs $39.95. As you've got to help the Bard write some verses an encyclopaedia might come in right useful. When you join Commodore's quantam link communications network, you can get into one for free. Take a month's unlimited use of the Academic American Encyclopaedia by hooking up your modem – and paying your $9.95 a month sub too.

A bright idea, journalismwise, is Newsroom - from Springboard. It's a story or game design package that lets you send through a modem and the phone line, of course, an exact replica of what you've designed to anyone with a computer. Even if it's not a Commodore they'll see what you see. Yes, exactly. That's what Springboard tells us anyway.

Two of Activision's biggies are out for the AMIGA - Mindshadow and Hacker, though it seems that the conversions are not greatly bounced up from what you got on the 64.

Powerful Productivity

For the 128, Timeworks are putting out a series of what they call 'powerful productivity tools to help you keep your business (and your life) in order. Someone's been listening in to my prayers! They've got Swiftax, a menu-driven program to prepare your tax return. They don't tell you if it cheats in your favour. They have "Word Writer", an 80 column 85.000 word spelling checker, W/P system, and " Swiftfcalc" with Sidways (you heard it first in Made in USA April), which, I'am told has the features of Lotus 123. Good value for $ 69.95.

And talking of value – or rather price, now you can get an Epson warrantied Commodore printer for, how much? You guessed it, under 100 bucks! A century of smackeroos and you can dot away all your matrices. Next it'll be 'buy a piece of software and get a printer free'. Bet it won't be made in the USA though .....

Joe Gene Parris

THE COMMODORE KIDS

Even though the computer goes back decades, it has truly made a mark on our lives only in these last 11 or 12 years. So Meredith Jones Frummer and Rawson Storall qualify really as the first generation of Commodore kids. Meredith is the software reviewer for WNYC'S live children's radio show KIDS AMERICA and she is all of eleven years old. Just one year her senior is Rawson, who started writing a weekly column on technology in his hometown newspaper "The Abilene Reporter News" and is now syndicated in 20 newspapers around the U.S., He has also just signed a contract to appear on the New Tech Times, a weekly technology T.V series. That's apart from guest appearances on programs like the Johnny Carson Show and Good Morning America.

Both kids got into computerdom when they were seven or eight and have gained expertise and experience fast. Meredith for her show looks at everything from games and music to the ergonomic chairs you need to get up from hours and hours at your Commodore without a fractured sacroiliac.

She gets snarly at the idea that a mini-powerhouse like a Commodore should be used for nothing but blasting aliens or being chased by ghastly gorillas. She makes the point and very forcibly, that it's also perfect for honing maths skills, piling on the music muscle or even saving yourself writer's cramp, when 'Johnny it's homework time'!

Meredith's not down on play herself though. She's just got hold of a modem and is linking up a nationwide communication network of games players and other interested Commodoreans. It should add to her audience when her radio show goes coast to coast shortly.

Rawson, who has bought himself five computers (one for each hand ?) out of his earnings is called the Vid Kid and he is heavily into whizz-kid business ideas. He published a book two years ago called 'The Vid Kid's Book of Home Computers'. It's still selling well.

His favourite game was 'Summer Games II', but it's now been overtaken by Rachter from Mindscape (CCI reviews it in this issue, Ed.).

At 11 and 12, these Commodore Kids are sharp, articulate and clearly know where the computer world is at now and where it's likely to go tomorrow.

Sitting in front of a computer for hours on end hasn't fuzzed their brainboxes any and its certainly done both their bank balances a whole bundle of good.

Still The 1st Computer Generation...
Just 10 years ago, the first portable computer chess game was launched by Fairchild. It had real chess pieces that you had to move yourself and all it did was recommend moves you could make on an 8 digit LED. It cost $100. Who says things don't get better?

"ON TARGET..."

Gail Wellington tells CCI in an exclusive interview where Commodore stands today.

If you want hopeful indications on the future of Commodore and especially its standard-setting AMIGA, Gail Wellington is highly reassuring. She radiates confidence and infectious enthusiasm. 'We are stronger today in management and organisation.. the AMIGA? I haven't been as excited about a machine since the 64!'

With six turbulent years in Commodore behind her, she is now International Software Development Manager of Commodore Electronics Ltd, which is based in Maidenhead, a pretty town on the banks of the river Thames. Her major task, some would say a highly daunting one, is to travel the world ensuring the marvels of acknowledged Commodore expertise in hardware are quickly matched by exciting and practical software from the often, fiercely secretive and individualistic developers.

The problem is that the AMIGA does not fit in with any other machine's standard so new software must be created to exploit its outstanding capability and must be created fast. Then Commodore can penetrate the markets which it believes are as yet unexploited - markets on which, with the AMIGA, it is probably betting its whole future.

What Commodore really needs is for the AMIGA to become an industry standard but can it? 'It's got the potential' Gail Wellington declares staunchly. 'And look at the 64. That became one! Three years from now they'll be doing things with the AMIGA we can't even imagine. They are today with the 64. And now more people use Commodore DOS than any other in the world.'

And Atari, its putative competitor? What if they upgrade and equip it with a Blither board? She smiles contemptuously. 'We've got a few tricks up our sleeve. No matter what they add, they can't come close. There's a long way to go before they could catch up!' She moves up into presentation mode. 'The historical strength of Commodore is its ability in specific markets. The AMIGA will be successful in vertical markets. There are already many experts working on special features ... They understand their own needs...' she indicates that they have barely scratched the surface yet though some outstanding applications are alreaddy being demonstrated. Which? She hesitates before coming up with typesetting and broadcast animation, then laughs with delight at the memory of an animated bear conducting an orchestra she was shown recently. 'The bouncing ball? That was only a beginning! It had not been more than a part of the show. "Two drunken programmers! With three bottles of Chianti ... They were fed-up with fool questions. So they sneaked a computer up to their room and designed the ball... It could run faster or change colour... I've got a 64 version..." We tell her, with some satisfaction, CCI has one too. (See machine code this issue).

But will the AMIGA, bouncing ball and all, sell?

"A little bit of religion is involved... when people see how easy it is, how much fun, how useful for artistic, creative, non-computer literate people..." She nods with certainty.

She had better be right because Commodore without a successful AMIGA is..."Ah but we are better prepared now ... grown up as a company!" She gestures to show how the business curve turned down but is now moving upward again. 'Any rite of passage is painful... We have lots of key management who have made the transition... and lots of good new people...There is much more collaboration than before. Our international technical staff is very strong... they are pooling their resources. At the Hanover Fair recently our stand - twice the size of previous years -was manned not just by Germans, but from all over... I don't see any major differences between countries. Maybe the U.S. is six months ahead of the UK and that 6 months ahead other countries... Each country has its special strengths... Switzwerland, for example, is very close to universities; Spain is strong in assembly and manufacturing, Germany with science and industry - BMW use a Commodore to test on board instruments in their cars... No, the AMIGA won't affect sales of P.C.'s... the regular business, the corporate users, will initially still go for PC's... Commodore PC's were No.1 in sales of Clones in Germany early this year... and going well in other countries... The 128 is selling well all over too... Many people are upgrading from 64's.'

Which brings us back to her earlier enthusiasm and Commodore's greatest seller. 'Yes we will go on selling 64's. We're still producing Plus/4's too... As a company, we're stronger now and more on target than we've ever been. Yes, we still have more to do ... but I'm optimistic. Very optimistic.

Gail Wellington is a very agreeable person. She is also transparently, sincere and convincing in her confidence in the AMIGA and Commodore. If anyone is capable of persuading and cajoling international software developers into underwriting Commodore's future by betting their own costly resources on the AMIGA, then Gail Wellington is undoubtedly the person to accomplish that truly daunting but absolutely vital task.

Talking Soft and Hardware

International Software Development Manager, Gail Wellington

On the 128;

"As far as software goes, the 128 is doing very well, especially product that uses the eighty column ability. Most software houses are combining 64 and 128 programs on 'Flippies', with one computer's version on either side."

On the Amiga;

"What is difficult for us at Commodore is that we are no longer working on a machine where the conversation is about 6502 and basic, but 68000 and C.... In my view, the best software for the Amiga during 1986 will not come from America but Europe.... As far as European Amigas go, the PAL chip is ready to be shipped, and hopefully the 1.2 version operating system will be finished in time to ship during July, maybe even sooner.... Of the software that is currently available, Aegis's Animator is an excellent example of easy animation, and Electronic Arts are working on a version of Marble Madness, they say it will be the first arcade game conversion that's better than the original!. Utilities are appearing thick and fast bacause we have always made it wasy to get information on the Amiga's internals, we may not release source code, otherwise we'll always help.... Another wonderful Amiga feature is the IFF graphics format, this means setting up slide-shows with pictures of different resolutions is easy, as does joining text and graphics.... What people don't realise is the true power of the Amiga; graphics, sound AND multi-tasking, not multiple windows, but true multi-tasking."

For the software developers, a Bulletin board is being set up in the UK that will allow programmers to talk, confer and sort out problems. There will also be downloads and text files. This board will in turn be linked to a main European Board, so information can easily be exchanged.

Registered developers will also receive a monthly newsletter updating them on the current status in the Amiga software world, the first of these will be out in May and it will be dedicated to multi-tasking. As she says, hardware, including the AMIGA is always software - led...

commodore

128

If you're as **Impressed** as we are with the new **Commodore 128** computer, you'll be even more **impressed** with the new software that's available for it now! Already we're shipping **SuperBase 128** (~~£99.85~~ £64.95), **SuperScript 128** (~~£89.85~~ £69.95), **VizaWrite 128 Classic** (~~£99.85~~ £76.95), **VizaStar 128** (~~£129.95~~ £96.95) and now **Basic** and **C** compilers (**Pascal** ready soon)... so watch this space!

Commodore 128D computer	£479.95	Commodore 1570 disk drive	£184.95
128D computer + 1900M	£549.95	1901C monitor 40/80 colour	£279.95
Commodore 128 + 1570	£429.95	1900M monitor 40/80 mono	£94.95
Commodore 1571 disk drive	£259.95	RS232 or Parallel Interfaces	£29.95
Commodore 128 computer	£249.95	128/IEEE + Parallel Interface	£79.95

1 year guarantee on all Commodore products. Prices subject to availability. VAT included. Please add **£5** for **3-day delivery** or **£10** for **Datapost overnight.** Interfaces **post free.**

VIZAWRITE

Classic 128

VizaWrite Classic 128 is a much enhanced successor to the best-selling VizaWrite 64, which **THE TIMES** featured in three articles, calling it 'a creative writer's dream!' **VizaWrite Classic** is certainly the **best** wordprocessor we've yet seen on **any** computer, ever! Written specially for the 128, **VizaWrite Classic** makes maximum use of the speed, memory and 80-column display, showing your document **exactly as it will be printed...** with a **30,000** word disk dictionary, massive **55K text area**, proportional **printer support** plus **built-in NLQ fonts** for CBM/Epson type printers, easy-to-use **'pull-down'** menus, **full function** calculator, **'newspaper style'** columns, **mail merge**... and much, much more!

FANTASTIC SUMMER SAVINGS ON ALL VIZA PRODUCTS!

VizaWrite 'Classic' 128	~~99.95~~	£76.95	VizaStar 128	~~129.95~~	£96.95
VizaWrite 64 'Professional'	~~59.95~~	£49.95	VizaStar 64 XL8	~~99.95~~	£76.95
VizaWrite 64 (cartridge)	~~89.95~~	£69.95	VizaStar 64 XL4	~~79.95~~	£66.95

Superbase 64

Transform your **Commodore 64** into a full featured **professional** database system, with up to **1000** characters per record on up to **four screens**... and up to **128 items** per record, definable as **key, text, numeric, result** or **date**... in files of up to 16 million characters! **SuperBase 64** even has **calculator** and **calendar** functions, **easy input** from word processor or data files, both **menu-driven** and **program** control, **sorting** and **searching**, fully definable **report** and **screen** formats... **Superbase 64** is essential if you want the **most** from your 64! Supplied on 1541 disk with excellent tutorial and reference manual, plus **audio learning** tape...

For **C64** and **PLUS 4** ~~79.95~~ **£54.95!** For **C128** ~~99.95~~ **£64.95!**

Although we are by far the **largest UK retailer** of SuperBase, VizaStar and VizaWrite for the Commodore 64, for over **five years** we have also supported the best software for the Commodore **business** computers! So if you have a **CBM/PET 3000, 4000, 8000, 700 or PC,** then don't forget us... we haven't forgotten you! Why not phone or write for our CBM/PET catalogue, and find out all about the products listed below. (When ordering, please quote your computer & disk model number.)

VizaWrite	CBM PC	£269.00
SuperScript	8096,8296,700	115.00
SuperScript	3/4/8000	86.25
SuperBase	8096,8296,700	115.00
SuperOffice	8096,8296,700	230.00
SuperSpell	3/4/8000	37.50
Calc Result	CBM PC	316.25
Calc Result	700	258.75
Calc Result	8000	228.85

Delta	CBM PC	£569.25
DMS	3032,4032,8000	224.25
DTL Compiler	3/4/8000,700	114.43
PM96	8096,8296	69.95
96K upgrade	8032	345.00
Master	4032,8000,700	125.00
KRAM	3032,4032,8000	59.95
Command-o	4000,8000	50.00
Disk-o-pro	3000	40.00

SuperType

Are you a **two-finger** typist? Then why not let **SuperType** help you learn to **touch-type** the fast and easy way... with your **computer** as the teacher! All the family can learn this useful skill, at their **own pace**... and profit from the very latest computer-aided **training** and **feedback** techniques!

ON TAPE ~~19.95~~ **£16.95!**
ON DISK ~~25.95~~ **£21.95!**

The Anatomy of the 128

With nearly 500 information-packed pages, this is THE book to get about your new Commodore 128... the insider's guide to the secrets of this powerful computer! Fully documented ROM listings of both Basic and the Kernal... memory maps... zero-page listings... ports, interrupts, boot routines... SID, VIC, Z80 & 80-column chips... memory management... assembly code... enlarging the screen ... 640 x 200 graphics... all this & much more for only **£12.95!** (Allow 5 days delivery)

Simon's Basic (cart)	~~50.00~~	£35.00
PetSpeed 64	~~50.00~~	34.95
Oxford Pascal 64	~~49.95~~	42.95
Oxford Pascal (tape)	~~29.95~~	19.95
JetPack 64	~~39.95~~	29.95
JetPack (tape)		14.95
Super Pascal 64	~~64.95~~	59.95
Assembler/monitor 64	~~19.99~~	16.95
PowerPlan 64	~~44.99~~	38.95
Practicalc II	~~69.95~~	49.95
Master 64	~~69.00~~	39.00

Basic 128 compiler	~~49.95~~	£44.95
Super 'C' 128	~~64.95~~	59.95
SuperBase 128	~~99.95~~	64.95
SuperScript 128	~~69.95~~	69.95
Commodore Script 128		49.95
C128 Tricks & Tips (book)		12.95
SuperBase 64	~~79.95~~	54.95
SuperBase Starter 64	~~39.95~~	29.95
SuperScript 64	~~59.95~~	49.95
SuperType 64	~~25.95~~	21.95
SuperType (tape)	~~19.95~~	16.95

WANT IT TOMORROW??? CALL US TODAY!!! ON 01-546-7256

Prices include VAT and POSTAGE and are correct on going to press. Order by post or phone, using cheque, Access, Barclay/Viza or postal order. Despatch is by same day 1st CLASS post. Product data available on request, or phone for advice if in doubt. [REF A39]

Access VISA **Calco Software**

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

MEET OUR
COMMODORE
COLLECTION

QuickShot II

For C64 or VIC 20

ONLY **£7.99** POST FREE
- TOP + TRIGGER FIRE BUTTON
- AUTO FIRE MODE • EXTRA LONG LEAD
- STABILIZING SUCTION PADS
- NOW FOR THE C16

ONLY **£9.99** COMPLETE WITH INTERFACE POST FREE

SEND NOW AVAILABLE FOR IMMEDIATE DELIVERY

THE WORLD'S BEST SELLING JOYSTICK

THE ULTIMATE BACKUP CARTRIDGE IS HERE ACTION REPLAY

WILL STOP THE ACTION OF ANY GAME AND MAKE A COMPLETE BACKUP TO DISC

PLUS FAST LOADER SYSTEM Two cartridges in One!!

ONLY POST FREE **24.99**

ACTION... REPLAY

- Action Repaly takes an "Action Shot" of the whole program in memory. It does not matter how the program was loaded i.e. From tape or disc at normal or turbo speed. Therefore tape to disc or disc to disc backups are easily made. All backups will run independently of the hardware.
- **WITH BUILT IN FAST LOAD CARTRIDGE**

At the flick of a switch you have a fast loader cartridge that will not only fast load your 'Action Replay' backups but will also fast load your other software at 5 to 6 times normal disc speed

EVEN HEAVILY PROTECTED SOFTWARE!

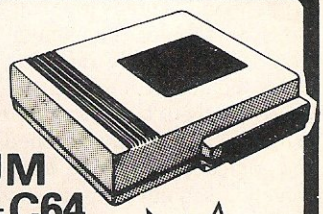
Unlike Software based backup systems the action replay cartridge is very simple to use (only one button to press) and can cope with even the best protected Software – in fact we can't find a program that action replay can't backup!!

SEND NOW FOR QUICK DELIVERY

NO NEED TO PAY MORE... THIS IS THE BEST!

If you have a C64... you need an ACTION REPLAY

COM-DRUM DIGITAL DRUM SYSTEM FOR THE C64



Now with the Com-Drum digital drum system you can produce studio quality drum rhythms with real drum sounds. All the features of systems 10 times the price.

- A Complete digitally recorded drum kit, i.e. 8 voices – kick drum, snare, tom tom, hi-hat, cymbal etc. etc. N.B. these are real drum sounds – not synthesized.
- Real time and step time sequencers. • Full editing system.
- 16 alternative voices supplied free. • More voices to be released (price to be about £5.00 for 32 voices tape or disc).
- 8 pre programmed rhythms to start you off! • External sync facility. • Very simple to use. • Line output to hi-fi/amp or through TV with optional audio TV lead (see offer).
- On-screen menus. • Stylish case. •

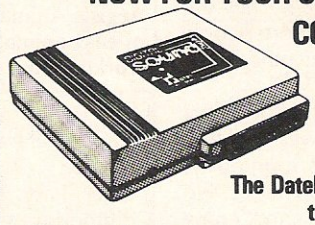
Please state tape or disc software. AVAILABLE NOW!

ONLY **£29.99** POST FREE

SPECIAL OFFER AUDIO/TV LEAD (WORTH £4) FREE!!

£9.99 ONLY POST FREE WHEN PURCHASED WITH THE SAMPLER — **COM-DRUM SOFTWARE ONLY, TO WORK WITH THE DIGITAL SOUND SAMPLER**

DIGITAL SOUND SAMPLING
NOW FOR YOUR COMMODORE 64



COMPLETE PACKAGE
£49.99
POST FREE

FREE AUDIO (TV LEAD!)

The Datel Sampler now brings you this technology at a sensible price!

- The Sampler allows you to record any sound digitally into memory and replay it instantly at any pitch, backwards, forwards, ascending scale, descending, with echo, reverb, flanging, endlessly looped etc. Truly professional hardware incorporating:
- **Full 8 bit D to A and ADC conversion.**
- Line or MIC input, line output and feedback control.

A comprehensive sofware packing including:
- A live effects menu with echo, reverb, digital delay, flanging etc.
- Full Sample editing facilities with review and on screen frequency plotting.
- **A powerful sequencer with direct input and editing.**

Available now complete hardware/software package. Complete with microphone. Please state disc or tape software required.

DEPT No. **DATEL ELECTRONICS**

USUALLY SAME DAY DESPATCH ON ALL ORDERS

SEND CHEQUES/P.O's TO:
UNITS 8/9 FENTON INDUSTRIAL ESTATE, DEWSBURY ROAD, fenton, STOKE-ON-TRENT TEL: 0782 273815

24 HR CREDIT CARD LINE

Access VISA

FOREIGN ORDERS ADD £2 POSTAGE

The 7th official Commodore computer show

Exclusive Preview

7th Official Commodore Show Information

As CCI goes to press, the big show of the Commodore year is almost here. More and more people are announcing details of exciting products they intend launching at the Novatel on May 8th/11th. A survey of the 54 companies who have so far booked into the show has revealed over 60 completely new products to be seen there.

Flying in from America to exhibit 3 new products will be major software company, Timeworks. They will unveil Wordwriter128, Swiftcalc128, and a financial planner. All these programs are enhanced to take advantage of the added memory and facilities of the 128.

Vanguard Leisure will be launching a disk version of their sucessful Chipoic 9, and a new joystick called Starblazer.

Wigmore House will be releasing 'The Aritst', a brand new art program for the 64/128; and to add a truly international flavour to the occasion, CA distribution will be over from France to show three of their new products. The Power Cartridge, the Power Products Printer, and the Power Plus - an emergency backup power supply.

A UK company, Sagesoft will be showing a variety of accounting packages for the 128 and 128D, and Supersoft will be showing a new improved Drum Machine for the 64. They will also be showing an upgrade to their Microvox sampler, and an assembler for the C16 and Plus/4.

Anirog will be showing a variety of new games including Thai Boxing for the 64 and Winter Events for the C16. Also for the C16 and Plus/4, Audiogenic will be showing Leaping Louie and Tomb of Tarabash.

On the utility side, Audiogenic will be releasing an as-yet untitled program similar to the IBM sidekick program to allow you to have programs running concurrently in the background.

Being a star-studded occasion, Rick Wakeman will be there on the Saturday and Sunday demonstrating music on the 64/128; and Mirrorsoft have promised to have Neil Dickson, star of Biggles there! CCI will be present in force with lots of prizes you can win and products for you to see and buy.

Here is an up-to-the-minute list of the companies who will be there. However, changes may be made:

Amten
Anirog
Audiogenic
Bubble Bus
CA Distribution
Cascade Games
Commodore
Compumart
Compunet
Computer Bookshop
Datastar
Direct Disk Supplies
Duckworth Publishing
EMAP
Evesham Micors
First Publishing
Gem
Gemini
Grafsales
Gultronics
HSV
ICPUG
JB Software
Leather Lane Music
Level 9
Llamasoft
Logic Sales
Martech
Microlink
Micromart
Micromedia
Micro Pro
Micronet
Mirrorsoft
Music Sales
Newsfield Publications
Palan Electronics
Pitmans Publishing
Precision
Preston Software
Robtek
Sagesoft
Secs
Softpost
Software International
Software Plus
Softworld
Supersoft
TDI
Thingi
Timeworks
Trojan
Tynesoft
Vanguard Leisure
VIZA
Wigmore House
Zone Four
3-D Digital Design

and, of course, Commodore Computing International Magazine...

DIMENSION computers ltd.

27/29 High Street
Leicester LE1 4FP
Tel: (0533) 57479

commodore

ANAGRAM BUSINESS SUITE OFFER

Originally developed for the professional range of Commodore computers, these packages have been adapted for the non-technical user to operate in plain English on the 64.

This suite is undoubtedly the most powerful, flexible, yet easy to use software of its type developed for the 64.

PURCHASE LEDGER

★ Keeps track of all invoices outstanding, with accumulated year to date information of Suppliers, Nominal Balances and VAT.
★ Prints remittance advices, and posts payment to the appropriate supplier.
★ Powerful report and summary printing facility includes Invoice Lists, Nominal Transactions, Debit Notes, Invoices Outstanding, Discounts Available, Payment Lists, Outstanding Balances, Supplier Names and Addresses List and Label Printing.

~~£75.00~~ £49.95

SALES LEDGER

★ Maintains comprehensive customer details, with invoices remaining on account until paid.
★ Trade and settlement discounts allowed for, with VAT automatically calculated on invoices and credit notes.
★ Statements generated automatically at any time, showing payments made, invoices outstanding and credit notes.
★ Report printing includes customer names and addresses, Sales list, Aged debtors, Customer balances, Payments and Discount taken lists.

~~£75.00~~ £49.95

CASH BOOK 64

★ Produces trial balance at any time.
★ Maintains file of analysis headings, with monthly and year to date totals.
★ Allows monthly budget figures for comparison with actual figures.
★ Report printing includes Cash book, Audit trail, Budget summary, Bank book, Profit and Loss/Balance Sheet, VAT analysis, and Budget performance.

~~£75.00~~ £49.95

STOCK CONTROL

★ Comprehensive Stock Information includes reference codes, description, min. stock levels, cost and selling prices and analysis codes.
★ Displays physical stock levels at any time.
★ Allows approx. 550 stock items per disc.
★ Report printing includes Stock levels and movement analysis, Inactive stock, Price lists, Sales analysis, Stocktaking list and Stock valuation analysis.

OFFER PRICE PER PACKAGE ~~£75.00~~ £49.95

PERIPHERALS

Quick Disc Plus 1541 fast-load and utilities cartridge	£19.95
Sprint 128 C64/128 centronics interface cartridge	£29.95
Final Cartridge Tape-to-disc and utilities cartridge	£45.00
Commodore MPS 803 Tractor Feed	£24.95
New Commodore 64/128 Modem	£79.95
Music Maker 128 Keyboard & Software	£29.95
Music Maker 64 Keyboard & Software	£19.95
Comdrum Digital Drum Synthesiser	£29.95
MPS 801 & 803 Printer Ribbons	£5.95
Box 10 Commodore Compatible Discs	£15.00

MICRO SIMPLEX ACCOUNTS OFFER

The most powerful yet easy to use Accounts and VAT package produced for the Commodore 64 includes the following features:

★ Analysis of Receipts ★ Profit and Loss Account ★ Current Bank and Cash Balances ★ Unpaid Bills Record ★ Quarterly VAT Record ★ Supports VAT Schemes A to F ★ 50 Expenditure Analysis Headings ★ Periodical Income and Expenditure Reports ★

Complete with comprehensive manual and optional user club membership form.

~~£172.50~~ £99.95

MS2000 MOUSE OFFER

The ultimate graphics utility for the 64/128

★ 100 points per inch resolution ★ Highly advanced software, with 16 colour selection ★ Simple to use on-screen menu ★ Hard copy to printer option ★

Tape version	~~£64.90~~	£57.95
Disc version	~~£68.40~~	£59.95

By far the best such package for the CBM64 — the hardware is excellent, the software technically stunning — DEC. PCW

The best mouse for the 64 so far — combining high standards of engineering with very clever, efficient and creative software — FEB. CCI.

VISASTAR XL8 OFFER

Visastar XL, the combined 8K cartridge and disc based Spreadsheet, Database and Graphics package is the only product of its kind produced for the 64 and 128. Selected records from the database can be transferred to the spreadsheet for calculation. Screen or printed copy can then be obtained, or using the powerful Graphic capabilities, professional Graphs, Piecharts or Three-dimensional bar charts can be produced automatically to screen or printer.

Built-in Wordprocessing commands allow 80 column messages, Text editing, Headers, Footers and page numbers to enhance reports.

VISASTAR XL8 64	~~£99.95~~	£79.95
VISASTAR XL8 128	~~£129.95~~	£99.95

VISAWRITE CLASSIC 128 OFFER

Visawrite Classic is a high performance yet easy to use Word processing program which is designed to take full advantage of the advanced features of the Commodore 128:

★ Wordwrap and text formatting as you type.
★ Built-in Spellchecker.
★ 80 column display on either colour or monochrome monitors.
★ Full function calculator.
★ Near letter quality fonts for CBM or Epson compatible printers.
★ Combines with Visastar for powerful mailmerge facility.

OFFER PRICE ~~£99.95~~ £79.95

TROJAN CAD MASTER LIGHT PEN OFFER

The Trojan Cad Master package combines a top quality light pen with superbly designed graphics software.

The extensive command menu includes freehand draw, Paint, Fill, Geometric shapes, etc., combining to create an easy to use but surprisingly comprehensive Graphics Package — undoubtedly representing the best value package of its kind.

~~£19.95~~ £16.95

PRECISION		
Superscript 64	~~£69.95~~	£49.95
Superbase 64/+4	~~£99.95~~	£59.95
Superscript 64 & Superbase 64	~~£169.90~~	£99.95
Superscript 128	~~£89.95~~	£74.95
Superbase 128	~~£99.95~~	£74.95
Superscript 128 & Superbase 128	~~£189.90~~	£134.95
COMMODORE		
Future Finance (Planning Package), Disc	~~£75.00~~	£17.95
Easyscript (Word Processor), Disc	~~£75.00~~	£24.95
Easyspell	~~£50.00~~	£19.95
Simons Basic Extension, Disc	~~£19.95~~	£12.95
Commodore 64 Programmers' Reference Guide	~~£9.95~~	£7.50
AUDIOGENIC		
Swift Spreadsheet 128, Disc	—	£24.95
Wordcraft 40 (Word Processor), Cartridge	~~£99.95~~	£24.95
Magpie (Database), Cartridge & Disc	~~£89.95~~	£24.95
HANDIC		
Easycalc (Spreadsheet), Cartridge	~~£49.95~~	£14.95
Diary, Cartridge	~~£29.95~~	£9.95
PRACTICORP		
Inventory (Stock Control Package), Disc	~~£29.95~~	£14.95
64 Doctor (Hardware Diagnostic), Disc	~~£19.95~~	£9.95
64 Pack (Unique Applications Pack), Disc	~~£14.95~~	£9.95
Practicalc II — Advanced Spreadsheet with Database/Word processing facilities, Disc	~~£69.95~~	£49.95
Logo (Educational Language), Disc	~~£34.95~~	£9.95
Practicalc (Spreadsheet), Tape	~~£39.95~~	£9.95

THE MIDLAND'S LARGEST HOME COMPUTER STORE

COMMODORE 128 OFFER

Commodore 128 Computer, Data Recorder,
Music Maker 128 Keyboard, Joystick.
Spirit of the Stones, Jack Attack, and International Football Software,
plus Box of 10 Data Cassettes

£299.95

COMMODORE 128D BUSINESS PACKAGE

Commodore 128D, Green Screen Monitor,
Citizen 120D NLQ Printer, Micro Clerk Software.

£849.95

COMMODORE 128D OFFER

Commodore 128D with built-in 1571 Disc Drive
and Green Screen Monitor.

£575.00

COMMODORE 1571 DOUBLE-SIDED DRIVE	**£269.95**
COMMODORE 1901 COLOUR MONITOR	**£299.95**
Phillips 64/128 Green Screen Monitor	£87.95
Commodore 1541 Disc Drive	£169.95
Commodore 128D	£499.95
Commodore MPS 803 Printer with Tractor Feed	£169.95
Commodore 128	£269.95
Commodore 1570 Drive	£199.95
Commodore 128 & 1570 Drive	£449.95
Commodore DPS 1101 Daisy Wheel Printer	£299.95
Commodore Compatible Data Recorder	£24.95
Currah Speech 64	£19.95
Commodore MPS 1000 CBM/Centronics Printer	£284.99
Citizen 560P 2-colour Dot Matrix Printer, Fully Commodore Compatible	£49.95

COMMODORE MUSIC SYNTHESIS PACKAGE

SOUND EXPANDER

This module, used via TV or external amplifier, uses FM chips which are significantly more powerful than the Commodore's SID chip. The eight available channels produce extremely realistic sounds, allowing complex chords and melody lines. Driven by pop-down menus, the powerful sound facilities of the expander create a viable composing tool.

£99.95

SOUND STUDIO

This powerful synthesis software contains a stored library of 60 sounds and the ability to create your own sounds via screen menus. It also contains a multi-track recording facility with powerful 6-track midi sequencer.

£14.95

5 OCTAVE KEYBOARD

Professionally-built with full-size keys to utilise the above modules.

This package represents a breakthrough in computer-controlled synthesis and compares in quality and specification with systems costing many times the price.

£79.95

COMPLETE PACKAGE PRICE £149.95

PERSONAL CALLERS AND EXPORT ENQUIRIES WELCOME.

ALL OFFERS STRICTLY SUBJECT TO AVAILABILITY.

MICRO CLERK 128

The remarkable new MICRO CLERK package represents a totally unique concept in all-in-one Business Software.

The main BOOK-KEEPING system, designed specifically for the small business/retail user, is driven with simple pull-down menus, and caters for all VAT schemes. Full Double Entry accounts are automatically produced, with the facility to view Profit/Loss summary or Bank Balance at any time. The following features are totally integrated, and can be used on screen at any time:

★ TYPING. Simple to use Word processor including Mail Merge and Calculation.
★ FILING. Card index Database with report generator for printing lists and address labels.
★ CALCULATING. Spreadsheet for Cash flow forecasts, Costings. etc.
★ JOTTER. Note-keeping facility which can be used at any time anywhere within the package.
★ Excellent Instruction Manual, and FREE 3-month Telephone Hotline support.

With MICRO CLERK's ability to cope with all these tasks at one time, this powerful yet extremely simple to use package will allow the user to cope with the majority of everyday business needs.

£99.95

MICRO CLERK 128 PURCHASE/SALES LEDGERS

These ledgers totally integrate instantly and automatically with the main package, ensuring cash book, nominal ledgers, profit & loss and balance sheets are always up to date. Full search, print, sort and mailmerge facilities of the main package can be used for report purposes.

★ Full Purchase/Sales Daybooks.
★ Flexible Invoice/Remittance Advice printing.
★ Aged Creditor/Debtor lists.
★ Customer/Supplier Statements at any time, or automatically at end of month.
★ Allows for Discounts, Part Payments, Refunds and Credit Notes.
★ Invoices inclusive or exclusive of VAT.
★ Customer/Supplier recorded by name or account number.

PURCHASE LEDGER	**£99.95**
SALES LEDGER	**£99.95**

OFFER PRICE — IF PURCHASED WITH MICRO CLERK £69.95 PER PACKAGE

Please add £1.00 towards carriage and packing on any software order.
Hardware orders add £1.00 under £60.00 value, and £5.00 over £60.00 value.
To order, either send cheque/P.O. with coupon or ring **(0533) 57479/21874** with Access/Barclaycard number.

Send to: Dept. No. CCI 5, Dimension Computers Ltd.,
27/29 High Street, Leicester LE1 4FP.

Item	Quantity	Price
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
	TOTAL	

Name: .....

Address: .....

.....

Telephone: .....

PLEASE ALLOW 7 DAYS FOR DELIVERY

C128

Professional Style Package

PaperClip

Most Commodore 64 owners will have heard of PaperClip. It is known to be a good if not very exciting word-processor. Its recent release by Ariolasoft, has changed all that, because although it is still the same 64 version, it has been comprehensively upgraded for the 128.

Before talking about the product, I must mention the protection scheme used - a dongle. This is plugged into one of the two ports (dependant on which version you are using), and allows the program to function.

As a word-processor PaperClip is excellent, but with the more professional feel of the 128's keyboard, and the extra keys, the functions that normally require a whole string of keystrokes can now be achieved with many fewer.

To be honest, I think PaperClip is a product that is only suitable for disk owners. Although it can be downloaded onto disk, this would slow the load and save time so greatly it hardly seems worth it.

On the front of its packaging, PaperClip is described as the 'Professional word-processor'. This can be interpreted in two ways; either it has a comprehensive set of functions, or it is so impossible to use that you need to have a BSc in computer science to get to grips with it. Thankfully PaperClip is the former, nearly.

Indeed, PaperClip is one of the most complete word-processors I have ever used, with some really diverse options (how many people are going to use a word-processor to set up a variable date file?). This, however, is not to say that it is difficult to use.

One thing on which I must complement Batteries Included (the American company responsible for PaperClip) is their manual, not only is it simple to understand, but they have managed to avoid the amazing monotony that you generally associate US manuals with (if you want proof just read the US Commodore manuals!).

In my view most 128 owners will not be beginners, they will either be 64 owners who have upgraded, or they will be people who have purchased the machine for a specific reason. If you are one of the above then PaperClip is a word-processor for you. It has all the functions you could possibly want (and many you won't). It has many features you will soon grow so attached to that you will be loath to lose, my particular favourite is the excellent 'form letters' options.

If you have never used a computer before, PaperClip may prove a little too much to handle, unless you are prepared to spend many hours experimenting; otherwise I can recommend this product for anyone who values a recent word-processor as highly as I do!

Contact: Ariolasoft, 68 Long Acre, Covent Garden, London WC2E 9JH. Tel: 01-836 3411.

WORDS OF WISDOM

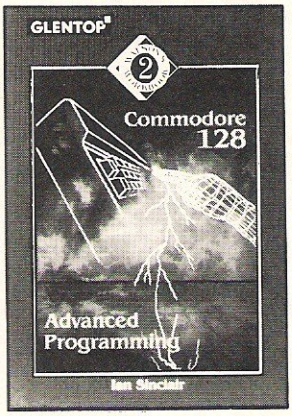
The CCI Guide to Computer Books

It is estimated that over 5000 new book titles are published every year in the U.K. alone. They cover, of course, all subjects but computing is producing a growing number of books around the world. CCI receives many requests for information on titles available. So this month we have compiled a list (to be continued in future issues) of a selection of books likely to interest owners of all Commodore computers. Happy reading!

COMMODORE 64

Title	Author	Price	Imprint	Description
INTRODUCTION TO THE C64				
Learning To Use The Commodore 64	Sinclair	£4.95	Gower	
Commodore 64 Computing	Sinclair	£5.95	Granada	
Commodore 64 Starter Book	Titus and Titus	£9.95	SAMS	
Introducing Your Commodore 64	P.K. McBride	£3.95	Longmans	
Using the Commodore 64	P. Gerrard	£9.95	Duckworth	
How To Use The Commodore 64 Computer	Willis	£4.50	Holt Saunders	
Gateway to Computing With The Commodore 64	I. Stewart	£4.95	Shiva	
Mastering the Commodore 64	Jones	£6.95	Ellis Horwood	
CHILDREN/EDUCATION				
My Commodore 64 Computer and Me	M. Solomon	£2.95	Duckworth	To help children and parents
Compute!'s Kids and The Commodore 64	Carlson	£11.95	Compute!	
Power Up! Kids' Guide To The Commodore 64	M. DeJoghe & C. Earhart	£7.95	Sybex	
Commodore 64 Whizz Kid	G. Wheelwright	£4.95	Longmans	
BASIC Is Child's Play	J. Gordon and M. Schemel	£16.95	Sybex	Age 7+
The Maths Tutor	R. Carter	£7.95	Century	
The Commodore 64 Learning Tree	Noble	£6.95	Sigma	Age 4 to 14
Commodore 64 For Kids From 8 to 80	Zabinski and Horan	£9.95	SAMS	
Beginners' Micro Guide Commodore 64	J. Inglis	£2.95	Granada	Age 7+
Micromate Series	J. Inglis		Granada	Age 7+
Facts & Figures		£1.95		
Pictures & Animation		£1.95		
Words & Word Games		£1.95		
Music & Sound Effects		£1.95		
Commodore 64 For Kids Of All Ages	Noble	£6.95	Sigma	

COMMODORE 128
Advanced Programming



The Commodore 128 can be used in three separate modes, the 128K mode is particularly attractive to the serious computer user. This book is intended for the owner who already knows the elements of programming in BASIC, and who wants to make the Commodore 128 work for its living. Because the BASIC of the 128 is so much superior to that of the older C64 model, much more can be accomplished without knowledge of machine-code, and this book fully stretches the abilities of the new BASIC. The focal point of each chapter is the application of BASIC subroutines to data processing, and to that end many very useful and original subroutines are included. You will learn, for example, how to work with pointers in BASIC, and how to speed up a string sort by the use of pointers to array members.

Whether your interest is for business or pleasure, hobby or profit, this is a book that will reward your reading and bring new perspective to your use of Commodore 128

ISBN 1-85181-034-X
PRICE £5.95

LEARNING ASSEMBLY LANGUAGE ON THE C128

A complete course with text and software, this step by step package introduces the complete beginner to 6502/8502 programming. The assembler provided with the course is especially designed for self teaching purposes so that once a basic understanding of assembly language is established, the reader can transfer to the actual Commodore built-in assembler with a minimum of effort and be free to explore the application of machine code.

The software contains a complete 8502 assembler/disassembler using Unified mnemonics, with Symbolic labels, Macros, Hard Copy, Memory Labels, and Save/load.

The assembler allows programs to be written easily in assembly language and these it translates automatically into machine code.

ISBN 1-85181-027-7
PRICES £12.50 tape or £14.50 disc.

3D GRAPHICS DRAWING BOARD FOR THE C64 AND C128

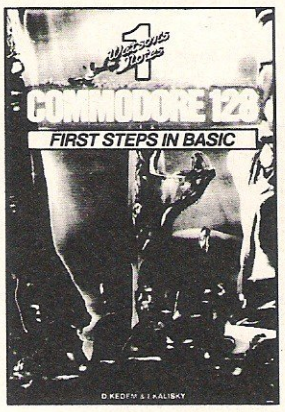
This software package allows you to create, alter and combine 3D images on the screen. This easy-to-use program is a breakthrough in graphics software – the 3D perspective images can be easily manipulated using the zoom, rotate, scale, stretch and move options. Hidden line removal adds further realism and the finished designs can be saved permanently to disc or printer.

PRICES C64 – £14.95 (disc only)
ISBN 1-85181-028-5
C128 – £14.95 (disc only)
ISBN 1-85181-029-3

WATSON'S NOTES FOR THE C128

Authors: D. Kedem & I. Kalisky

The concept of the Watson's Notes books is of a series of easy to follow units, each covering a specific area of BASIC programming. The books are aimed at younger readers, but any newcomer to computing will find that the style lends itself to clear and rapid progress through the various subject areas.



C128
Unit 1:
First Steps in BASIC £3.95

C64:
Unit 1:
First Steps in BASIC £2.95
Unit 2:
Exploring BASIC £2.95
Unit 3:
Making BASIC work £2.95
Unit 4:
Creative Graphics £3.95
Unit 5:
Sprites £3.95
Unit 6:
Concepts in Graphics £3.95

GLENTOP

PUBLISHERS ☐ LIMITED

Standfast House, Bath Place, High Street, Barnet, Herts. EN5 5XE Tel: 01-441 4130 Telex: 22828

VIC 20

Title	Author	Price	Imprint	Description
INTRODUCTION TO VIC 20				
VIC 20 Starter Book	Titus and Titus	£9.95	SAMS	
A Pocket Handbook for the VIC 20	P. Gerrard and D. Doyle	£2.95	Duckworth	
Compute!'s First Book of VIC	Compute	£11.95	Compute	

C16/PLUS 4/128

C.16 – PLUS 4

Gateway To Computing With the C.16	I. Stewart	Bk. I £4.95 Bk. II £4.95	Shiva	
Beginners' Micro Guide C. 16	J. Inglis	£2.95	Granada	
The Working C. 16	D. Lawrence	£6.95	Sunshine	
Commodore 16 Users Manual	S. Finkel & others	£11.95	SAMS	

C.128

The First C.128 Book	L. English	£9.95	First Pub.	
The Official Book for the C.128	Waite, Lafore and Volpe	£11.50	SAMS	The first and only Official Guide
Anatomy of the 1571 Disk Drive	K. Geritz	£12.95	First Pub.	

GENERAL

Computers Won't Byte	Winter and Coccione	£4.50	SAMS	A layperson's guide
Inside Your Computer	I. Sinclair	£4.95	Granada	For computer owners with no knowledge of microprocessors
Computer Terminology explained	I.D. Poole	£1.95	Babani	
The Pre-Computer Book	F.A. Wilson	£1.95	Babani	An entirely non-technical book
The Beginner's Guide To Computers and Computing	P. Gerrard	£6.95	Duckworth	
The Home Computer Book	R. Bradbeer	£6.95	Duckworth	Guide to the role of microcomputers in the home
Computers for Kids Over 60: Keeping Up With The Computer Generation	G. Kearsley and M. Furlong	£9.60	Addison	For senior citizens
An Introduction To Computer Peripherals	J.W. Penfold	£2.95	Babani	
Getting The Most From Your Printer	J.W Penfold	£2.95	Babani	
High Tech Hits HOme: A Woman's Guide to Household Computing	M.S. Hollis and J.B. Waterous	£17.95	HRW	
The Care and Feeding of your Personal Computer	R. Rafferty	£9.95	HRW	A no-nonsense guide to applications, maintenance and resources
Computer Consciousness: Surviving the Automated Eighties	N. McAlister	£7.50	Addison	An entertaning overview of the whole field of information technology for the consumer

MACHINE CODE/PROGRAMMING/ LANGUAGES

Title	Author	Price	Imprint	Description
Commodore 64 Machine Code	I. Stewart & R. Jones	£6.95	Shiva	
Commodore 64 Programming: A Hands On Approach To Basic	Hawkins	£8.75	Tab Books	
Machine Language Routines For The Commodore 64	Compute!	£12.95	Compute!	
Easy Programming For The Commodore 64	Stewart	£6.95	Holt Saunders	Basic
Compute!'s VIC and Commodore Tool Kit: BASIC	Heeb	£13.95	Compute!	
Commodore 64 Assembler Workshop	B. Smith	£6.95	Shiva	
More Than 32 BASIC Programs For The Commodore 64	Rugg, Feldman and Western Systems Group	£15.95	dilithium	
Commodore 64 Assembley Language	B. Smith	£7.95	Shiva	

Commodore 64

PERIPHERALS/UTILITIES

Compute!'s Commodore 64/128 Collection	Compute	£12.95	Compute	Games, applications & utilities
Commodore Peripherals: A User's Guide	Knott	£9.95	Holt Saunders	
Keep Track: File Manager for Personal computers C 64 & VIC	Church	£7.95	Holt Saunders	
Commodore 64 Trivia Data Base	Hunter amd Gruntle	£7.95	SAMS	Learn the fundamentals of data base management
Commodore 64 Disk Companion	M. England & D. Lawrence	£7.95	Sunshine	
Anatomy Of The 1541 Disk Drive	L. English	£8.95	First Pub.	
Compute!'s Data File Handler for the Commodore 64	B.D. Standage, J.L. Darling, K.B. Standage	£11.95	Compute	
Keep Track: Reporter	Church	£7.95	Holt Saunders	
Commodore 64 Disk Systems and Printers	I. Sinclair	£5.95	Granada	

GRAPHICS/SOUND/MUSIC

The Graphics Book	A. Plenge	£8.95	First Pub.	
Commodore 64 Book of Sound and Graphics	Simon	£8.50	Micro Press	
Graphic Art on the C 64	B. Allan	£5.95	Sunshine	
Machine Code Sound & Graphics for the Commodore 64	D. Lawrence & M. England	£6.95	Sunshine	
Commodore 64 Graphics & Sounds	T.O. Knight	£7.95	SAMS	
Sound and Sprites on your Commodore 64	Boyde Shaw	£7.95	Sigma	
Sounds and Graphics for C 64	Moore	£13.25	J. Wiley	
Sprites & Sound on the C 64	P. Gerrard	£6.95	Duckworth	
Sound Effects and Music on the Commodore 64	W. Turner & A. Vella	£6.95	Duckworth	

PET

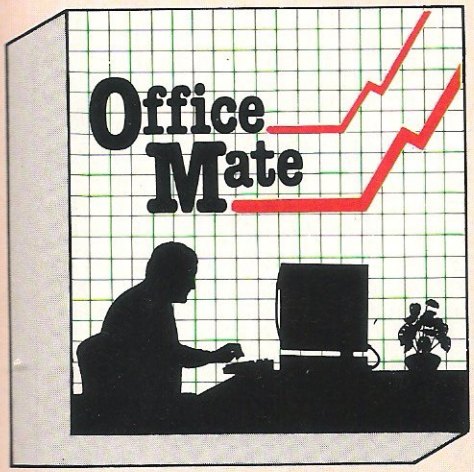
Learning To Use The PET	G. Marshall	£4.95	Gower	
A PET For Kids	Boren	£6.50	Holt Saunders	
Compute!'s First Book of PET	Compute	£11.95	Compute!	
Problem Solving in BASIC	H. Vincent	£14.95	Addison	Guide for beginners
PET/CBM Basics	David	£6.50	Holt Saunders	
Programming the PET	R. West	£18.90	Level	
32 BASIC Programs for the PET	Rugg	£15.95	Holt Saunders	

Gemini & CentreSoft PRESENT

OFFICE MATE

With over four years experience of providing practical software solutions for business and home applications, Gemini have put together a selected range of famous titles for the Commodore 64 and 128 in TWO special packs, at VERY SPECIAL prices. These super value packs contain all the serious application software you're ever likely to need for your CBM, from word processing and database management to a complete professional business accounting system. Gemini's 'OFFICE MATE' and 'OFFICE MASTER' are here now - put that computer to work!

OFFICE MASTER



Word Processor

A fully-featured word processor program with text formatting - right justification - adjustable page length - text centering - output of all or part of text to printer - selective saving - file concatenation - block move - block delete - reverse print - graphics print - double width print - sorting - left and right margin selectable - word count - search and replace.

Database

Superior file management system with features found only with packages costing much, much more. Completely user-definable data entry format - colours definable - advanced mathematics using built-in machine code expression evaluator - fast sort on numeric and string fields - extensive searching with 'wild card' capability - user-definable data summaries - simple on-screen editing. A really POWERFUL database!

Mailing List

This program will enable you to keep a record of names and addresses and then print, examine, sort and find them, all with special selection techniques. Featuring the famous Gemini 'search-key' system, you have the option of creating your own dedicated coding routines for each name on the file.
For example, on most mail systems you are only given the standard headings such as name, street, town, county, etc. but with our system, you could for example find all companies listed that have a turnover in excess of a certain figure, or all subscribers who are behind with their subscriptions, or all people eligible for a Christmas card this year! A full range of utilities is callable from the menu including, ofcourse, label printing.

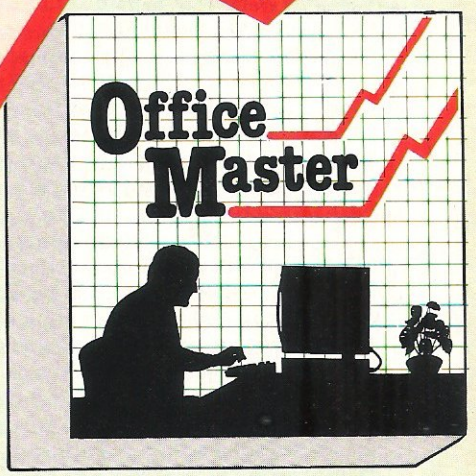
Home Accounts

Designed as a complete home accounting package, this program allows the user to set up and maintain a budget for items of household expenditure and compare actual with budget ,either numerically, or with the aid of chart graphics. A complete bank account routine is included, together with standard expenditure categories which may be changed to suit.

- Word Processor
- Database
- Mailing List
- Home Accounts
- Extensive Documentation

OFFICE MATE £12 Cassette or 1541 Disk **£15**

Step up to OFFICE MATE and save money! Usual price individually £79.80



- Database
- Mailist
- Word Processor
- Stock Control
- Cash Book
- Final Accounts
- VAT File
- Full Documentation

Database, Mailist and Word Processor as 'Office Mate' PLUS: Cash Book / Final Accounts / VAT File.

Gemini's legendary cash book system for the CBM is a complete 'stand-alone' accounting software package, already in extensive use by both accountants and their clients.

General System Overview

The Gemini cash book package for the Commodore 64/128 microcomputer is designed for a hardware system consisting of:

1. Commodore 64/128 microcomputer.
2. 80 column printer.
3. Cassette or disk data storage.

Please note that running the program on disk will not change the way that the program works, but you will have the benefit of far greater speed and reliability for the loading and saving of files that a disk system provides.
There is a total of 199 nominal accounts, a large number of which may be defined by the user. You may have up to four cash control accounts, six bank control accounts, one sales ledger and one purchase ledger control account.
The program will store a data file consisting of:

1. The account titles.
2. The current cumulative balance on each account (debit or credit).
3. The net movement on each account for every month of the year.
4. VAT net sales and net payments figures, which are automatically created and maintained by the program.

This same data file is used by the FINAL ACCOUNTS program. The 'VAT FILE' which accompanies this package is designed primarily for those users on the Retailers special VAT schemes.
The main features of the CASH BOOK program are as follows:

1. Double entry routines for transactions through the cash/bank accounts and sales/purchase ledger control accounts.
2. Journal facility for the initial set up of accounts, or for adjustments to any of the accounts.
3. The facility to produce the following screened or printed reports:

(a) Listing of all the nominal account titles.
(b) Monthly transaction summaries.
(c) A trial balance whenever required.
(d) Screen VAT memo account balances (sales/net purchases, and VAT accounts).
(e) A batch printing facility which provides details of all the transactions entered in the current run of the program.

4. The facility to extract regular management information such as cash/bank balances, debtors and creditors, sales, overheads, etc.
5. The program interfaces with the Gemini FINAL - ACCOUNTS program to enable Trading and Profit and Loss accounts and Balance Sheet to be produced whenever required. Comparative or budget figures can be shown alongside the actual figures using this program.
6. Screen prompts throughout the program to facilitate ease of use.
7. Storage of VAT information to assist in the preparation of periodic VAT returns.
8. Error trapping routines to minimise input errors.
9. The facility to handle the financial transactions of sole traders, partnerships, limited companies, clubs, etc.

Users registered for VAT are reminded that it is a statutory requirement to inform their local VAT office when they change their accounting records on to a new computerised accounting system.

OFFICE MASTER £25 Cassette or 1541 Disk

Dealers please note that 'Office Mate' and 'Office Master' now available also on BBC, Electron, and Spectrum.

MAIL ORDER TO:

Gemini Marketing Limited, 'Gemini House', Dinan Way Trading Estate, Exmouth, EX8 4RS.

Please send me ____ CBM 64/128 'Office Mate' packs @ £12 (Disk £15)

Please send me ____ CBM 64/128 'Office Master' packs @ £25 Cassette / Disk (please delete as necessary)

Cheque / P.O.s enclosed to value £ ____
or please debit my Access/Amex No. ____

Name: ____

Address: ____

Signature: ____

CCI 5

24 HOUR CREDIT CARD HOT LINE (0395) 265165 (4 lines)

Trade and overseas enquiries welcome

Sole distributors to the trade:
CentreSoft Ltd. Tel. 021-359-3020

WRITE YOUR OWN GAMES

Oasis Software have established a reputation for themselves as writers of excellent Utility software. Their White Lightning games writing package was awarded the "utility of the Year" accolade by the CTA and was joint winner of the Sunday Times/ Thames TV "Software of the Year" award. Several successful commercial games are known to have been written using one or other of the Lightning programs – Basic Lightning and Machine being the others.

Oasis have recently entered into an agreement with Ocean Software for the distribution of their products. The new company, called Ocean IQ, has now launched its first products for the 64. Laser Basic is a development of Basic Lightning – essentially an extended BASIC which is intended as a games writing tool. Laser Compiler is just that – it compiles Basic programs into machine code, thereby speeding things up.

Laser Basic

The Laser Basic package consists of a disk (or tape) and a 220-page manual printed on red paper (to foil anyone who might want to photocopy it – not a bad idea, since a pirated disk without the instructions is pretty useless. I wonder how colour-blind purchasers will feel?). In addition to the Interpreter there is a separate Sprite Generator program, a lengthy demonstration and three Sprite Libraries.

Laser Basic was written primarily with video games in mind, although the 250+ extra commands available will make most types of program easier to write. The new commands fall into four categories, namely Structured Programming commands, Toolkit commands, Graphics commands and Sound commands.

The Structured programming commands include IF-THEN-ELSE; REPEAT-UNTIL; CIF-CELSE-CEND; Labels; WHILE-WEND; CASE-OF-CASEND; Procedures. These all help to eliminate the dreaded GOTO, making life far less complicated for all concerned.

Toolkit commands include the facility to use hexadecimal numbers in Basic programs; HEX$, a handy little command which returns the hex value of a decimal number; DEEK and DOKE; DLOAD and DSAVE to access a single disk drive (device 8) without specifying the device number; automatic line numbering; renumbering; DIR to list the disk directory without overwriting your program and OLD for any idiot who might accidentally enter NEW without saving his or her program. The Commodore abbreviated commands are dispensed with and a new set introduced – all commands can be entered by the use of the first two letters and full stop. Listings are improved enormously – all keywords are in capitals while other text is in lower case and the conditional loops are indented. The caps/lower case feature can be turned off if necessary for printing out listings.

"No Tedious Pokes"

By far the greatest part of the manual is taken up with the explanation of all the new graphics commands. Laser Basic allows up to 254 "software sprites" to be defined and manipulated. These can be up to 255 x 255 pixels and are in addition to the machine's own "hardware sprites". All five of the C64's display modes can be accessed from Laser Basic, windows can be created, smooth scrolling can be implemented.. Suffice it to say that virtually every graphics facility you are likely to want is available direct from Basic – no tedious POKES or referring to memory maps.

V2 Basic was designed to make programming the SID chip as difficult as possible. Laser Basic makes it – well, not exactly easy – but a lot more straightforward. Volume, waveform, envelope, frequency and a number of other effects are accessible direct from Basic. Strange really that the extensive demo program supplied is completely silent!

Sprite Generator

The second part of the Laser package is a comprehensive Sprite Generator program. This is loaded separately from the Interpreter and suffice it to record that the instructions for its use take up 26 pages of the manual. Anything you might want to do to a sprite can be done from this program. I found it rather complicated but I'm sure familiarity with the software would improve this aspect. Three Sprite libraries are also included and the publishers generously invite their customers to make full use of them.

"Favourable Impresions"

My impressions of the Laser Basic program were all favourable. Regrettably, the same cannot be said for the manual. Red paper I can get used to (and I fully understand and appreciate the thinking behind that aspect of it) but I did find the explanations of some of the functions a little peremptory to say the least. Okay, I'm not the world's greatest Basic Programmer and the manual does point out on page 3 that one is expected to be proficient in V2 (wouldn't the outside of the box have been more appropriate?) but surely even expert programmers would have found an index useful. And, while I'm moaning, hasn't anybody told Ocean about spiral binding? The Laser Basic manual is of the conventional glued spine type found on most paperbacks. These are quite adequate if you're sitting having a read but useless if you're using both hands to operate a keyboard.

Despite my reservations about the documentation, I wholeheartedly recommend this package to any competent programmer who wants to write video games. At fifteen quid for the tape version or twenty for the disk it's a snip. And if you do write a bestseller with it, it won't cost you anything to give Ocean IQ a plug on the label – after all, they'll haved saved you a lot of work!

Laser Compiler

The Compiler is sold separately from the rest of the Laser package. It will compile standard Commodore Basic or Laser Basic into a form of machine code which makes your programs run faster and take up less space in the machine.

Whoever wrote the blurb for the package went a little over the top when describing the compiled results as "blisteringly fast" but then copywriters will be copywriters. Two silly little programs that I compiled ran 27% and 44% faster than the original Basic. Another compiler that I used on the same programs achieved 60% and 78% improvements respectively. The other compiler didn't work with Laser Basic though!

The lengthy demonstration included with the package certainly showed a marked improvement in compiled form, so it's probably worth the twenty or twenty-five quid investment to smarten up your bestseller.

"Handy Turbo SAVE"

A turbo SAVE utility is included which it is claimed will save programs to tape at seven times normal speed – handy!

The manual provided with the Compiler is a mere seven pages long but the type is smaller than the Basic manual. The program is menu-driven so lengthy explanations are unneccesary anyway, although there are a few tips on what not to try and compile. The paper's red!

Conclusions

If Laser Basic doesn't repeat the success of White Lightning it'll probably be because the judges don't want to appear to be repeating themselves. I hope the Editor lets me see other Ocean IQ software as it's released (nudge, nudge).

Contact: Ocean IQ, 6 Central Street, Manchester M2 5NS.
Tel: 061-832 6633

Ian Bennet

SUPERIOR SIMULATIONS

In the US there are three really BIG home computer software suppliers Electonic Arts, Activision and thirdly, Microprose. Yet for some reason Microprose, a company that can turn over between $6 and $10 million per year in America has yet to make a real impact in the U.K.

Microprose president, and co-founder, Bill Stealey was recently in London, so I took the opportunity to quiz him on his company their new product, and what he saw in the future.

Microprose is a company that likes to produce a few good titles a year.

This way they have become acknowledged as producing the best simulation software available with products such as Solo Flight F-15 Strike Eagle, and Kennedy Approach. All have been products of really high quality , but the UK buying public was too interested in shoot-em-ups to spend some time learning the intricacies of products such as these.

Now however Bill feels the time is right to move Microprose are setting up in the UK with the conviction that they can increase public awareness more on their own. To back this new push, they have launched two new products; Acro Jet and Silent Service.

"Stunning, Smooth and Fast"

Acro Jet is a stunning new flight simulator based on a small stunt jet. Not only are the 3-D graphics smooth and fast, but the game involves testing your flying to the skill in a plane well known for its instability.

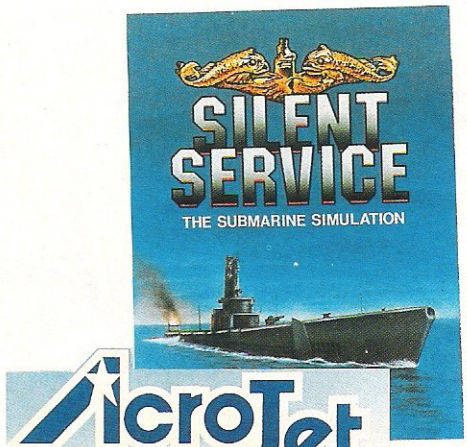
To increase general popularity, Microprose have included a variety of events to see how good you really are ribbon cuts, spot landings and other stunning acrobatics.

What makes this game so good is that, is that if you want to, you can play for 10 or 15 minutes. However you can also sit down and play for hours at a time. If you want a game to tax a little more than your joystick waggling abilities. I recommend this whole heartedly. It's one of the best simulators I have ever seen, and certainly the most playable.

Silent Service is the second release. It places you as the Commander of a WW11 american sub, and presents you with all the decisions and difficulties associated with a position of this power.

"Excellent Representation"

Programmed by Sid Meier, Bill's co-founder, Silent Service gives you the brief to patrol the Pacific, attacking and sinking any Japanese shipping. Again the graphics are excellent, with different screens representing the actions you are taking. The Conning tower is especially good, with some excellent representation.



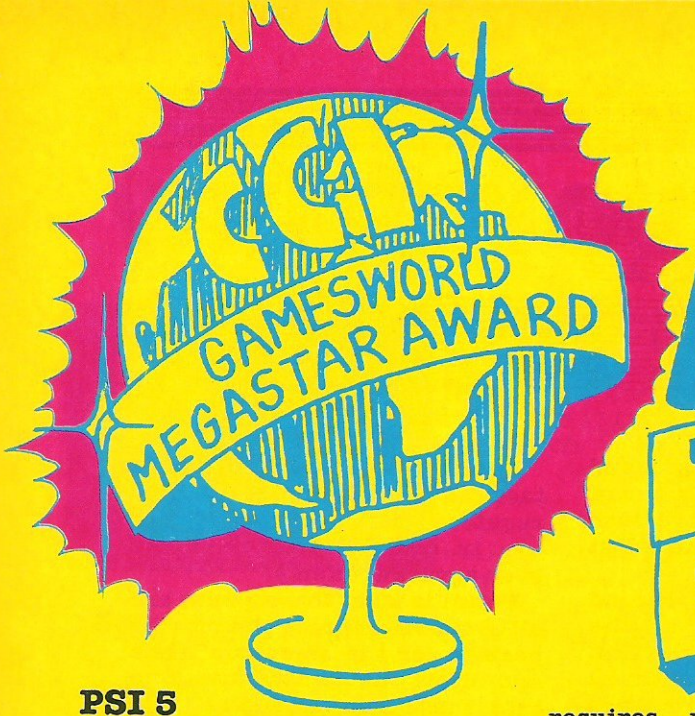
Again this game is not just a tactical simulation, you are required to use skill of an gunner too, in order to deal with the ever-apparent enemy.

Detail is what these games are all about Microprose can only be praised for the amount of time and effort that must have gone into these two products. Its a nice change to meet a President who really cares about his product as well as his bank balance.

In the future, Microprose will continue to release high quality simultanion/strategy games and as the market realises how much these games can provide, I see them becoming a real force in the UK. Perhaps the two releases that will cause most stir are Gun Ship and Conflict in Vietnam. Gun Ship is a true 3-D helicopter simulation that promises to have some of the best landscape and enemy graphics ever.

Conflict in Vietnam is a little different. It is based on the five most important battles of the Vietnam period, and suprisingly it also allows you to choose which side you want to play, US, France or the Viet Cong, written by someone whose brother-in-law died in action, it promises to provide a interesting and educational simulation.

Microprose do not pretend to sell arcade clones, they like to think their games are more than that, and from what I've seen recently, I agreed.



Psi 5 TRADING COMPANY

PSI 5 TRADING COMPANY

When I was first shown the demo disks of Accolade products, I was immediately struck by the outstanding quality of the graphics, and the general polished look of the games. Indeed, when the finished product arrived in the office, I was overjoyed that at least one of the games, Hardball, was even better than my expectations.

It was with glee therefore that I welcomed the arrival of Psi 5, the latest release from Accolade. Going by what I had heard about the game, it seemed to be an Elite-clone, but with more cartoon-like graphics. On examination it became obvious that the game was more of a graphics example, with various built in options to allow "user-interaction".

At the start of the game you must choose your crew, something that requires practice as certain members really are a pain! As Captain of the PSI 5 Trading Company, you must try and get all your cargo to its destination succesfully.

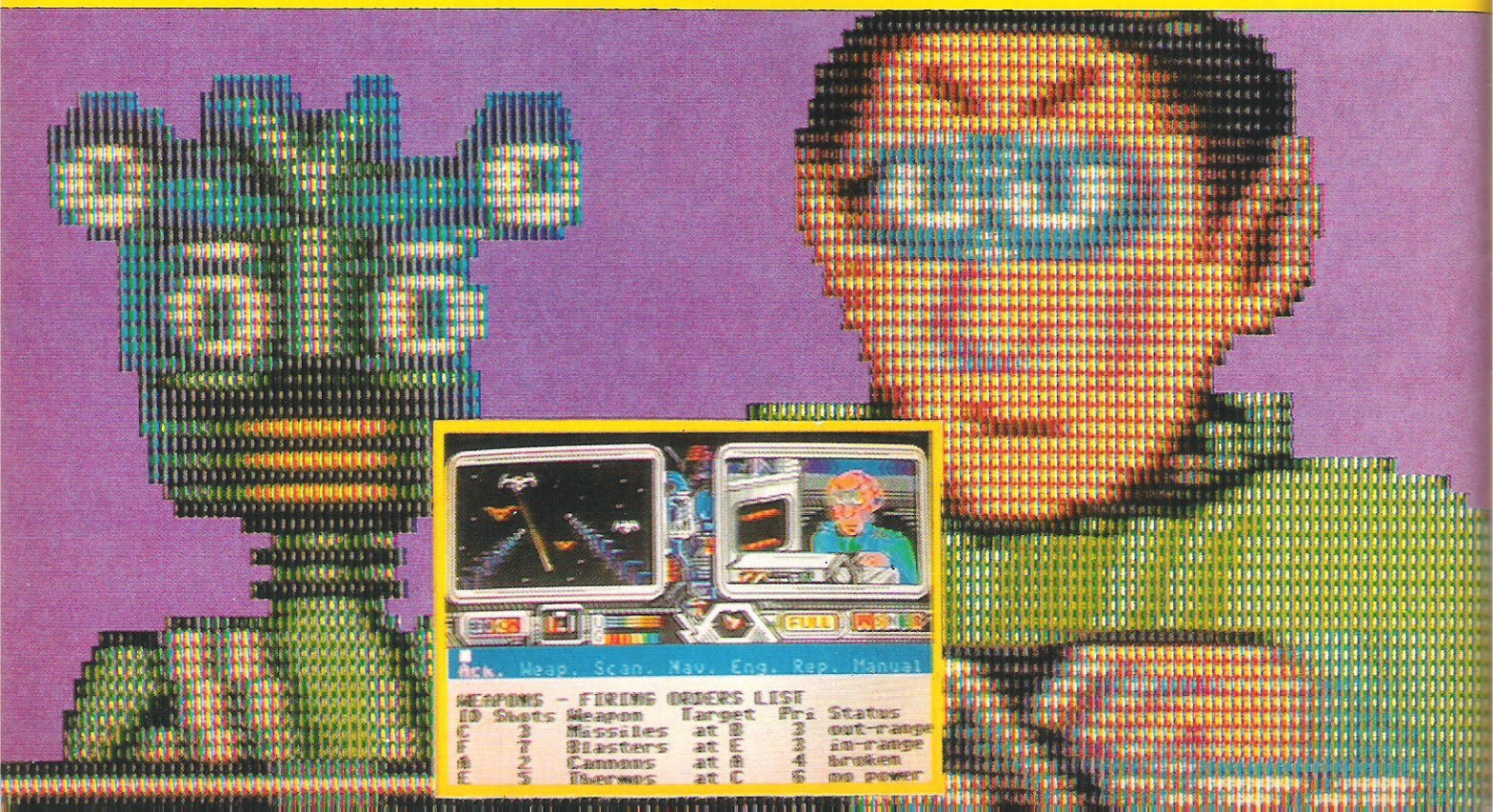
Depending on which of the three missions you decide to take, you will be rewarded with differing amounts of money, ranging from $12M to $50M. Musically too, PSI 5 is good, with a random but really good tune, and some effective (if a little repetitive) sound effects also add to the game.

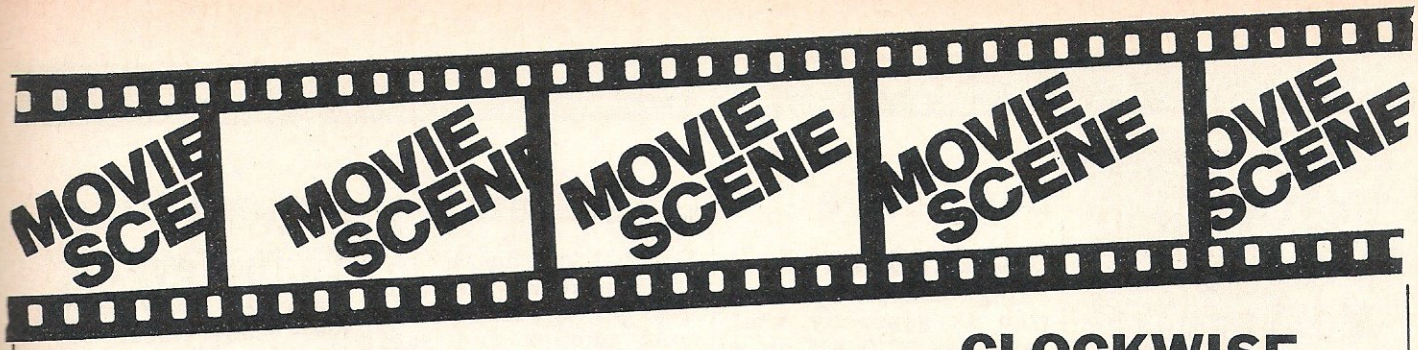
Overall PSI 5 is a very innovative game. The animation is superb, and given a little practice the game really becomes very involving. Being a US Gold release, I can't really see it failing, but anyway, it gets my vote!

Graphically the game is superb, no question! The screen is split into three different areas – the top right shows the member of crew with whom you are currently dealing, the bottom half of the screen shows you various pieces of information such as conversations and damage. The top left shows a moving picture of the direction you are travelling in both front and rear view.

Price:	£9.95 cassette, £14.95 disk.
Graphics:	*****
Sound:	****
Playability:	****
CCI Rating:	MEGA

Contact: US Gold, Unit 10 The Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY. Tel: 021-359 4327.





Colin with Crêpe - attempting to toss his favourite pancake perhaps?

ABSOLUTE BEGINNERS (15)

It's the youth we all wish we'd had. Teenagers are at the top of the feudal pile, lording it over their adult serfs.. Colin, the photographic whizzkid played by Eddie O' Connell, weaves through the steamy Soho nightlife populated by svelte socialites; flash, tough and as cool as the music they play. Character like Wiz, the Judas hero hustling the steets for his 30 pieces of silver. They head the pride of young, streetwise lions... and we all know what pride comes before. The teenage dream is soon soured by violence, racism and rioting.

But a word of warning to disciples of the novel... don't expect Colin MacInnes with the sound turned up. Part of the book's allure is its scopophilic view of the wide and varied panorama of 50's London with its hip teenage sub-culture. However, director Julien Temple has brought "Absolute Beginners" down to absolute basics - hardly a surprise given his past success in making music videos with their demand for speed and impact. Distil the novel and what should remain is the essence, but unfortunately we've also been left with some of the dregs.

The novel's narrative is sharp and acidic - it is gloves off and talons out. But here someone, somewhere has been distinctly myopic and in smoothing the rough edges there's more caricature than character, more camp than Butlins and a definite sense of sacrificing content for the sake of style. And in this, they've succeeded, dynamically. At least "Absolute Beginners" is a pastiche with panache - the dancing and some of the wonderful cameos create a colourful, energetic mixture and the filmakers could almost be granted absolution (almost) for the soundtrack alone, an excellent fusion of artists ranging from Sade and Gil Evans to the Style Council and Smiley Culture.

"Absolute Beginners" could quite easily become everyone's favourite trivial pursuit.

S.G.

D.A.R.Y.L (PG)

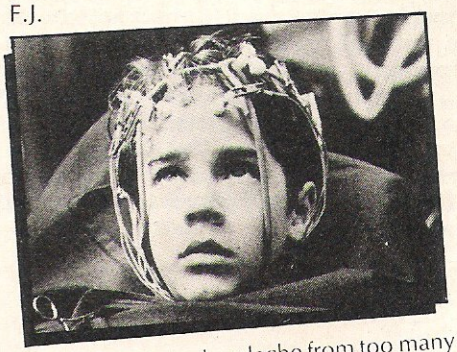
Daryl is a very sweet looking ten year old boy who lives very happily with his adopted parents. One day, however everything changes!

Whilst playing in the Little League Baseball team, Daryl hits a 'homer', and duly his picture appears on the front of the local paper. This is where the trouble starts. Having seen his picture in the paper, Daryl's real parents come to reclaim their long lost son, but are they totally genuine?

Well, as everyone guesses, they're not! they are in fact working for the Pentagon, and, as well as being brilliant at baseball, it turns out that Daryl's computing power is America's newest and best secret weapon. In a truly Spielbergesque way we are then led through a sequence of events that might carry the boy back to safety. But will it?

As long as you don't want to see a briliantly acted film, with 29 Oscars to its name, Daryl is fun, fast and at times furious. If you or your children are aged between 7 and 15, this is a film that is guaranteed to bring a smile to most peoples faces! The FX are pretty spectacular too! And it seems to make the valid point that we should not so much for technology but the people who control it.

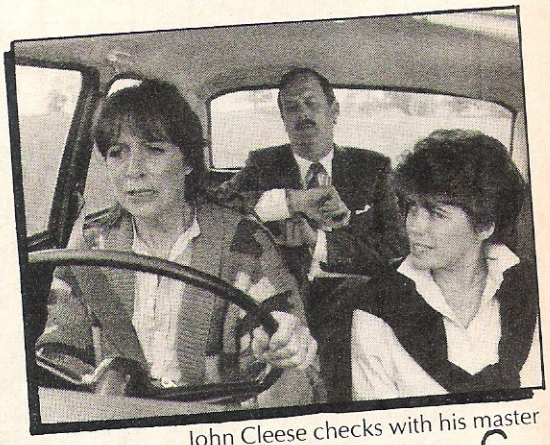
F.J.



D.A.R.Y.L. has a headache from too many chips

CLOCKWISE (PG)

Time, you thief... Glinting out of the neurotically staring eyes of the school headmaster played by John Cleese in Clockwise, is the fear that his whole life will be kidnapped by chaos if the chronographic order he imposes on it is allowed to miss by even a minute. For confirmation that he is in control, his gaze constantly darts to the digital dictator on his wrist. A pupil late or a minor accident will not just upset his time-table, but threaten his tenuous hold on sanity. "Clockwise" (he certainly isn't!) puts him on the path to incident-strewn disaster as he sets off to make a speech as the first headmaster of a state school to be chairman of the up-market Association of Headmasters.



John Cleese checks with his master

A moments inattention and he's on the wrong train, his speech speeding off in another direction. He coerces a girl pupil into driving him, his wife suspects a love affair. Pursued by the girl's parents, his wife, assorted policemen and others, his rigid character and self-confidence gradually crack and crumble as time dodges tantalizingly out of reach.

This is a cruelly funny, frequently hilarious film. Cleese tries to avoid "Fawlty Towers" references but his awkward body – he runs like a stick insect on crutches – and his mad mock-military determination to slaughter time, the infuriating enemy that surrounds him – like a bear swiping at bees – inevitably bring back delighted memories of the awful Basil Fawlty. And why not? Clockwise is based on the same idea. Take an absurd outsider – say a bullying smalltime hotelier or a time-tunnel visioned headmaster – and clobber and humiliate and defeat him. But that's comedy, that's what makes us roll in the aisles, it's what the famous British sense of humour finds hilariously funny, isn't it?

A.J.

Felix Says..... Well well well! Who said I'd never last! Here I am again and if you promise not to tell, I've got some tales for you!!

Ode Ear!

So farewell then,
Sue Pearce,
Ex-Editor,
You have departed,
To 'The Job'.
Funny,
That's what you
did at CCI,
A job! Well
sometimes!

F.J. Aged 12

SuperStore Superstars!

Being the sort of the cat who is generally well asleep at 9.30 AM on a Saturday, it was a great effort for me to get up and watch Activision's Andrew Wright on TV. However last week the news was revealed that neither he, nor Hugh Rees-Parnell won the Search For A Superstar! PA! I have written to the BBC in disgust!

I didn't pay my £58 to see some little girl talking about love at 8.5, I read the Sun for that!

Modesty please!

Whilst glancing at a rival (what? we have no rivals! Ed). magazine recently I noticed that the front cover consisted of a certain software editor in various poses, mostly verging on the obscene. Having telephoned a certain assistant editor to register my complaint I have yet to see a published apology! Well Gazza?

Oops, again.

Not that long ago, a copy of Superbowl arrived, then 4 hours later, someone phoned and said "you can't review it, it's got a bug", so we didn't. When we got a finished copy, we reviewed it (this month), one magazine in particular must have been most upset, having given their front cover to it!

Bye Bye Clive!

So, Sinclair is no longer. Alas. Farewell. Arise Lord Sugar (sounds a bit odd eh?). Cheap at the price. Too. Commodore next? I hope not. Otherwise I'm in trouble!

Tee for few

Next issue I'll be able to bring you many details on Ariolasoft's Golf Construction Set, as by that time I'll have been to Wentworth for the official release. It appears that many Hacks and Hackettes are to be allowed to attack that precious turf, all for the sake of realism!

Better Late Than Never?

Well, only a few months after it was due, V rolled into the office recently. Having loaded it, we spent half an hour trying desperately to understand it. The instructions leaving a lot to the imagination! More on this nut next month.

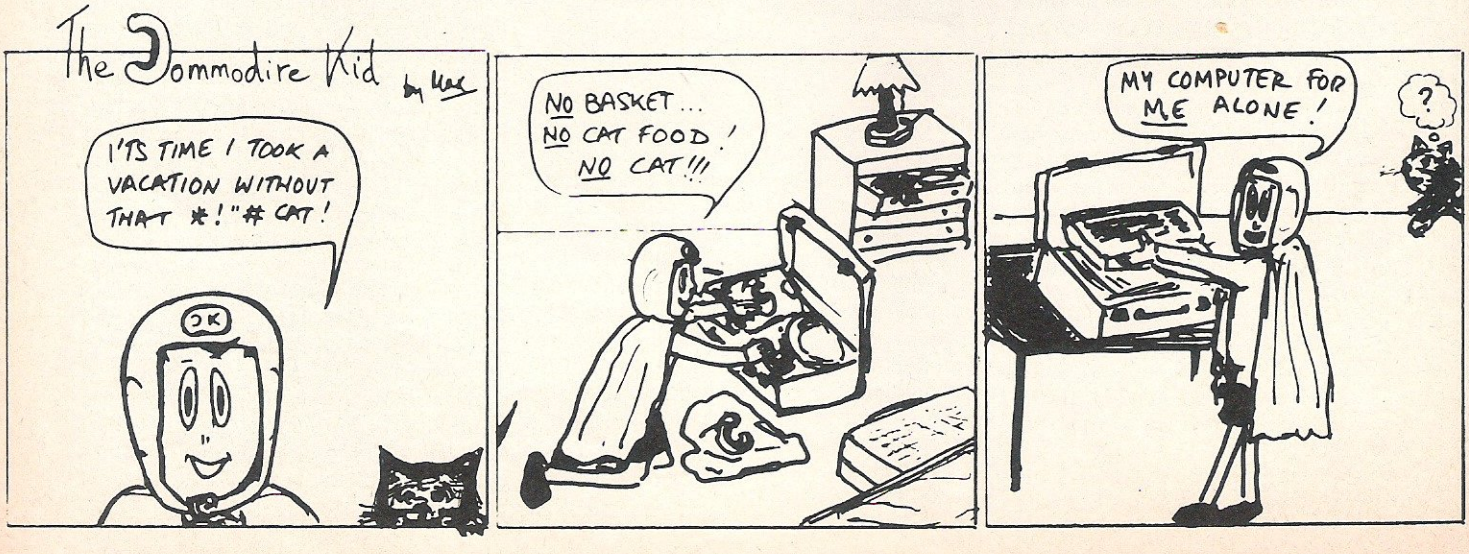
By the way, anyone seen Knight Rider?

More goodbyes...

As if saying goodbye to Sinclair and our Ed all in one month wasn't enough, I've just been informed that Monolith, the label that released such excelent tapes as Boulderdash/Rockford's Riot, is no more.. Ahhhh. All future releases will be under the Beyond Label.

Power to the people.

With five new cartridges being released every week, programmers who



have yet to buy one will welcome this new one. Called the Power Cartridge it is bright red and pretty excellent to say the least, more next month. One last thing, in Holland they say it is outselling the Final Cartridge, easily!

Lies, damned lies, and...

A while back I telephoned Commodore about a reliable rumour that the Amiga's price was to be dropped by over $500. At the end of the phone I was told "No, I haven't heard anything, and I'm sure WE would have been told", obviously not, very recently a $500 price drop was announced....!

Rain Byrne.

Rainbird, one of the wings (geddit!) of BT's software bit, have recently aquired Paula Byrne as their Marketing person. Having only recently left Melbourne House where she enjoyed many successful years. I wish her all the best in her new position.

Updates.

O.K, this is going to be a really speedy run down of what games are coming, and in what state they are.... Firebird's Empire (a sort of 2-D Elite) is very nearly ready, Bounces by Beyond should be released any day, Starquake by Bubble Bus is finished, Titanic by Activision is nearly ready, and thats all I can think of at the moment.

Going Underground.

Best Bulletin Board award must go to The London Underground. Recently it as set up on a new PC using FIDO software and is now fast as well as really interesting. Recently a Commodore section has been set up by a brilliant young man nick-named 'Mack the-Hack'. The Underground can be reached on 01-863 0198, anytime!

That's all for this month folks, next month there'll be an exciting competition in which you can win some truly magic prizes. Byeeeeeeeee! from the world's most famous cat, FELIX!

(And stop calling me Shirley!) Cont page 94.

GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK

Now FINGER TIP CONTROL IS WITHIN YOUR GRASP.

A totally new design gives instant response to your command movements.

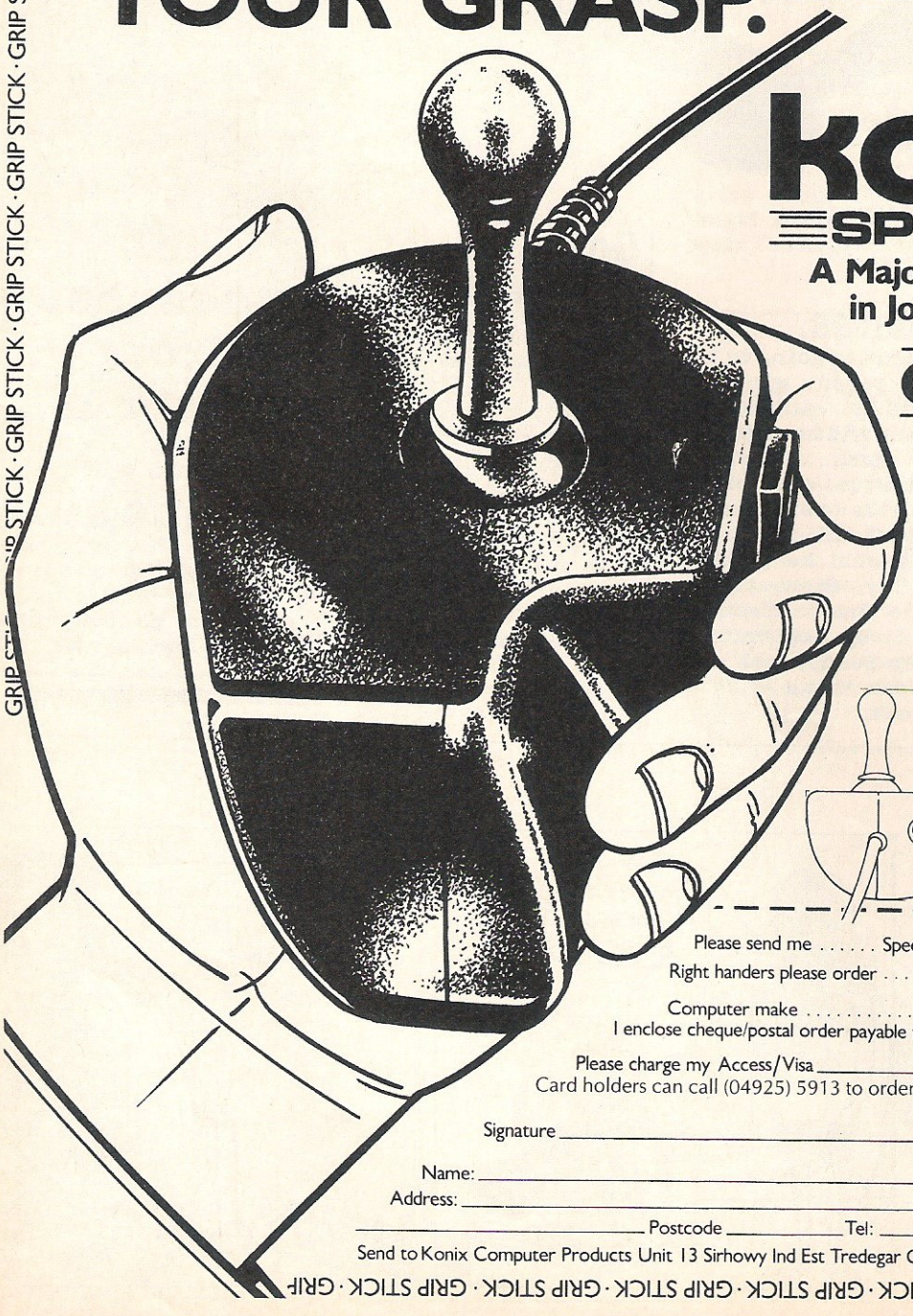
Up to now Joysticks of the Speedking quality are priced at £20 and over. The Speedking is microswitch based, and costs only **£12.99, £14.99** for BBC & DRAGON machines.

Designed to fit your hand, not the table top, meaning comfort during the longest of games.

GUARANTEED for Twelve Months.

Available for Spectrum 48K and Plus Commodore 64, 128 and Vic 20 Atari, Electron, Amstrad, BBC and Dragon machines.

Available in left and right handed models.



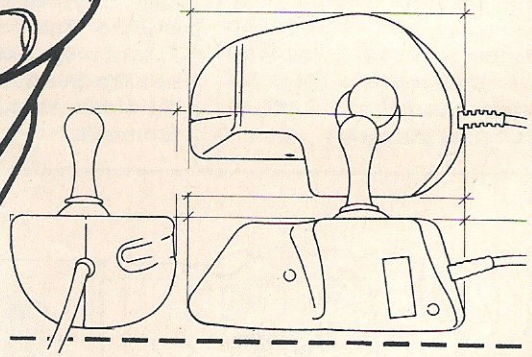
konix SPEEDKING

A Major Breakthrough in Joystick Design

ONLY £12.99

Trade and export enquiries
contact David or Wayne
on **(04925) 5913**

Konix Computer Products is a trading name of Creative Devices Research Ltd.



Please send me ..... Speedking(s) at £12.99 each

Right handers please order ..... right handed model ☐

Computer make ..... left handed ☐

I enclose cheque/postal order payable to KONIX

Please charge my Access/Visa _____

Card holders can call (04925) 5913 to order.

Signature _____

Name: _____

Address: _____

_____ Postcode _____ Tel: _____

CCI6

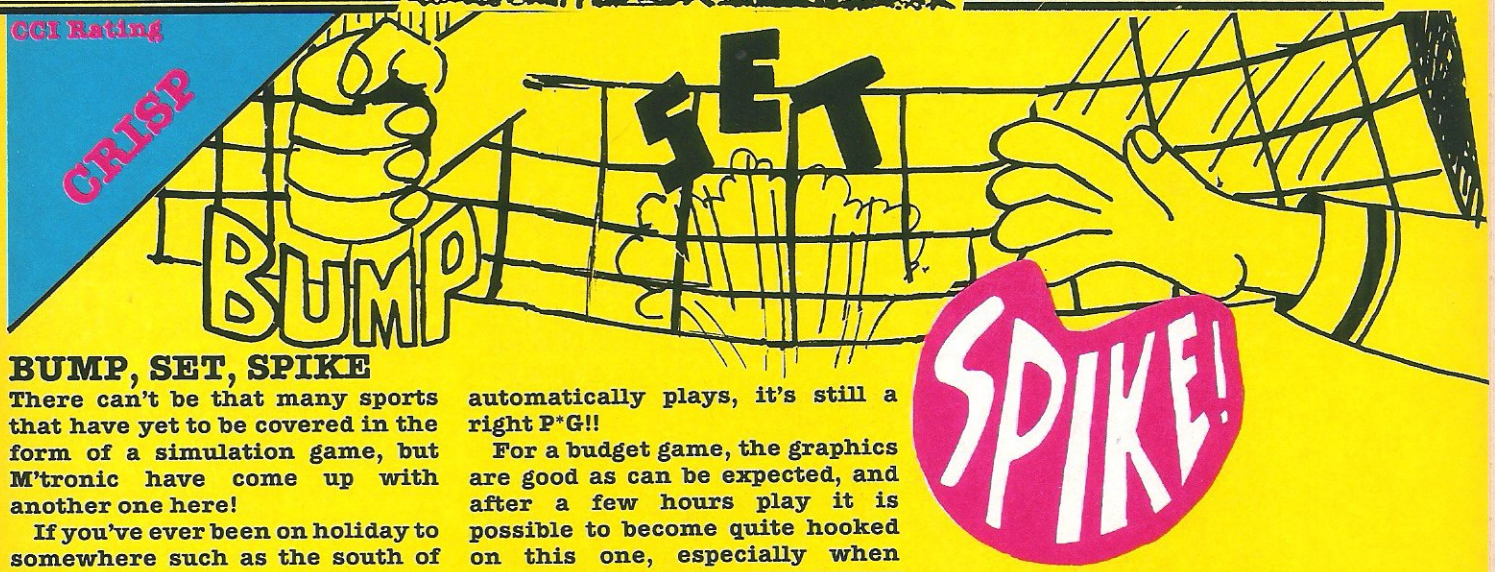
Send to Konix Computer Products Unit 13 Sirhowy Ind Est Tredegar Gwent NP2 4QZ

GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK ·

MEGAREVIEW

CCI Rating

CRISP



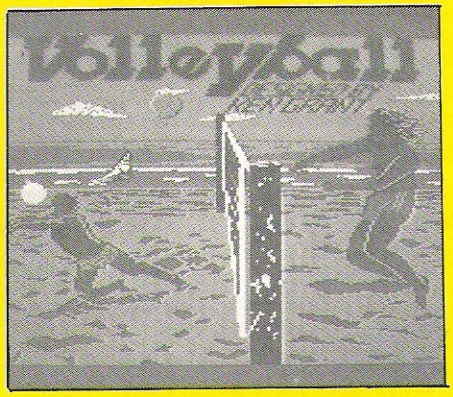
BUMP, SET, SPIKE

There can't be that many sports that have yet to be covered in the form of a simulation game, but M'tronic have come up with another one here!

If you've ever been on holiday to somewhere such as the south of France, you'll recognise this game as the one played brilliantly by the locals, and pathetically by the visitors.

Once the game has loaded you are provided with various options: indoors or on the beach, name and skill levels. Once this has been done the game starts in earnest. Currently Volleyball is being shown every Sunday on Channel Four, so I thought I'd be pretty good at this! Ha, Ha. Although you only have to play a team of two, and the one nearest the ball automatically plays, it's still a right P*G!!

For a budget game, the graphics are good as can be expected, and after a few hours play it is possible to become quite hooked on this one, especially when leaping for a spike, or diving to save a point.

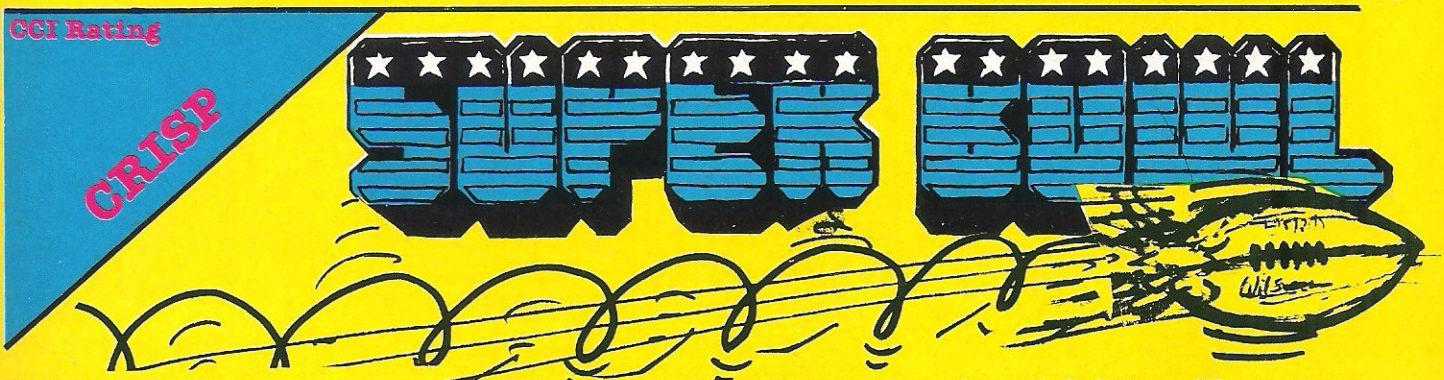


My only real criticism is that I always lost, always!

Price: TBA
Graphics: ***
Sound: **
Playability: ****
CCI Rating: CRISP (for a cheapie!)
Contact: Mastertronic, 8–10 Paul Street, London EC2. Tel: 01-377 6880.

CCI Rating

CRISP



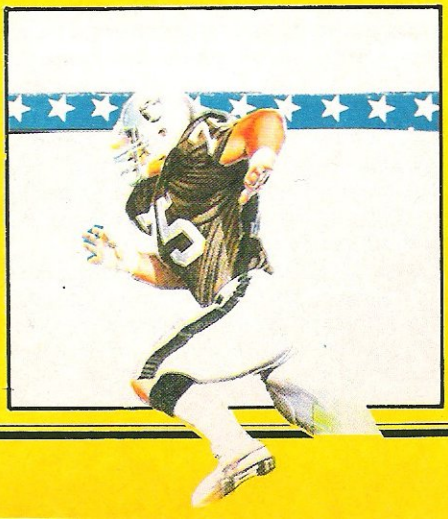
SUPERBOWL.

As all dedicated American Football fans will know, now is the OFF season, and so Ocean's new game should manage to keep the addicts from going cold turkey!

At first glance, Superbowl is disappointing, instead of large sprites rushing around the screen, and earth-quaking cheers as McMahon goes for a bomb, you see the game through a much more tactical viewpoint.

Graphically the screen is split vertically, the right side representing the field of play, and the left your tactical options. If you've ever wondered how Tom Landry feels as he watches the Cowboys play, now you can find out (well nearly).

Being a great fan of the game, I found all the plays that I expected had been implemented well, and for the 'Absolute Beginner' (had to get it in this issue once!) a tape has been included which does a good job of explaining the games main rules.



Overall, Softstone (the program house) has made the compromise of realism over beauty, and for anyone who is interested in the game, this is a compromise that works. Whether this game will appeal to hardened arcade fanatics – I'm not sure – but I sure as hell enjoyed it! Oh, yeah – good luck for next season, Cowboys!

Price: £8.95
Graphics: ***
Sound: *
Playability: ****
CCI Rating: CRISP
Contact: Ocean Software, 6 Central Street, Manchester M2 5 NS. Tel: 061-835 1353.

CCI Rating

CRISP

MUGSY'S Revenge!

MUGSY'S REVENGE.

Well bosh, dis year is gonna be a tough one for da boyz, know whad I moin?

Although there never was a Mugsy for the 64, Melbourne House have decided to stick to the name for this sequel. It is a strategy type of game, obviously based on the original 'Kingdom' type of game, but with fantastic graphics, and a couple of nifty tunes.

Set in the prohibition years, you play Mugsy, and with $50,000 you decide to set up business illegally importing booze from Canada. To make real money, you must hire good men, buy cheap and sell high. However, you've also got to take good care of the cops, and deal with the Robbers.

As well as the usual elements, MR also includes a neat arcade section where you must kill all your oposition, before they kill you!

Most of the game is controlled by the joystick, though the keyboard is used for paying 'da boyz'. I really enjoyed this game. I'm not sure how lasting it is, but apart from a repetitive animated section (I didn't say it was bad-just repetitive!) I could play it for quite a while

One piece of advice, don't trust dat Tee.....AARGHHH!

Price: £7.95
Graphics: ****
Sound: ****
Playability: ***
CCI Rating: CRISP
Contract: Melbourne House, 60 High Street, Hampton Wick, Kingston-upon-Thames, Surrey KT1 4DB.

CCI Rating

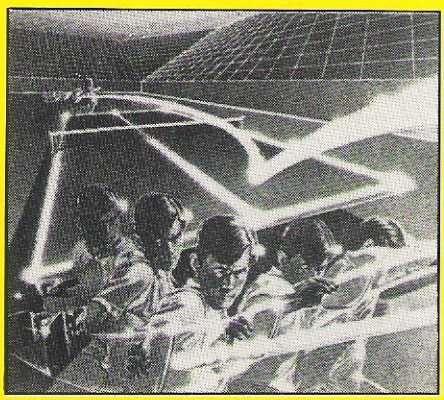
MEGA

PING PONG

PING PONG

Although this is another licensed arcade game, Imagine's latest title has that feeling of originality that could turn it into a number one!

If there is anyone who has never played table tennis, this game will probably be totally unappealing, otherwise it will undoubtedly provide hours of fun.



To achieve a realistic effect, only the bat (with a finger grip) is displayed, but in fact this proves both clever and effective. There are five different levels to play, 1 being relatively simple, 5 being bloody impossible!

As you would expect there are a few shots to be used: backhand, forehand, cut, drive and smash. Each of these shots should be used for specific purposes. Sound effects are used cleverly to indicate what type of shot should be played; if a smash is possible, it is made very clear!

Overall I had hours of fun with this game. The graphics are good, the realism is excellent and the short tune is O.K. I can imagine it would become a little boring after a while, but it is the type of game I for one will go back again and again.

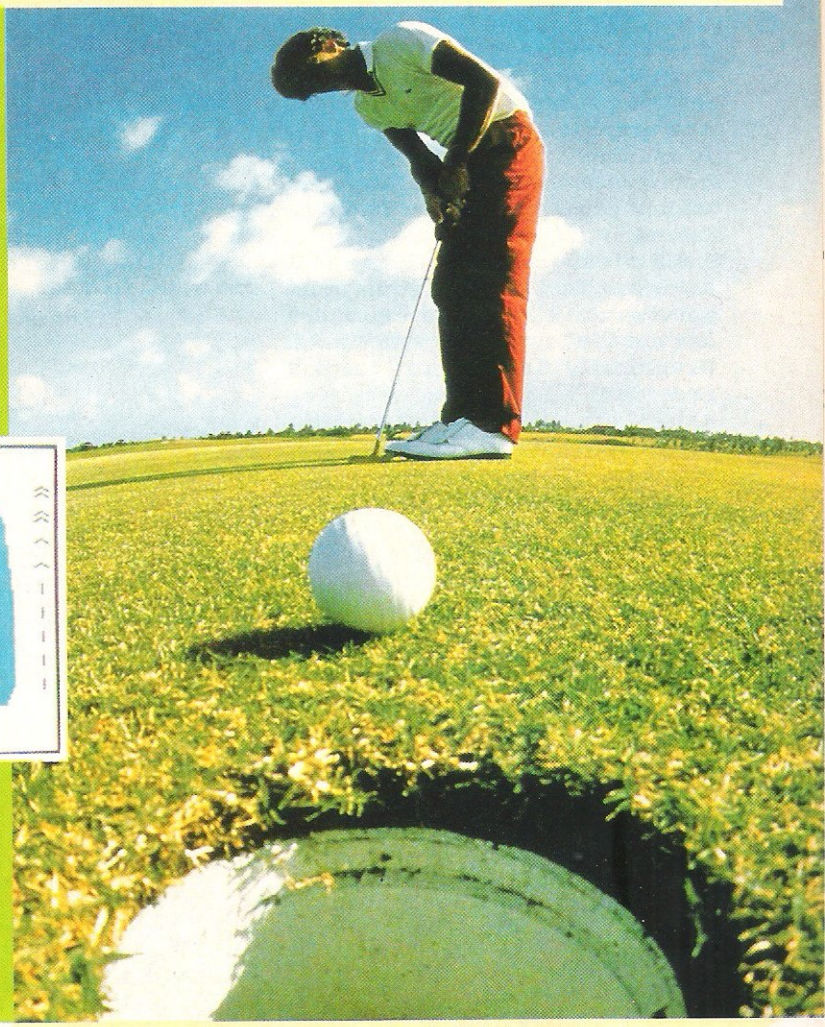
Well done Imagine!

Price: £8.95
Graphics: ****
Sound: ***
Playability: ****
CCI Rating: MEGA
Contact: Imagine, 6 Central Street, Manchester M2 5NS. Tel: 021-834 3939.

G·O·L·F
CONSTRUCTION SET

NOW AVAILABLE FOR YOUR **C64** CASSETTE OR DISK

An extremely sophisticated, authentic and exciting golf simulation program.

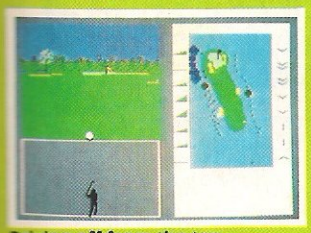


FEATURING

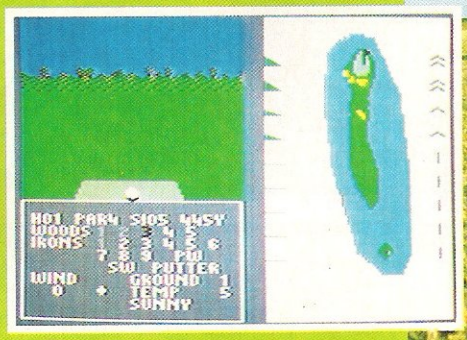
4 built-in 18-hole championship courses in both **"3D AND PLAN VIEW"**

Wentworth Old Course • The Belfry
Sunningdale • Royal St Georges

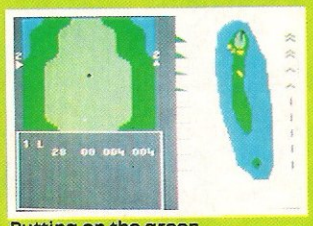
Officially endorsed by all four courses



Driving off from the tee.



Approaching the green.



Putting on the green.

PLUS + + + + + + + + + + + +

- An easy to use Construction Set enabling you to build and play on any course in the world or an imaginary one of your own design in **"3D AND PLAN VIEW"**
- Up to 4 players
- Save game feature

VARIABLE FEATURES INCLUDE:–

- Save Handicap feature – as you improve so does your handicap
- Wind speed, temperature and ground conditions
- Choice of clubs
- Lie of the ball
- Strength of shot

Limited Edition includes free 'STROKESAVER' official Wentworth Course Guide

PLUS YOUR CHOICE OF **PRACTICE MODE/TOURNAMENT PLAY** OR **MATCH PLAY**

SOUNDS AUTHENTIC? *IT IS*

GET YOUR COPY OF *'THE GOLF CONSTRUCTION SET'* NOW

Special competition!
Win £500 worth of golf equipment, (or cash equivalent).
Full details with cassette or disk.

Available from all good software retailers – if it's not there, please order it – or in case of difficulty send your crossed cheque/P.O. made out to **Ariolasoft U.K. Ltd.**, including your own name and address, to **Ariolasoft U.K. Ltd., 68 Long Acre, London WC2E 9JH.**

The Golf Construction Set C64 disk **£14.95**
The Golf Construction Set C64 Twin Cassette **£12.95**

UK orders only. Prices include P & P. Please allow 28 days for delivery.

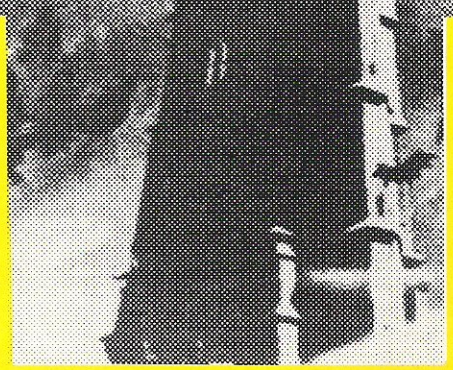
ariolasoft
HIGH PERFORMANCE PROGRAMS

MEGA REVIEW

CCI Rating

CRISP

ARK PANDORA



ARK PANDORA

Ark Pandora is the latest release from Alligata's other arm, Rino. On the packaging, it is described as a Graphic Adventure, but really it is much more arcady.It is a horizontal scrolling game in which you must escape from an Island.

All however, is not as easy as it sounds. To escape you must possess certain objects, and these are not that obviously obtainable. Graphically Ark Pandora is nice and the man's somersaulting antics are certainly novel but somehow the amount of time required to travel around the screens is just a little too long.

The music, produced by Tony Crowther and Ben Dalglish, is excellent, though they have tried to cram a little too much in, and thus have overdone the tune a bit.

What makes this game good, if not very good, is the screen designer included in the package. This allows you to define a set of screens from the building blocks provided an excellent addition.

Overall this is a good game, it is not really original, but it will certainly require thought to crack. The icons are more of a hindrance than a help, but they're almost obligatory now. Variety is the spice of this game, and that should give it staying power.

Price: £7.95
Graphics: ***
Sound: ****
Playability: ***
CCI Rating: CRISP
Contact: Rino, 1 Orange Street, Sheffield, S1 4DW. Tel: 0742 739061.

CCI Rating

DODGY

GEOFF CAPES STRONG MAN

GEOFF CAPES STRONGMAN CHALLENGE

After Zoids it would have been almost impossible for Martech to come up with a game that was as good and, although I don't doubt this game will be a success, it really isn't anything special.

To play the game you take on the role of Geoff and, as such, you must proceed through various taxing events: Barrel loading, Tug of War, Wood Chopping and Sumo Wrestling.

Although joystick waggling is an intrinsic part of the game, you must also use the novel 'icons' to control which muscles give most effort. The display shows Geoff's actions on the top half of the screen, and various biceps and pectorals on the bottom (SIC! ED).

Graphically GCSC is nothing special. If anything it is a little below par, the sprites being just a little too chunky! Again the Rob Hubbard soundtrack, comprising a small tune for each event, is excellent.

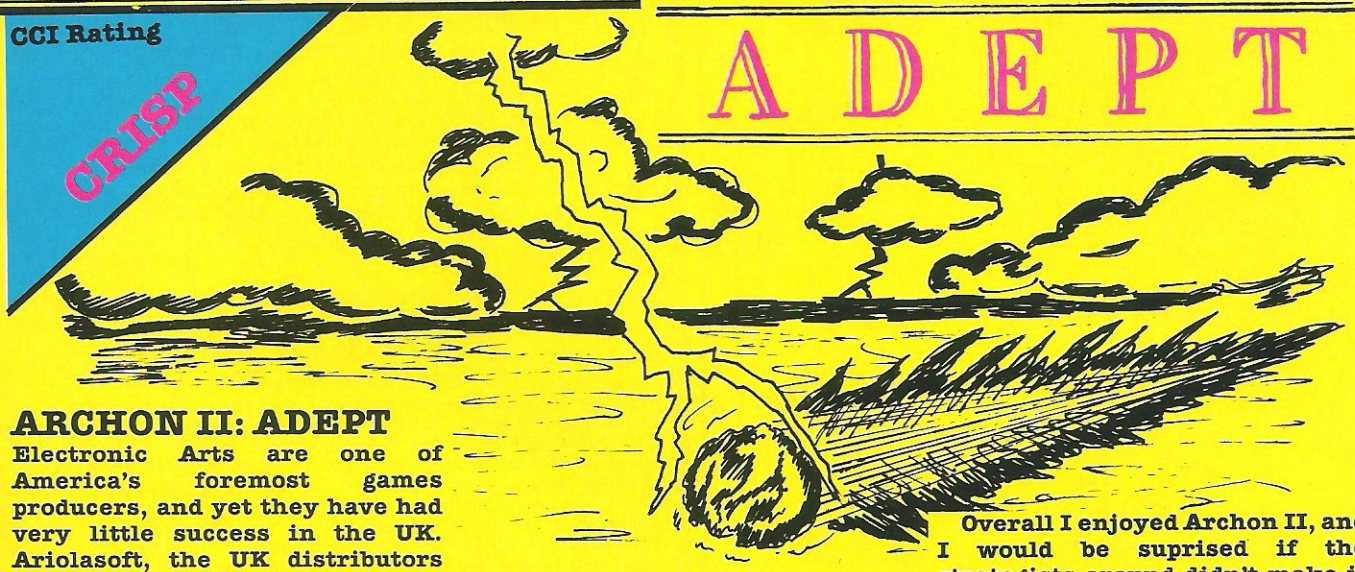
Geoff Capes is an odd choice for a game. It has some excellent and novel ideas in it, but the finished product is just not quite right, and no, I wouldn't say that to his face!

Price: £8.95
Graphics: ***
Sound: ****
Playability: ***
CCI Ratin: DODGY
Contract: Martech, Martech House, Bay Terrace, Pevensey Bay, East Sussex BN24 6EE. Tel 0323 768456.

ARCHON II: ADEPT

CCI Rating

CRISP



ARCHON II: ADEPT

Electronic Arts are one of America's foremost games producers, and yet they have had very little success in the UK. Ariolasoft, the UK distributors have recently started a major push, and it's one I feel ought to work.

If you were a fan of Archon, the strategy/arcade game, then Adept should provide hours of entertainment! To play the game you must take on the role of either the 'Master of Order' or the 'Mistress of Chaos', and to win you must either defeat your opponent in an Apocalypse, or control all six power points, which are spread around the board.

You begin the game with four magical Adepts. Each of these can cast various spells which can move pieces round the board, or defeat other pieces.

There are two screens, the general playing area and the arcade area, where head to head battles for supremecy occur. Each side has a variety of different 'Elementals', each with different power levels, and it is these that do the real fighting.

Overall I enjoyed Archon II, and I would be suprised if the strategists around didn't make it the success it deserves to be. it may not have the best graphics, but it is very involving, and that has to be a good sign.

Price: £8.95
Graphics: ***
Sound: ***
Playability: ****
CCI Rating: CRISP
Contact: Ariolasoft, 68 Long Acre, London WC2 9JH.Tel: 01-836 3411.

Preview

CAULDRON

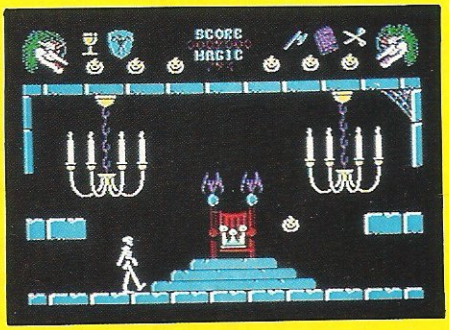
CAULDRON II - THE PUMPKIN STRIKES BACK

Another mega-early look at a promising game to came, this time from those prolific (joke) programmers at Palace Software. In some excellent offices in Pentoville Road, I was allowed in to see how things were going on the follow up to their highly successful Cauldron.

Although Cauldron was a success quite a while back in the UK market, it has just been voted game of the year in France, so Palace have taken their time making sure Cauldron II is worth waiting for.

Although no-one ever finished Cauldron, this seems pretty unimportant to the new games, in which you take on the role of the one pumpkin that escaped, and you must destroy the Witch-Queen.

Programmed by the same team as its predecessor, CII has some really nice touches that explain why it has taken so long. I don't think I'll be giving too much away if I say the new castle is based on a certain logo .....



There haven't been too many decent ledge/jump games recently, Monty being the only notable one that springs (urghg) to mind. Cauldron II is really good, nice sound, good graphics, and bloody difficult (unless you have cheat mode eh?). I can safely say that it'll be a success, it really is good fun

Contact: Palace Software, 275 Pentonville Road, London NI 9 NL. Tel; 01-278 0751.

C16/PLUS 4 SOFTWARE AT HUGE SAVINGS

COMPARE OUR LOW LOW PRICES

	RRP	OUR PRICE
Bongo	6.95	5.25
Beach Head	7.95	4.50
Thai Boxing	5.95	4.50
Favourite Four	7.95	5.95
Jump Jet	9.95	7.50
Solo	2.95	2.50

OVER 100 OTHER TITLES AVAILABLE

SPECIAL OFFER
PETALS OF DOOM
TYCOON TEX
GULLWING FALCON
SWORD OF DESTINY
ZARGON WARS
ZARGONS REVENGE
DORK'S DILEMA

THIS MONTH ONLY
NORMALLY £6.95 EACH
ANY TWO FOR £5.99

GRAFFIX

**114 West Main Street, Whitburn,
West Lothian EH47 0QU**

PERSONAL CALLERS WELCOME BRING THIS AD.

DESCENDER ROM

FOR YOUR MPS-801 PRINTER

We have redesigned the character set to allow you to print out with **true descenders.** Because this is a replacement ROM your printer will operate exactly the same as before with no change whatever in the way your printer will work with any program you may use.

Easy installation with no soldering required.

Works with any Commodore computer including C-64, C-128 and PLUS/4. Other fonts available on ROM. Send SAE for info.

£14.95 inc p/p

EXAMPLES: jeopardy
quickly paragon

TOOLKIT IV

1541/1570 DISK UTILITY

Includes: **DOCTOR V2** – read and write any track and sector including extra and renumbered sectors and tracks; repair damaged sectors; look underneath read errors. **FORMATTER** – 10-second format an entire disk or format any individual track or half-track from 0 to 41; redefine any of 30 parameters to create or recreate unique disk formats. **HEADER/GAP EDITOR** – decodes and displays **all** header information including off-bytes and header gap; rewrite the entire header and header gap; renumber sectors; also edit any sector tail-gap. **ERROR EDIT** – quickly find and recreate all read errors including extra and renumbered tracks and sectors and half-tracks from 0 to 41; even recreates data under errors and allows you to redefine any necessary parameters. **FAST DISK COPY** – copies a disk in two minutes or less with a single 1541. **FAST FILE COPY** – transfers files five times faster than normal. **FILE COMPACTOR** – compacts machine code programs; can compact programs by over 50% which saves disk space and loading time; compacted programs run exactly the same as the original. **DISK LOOK** – sort directory; recover lost files; display file start and end addresses; disassemble any file with standard and undocumented opcodes; edit BAM; and much more. **DRIVE SPEED TEST, DISK ERASE, DISK MON, DISK LOG, BASIC COMPACTOR/UNCOMPACTOR, &: FILE MAKER + even more.**

Supplied on disk with comprehensive instruction manual. *For C-64/C-128.*

£18.95 inc p/p

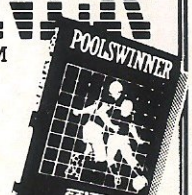
Send SAE for complete information

**MPS SOFTWARE (Dept CCI)
36 Alexandra Grove
London N4 2LF, England**

OUTSIDE EUROPE PLEASE ADD £1.00 FOR AIRMAIL

POOLSWINNER

THE ULTIMATE POOLS PREDICTION PROGRAM



Boxed, with detailed instruction booklet

- **MASSIVE DATABASE** Poolswinner is a sophisticated Pools prediction aid. It comes complete with the largest database available – 22000 matches over 10 years. The database updates automatically as results come in.
- **PREDICTS** Not just SCOREDRAWS, but AWAYS, HOMES and NO SCORES.
- **SUCCESSFUL** SELEC guarantee that Poolswinner performs significantly better than chance.
- **ADAPTABLE** Probabilities are given on every fixture – choose as many selections as you need for your bet. The precise prediction formula can be set by the user – you can develop and test your own unique method.
- **SIMPLE DATA ENTRY** All team names are in the program. Simply type in the reference numbers from the screen. Or use FIXGEN to produce fixture list automatically (see below).
- **DISC/MICRODRIVE COMPATIBLE** Tapes supplied with conversion instructions.
- **PRINTER SUPPORT** Full hard copy printout of data if you have a printer.

AVAILABLE FOR Spectrum (48K), Commodore 64, VIC 20 (+16K), AMSTRAD, BBC B, Atari (48K), ZX81 (16K), Dragon, Apple II, ELECTRON

PRICE £15.00 (all inclusive)

NOW AVAILABLE

FIXGEN 85/6

AT LAST: No more struggling for hours to get the fixture list into the computer. FIXGEN has been programmed with all English and Scottish fixtures for 1985/6. Simply type in the date, and the full fixture list is generated in seconds. Fully compatible with Poolswinner.

POOLSWINNER with FIXGEN £16.50 (all inclusive)

COURSEWINNER V3

THE PUNTERS COMPUTER PROGRAM

NOT JUST A TIPSTER PROGRAM, Coursewinner V3 can be used by experts and occasional punters alike. You can develop and test your own unique winning system by adjusting the analysis formula, or use the program in simple mode. Coursewinner V3 uses statistical analysis of major factors including past form, speed ratings, course statistics, prize money, weight, going, trainer and jockey form etc, etc. It outputs most likely winners, good long odds bets, forecasts, tricasts etc. The database includes vital course statistics for all British courses. You can update the database – never goes out of date.

AVAILABLE FOR Spectrum (48K), Commodore 64, BBC (B), AMSTRAD, Atari (48K), Apple II

PRICE £15.00 (all inclusive) includes Flat AND National Hunt versions.

Send Cheques/POs for return of post service to . . .

VISA phone 24 hrs

selec SOFTWARE

Access phone 24 hrs

37 COUNCILLOR LANE, CHEADLE, CHESHIRE. ☎ 061-428 7425

(Send for full list of our software)

COMMODORE 64 DYNAMITE SOFTWARE 128 COMPATIBLE

C POWER Fully implemented C Compiler for the 64, as defined by Kernighan & Ritchie. 541 page manual. Shell Program Manager. Screen Editor. Linker. Function Libraries and Text Formatter. Produces Efficient and compact m/c. £119.95 (d).

PASCAL 64. Fully implimented Pascal Compiler producing fast and compact M/C. Also provides many graphics and database commands. **INTERRUPT** command allows your routines to run in parallel. **LIBRARIES** of useful routines may be built up. Excellent manual. £39.95 (d).

ZOOM PASCAL. Powerful subset of Pascal, produces fast and compact M/C. Also includes many string, machine language and file handling routines. Comes with professional **EDITOR.** £24.95 (d).

BASIC 64 Professional BASIC Compiler. Compiles all C64 BASIC commands. Produces fast m/c. Many user options. Compiled programs run upto 50 times faster than BASIC. £35.95 (d)

ASSEMBLER 64 Professional Development System. Program as easy as BASIC. LABELS, VARIABLES, PSEUDO OPS (ascii, base, bit, byte, end, out, word), CONTROL COMMANDS (assemble, disassemble, save, load, display, stop, erase), PRINTING. Assembler and BASIC programs can be mixed £11.99 (d) £7.99 (t)

MIKRO ASSEMBLER The best Assembler available. Comes on plug in cartridge. COMMANDS — assemble, auto, delete, disassemble, find, format, number, table, trm. PSEUDO OPS — byts, end, lnk, off, out, txt, wor, *. Also powerful MONITOR. Print to CBM and Centronics printers £50.00 (c)

DATABASE 64 Menu driven database system, allowing upto 30900 records, 255 character records. SETUP unlimited number of databases, ADD, INSERT, DELETE, AMEND, VIEW records. SEARCH for records on any field with pattern matching. Searches thousands of records in under 1 second. SCROLL through records. PRINT records and reports. SAVE and LOAD to disk or tape. Supports disk and tape users. On line help screens. Full manual £11.99 (d) £7.99 (t)

FREE Assembler 64 or game, disk or tape with orders over £15. Orders over £50 may also have 1 of 20 books.

DYNAMITE SOFTWARE
Dept. CCI,
27 Old Gloucester Street,
London WC1N 3XX, England.

INSTANT RECALL Powerful database system for C64. Unlimited number of databases, each upto 31,000 records. Records upto 255 chars. Search on any field, or across fields with pattern matching, or by record number. Matches upper and lower case. Searches 5,000 records in half a second. Design reports or labels. PRINTS on any CBM or Centronics printer. SCROLL backwards & forwards. DISK DIRECTORY. SAVE and LOAD databases to DISK and TAPE. Supports disk and tape users. On line Help Screens. Dozens of other features. £19.95 (d) £17.95 (t)

WORD PERFECT Professional word processor system. Easy to use. Many advanced features — Insert/Delete lines, Move/Copy/Erase text, Margins, Tabs, Centre text, Find, Reformat, Scrolling, Proportional spacing plus dozens of other features. £21.95 (d) £19.95 (t)

BUSICALC Advanced electronic Worksheet (Spreadsheet), upto 1200 cells, move around sheet, Jump, Save, Load, Replicate, Insert, Delete, Print, Walk, Format, Quit, Colour. Formulae evaluation, rounding and much more. £21.95 (d) £19.95 (t)

SUPERBASE 64 Fully featured database information system. Upto 1000 chars per record on upto 4 screens, and upto 128 items per record. Fields definable as key, text, numeric, constant, result or date, in files of upto 16 million characters. Superbase also has Spreadsheet and calculator capability, calendar functions, sorting/searching, menu and command driven, fully programmable, definable reports. Much more £79.95 (d)

MICRO MAGPIE Advanced database management system. Create database tailored to your exact needs. Manipulate data between different files, perform calculations, print reports and graphs, fully programmable, pop-up menus, search on any field, works with 1 or 2 disk drives, CBM and Centronics printing. Much more £39.95 (d)

BRIDGE CARTRIDGE £19.95
FORTH CARTRIDGE £29.95
OTHELLO BOARD GAME £7.95 (d) £5.95 (t)
MONITOR CARTRIDGE £28.95
BLITZ BASIC COMPILER £50 (d)
SUPERSCRIPT 64 £79.95 (d)
SUPER DISK UTILITY £12.50 (d)
GRANDMASTER CHESS £17.95 (d) £17.95 (t)
SCRABBLE BOARD GAME £1.95 (d) £12.95 (t)
ANATOMY OF THE C64 BOOK £12.95
STAGSOFT RESET BUTTON £5.95

All orders normally despatched within 7 working days. Overseas orders add £3.

GRAPHICS DESIGNER 64 Menu driven Graphics Editor. Create high res. pictures, with keyboard, light pen or joy stick. Draw lines, boxes, circles, ovals, triangles, fill with colour, add captions. Create slide shows. Applications include design, engineering, graphic art and games. Many other features £19.95 (d)

1541 FLASH Speeds up 1541 disk drive by over 3 times. Compatible with all commercial software. Leaves cartridge and user port free. Several other features. Easy to fit £89.95 (kit).

ANATOMY OF THE 1541 DISK DRIVE
300 + page technical guide to the 1541 ROM disassembly with comments, disk commands, data storage, DOS operation, relative records, direct access, disk structure, programs and much more. £12.95

FRENCH 64/GERMAN 64 Two excellent educational language packages. Both teach with user involvement — each contains 9 lessons, teaching and testing verbs, grammar, spelling & sentences. Topics include numbers, time, colours, weather, shopping, clothes, animals and many many more. £12.95 (d) £8.95 (t). Both packages £16.95 (d) £12.95 (t)

BEGINNING RUSSIAN ON THE 64 The only Russian educational package for the 64. Contains the full Russian alphabet. The package is divided into 3 sections — introduction to the Russian alphabet, vocabulary, exam and a look at Moscow (excellent graphics). £13 (d) £9 (t)

CHECKBOOK MANAGER
Computerise you check book. Information stored on a disk file, including cheque number, date, payee, amount, bank balance, and a returned indicator. Transactions may be listed to screen or printer. Other features. £12.50 (d)

STAT 64 CARTRIDGE STAT 64 adds 19 statistical commands to your BASIC. Bar charts (histograms) horizontally or vertically, plotting with 64,000 points, screen dump, mean value, standard deviation, variance etc. £28.95

CHARTPAK 64 Professional package which produces charts in high res. mode. You can Enter, Edit, Save and Recall data easily. Chartpak interactively builds charts — pie, bar and line. You control scaling, labelling, and position of chart. Charts created in 8 modes. Send final results to CBM 1515, 1525 or Epson MX-80 or FX-80 printers. £24.95 (d)

All programs come with a comprehensive manual. Send 22p stamp for catalogue (overseas £1).

SAMANTHA FOX STRIP POKER – MEGA PREVIEW

SAMANTHA FOX Strip Poker

Will you be able to tell if Sam is bluffing?

Will you be able to keep your cool when the stakes are high?

Now this must go down as a mega-preview, so early that the finished Commodore 64 version has been seen by virtually no-one that includes the outstandingly stacked Samantha herself!

Computerised strip poker is not a totally new idea for an erotically stimulating game. What is? A rather sketchy version of a similar release was on the market in time for the Christmas holidays of 1984. However, with all the amazing publicity that the curvaceous model has achieved recently, including a hit record that got to the top five in the UK pop charts in just a couple of weeks (see Competition pages in this issue, Ed) this game looks destined to be one of the biggest sellers of all time!

Due for almost immediate release, the Commodore version will differ quite dramatically from the Speccy release already to be found in the market rather than the Speccy 7 card stud, you will play a much more exciting poker game, 5 card draw. The real classic of poker!

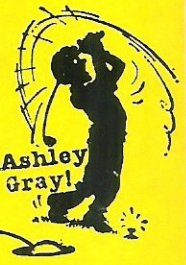
The gameplay will be very much as you might expect - and hope for, you MCP's! - the more money you win from sexy Samantha, the more revealing a pose she will adopt.

David Martin, MD of Martech, is trying for a total of 12 video-digitised photographs of the ample Sam. Though you'll have to be a gambler of no mean proportions yourself to see 11 and 12, which I kid you not, threaten to reveal all!

Next month - a full review, revealing all too we promise, including screen shots! But, if you can't wait, enter the CCI competion, listen to the record, practice your poker and dream...

CCI Rating AWESOME

The G·O·L·F CONSTRUCTION SET



Ariolasoft must have prayed for a dramatic finish in the US Masters, to coincide with the launch of their newest game, The Golf Constrcution Set, and boy did they get it! 'The Golden Bear' came good again, winning his sixth masters title, and arousing more interest in golf than at any time since Europe won the Ryder Cup.

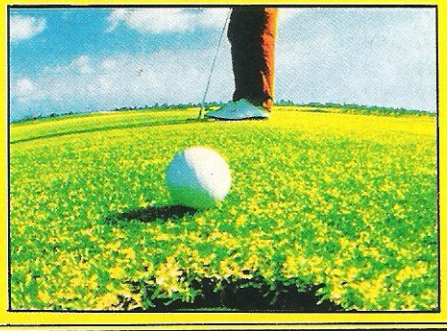
For this new golf game to be a success it had to be both unusual, and excellent, and it sure is! Designed by Tigress Marketing, and programmed by Andromeda in Hungary, it is without doubt the best golf simulation I have ever played.

Using joystick driven vertical icons, you must first choose what type of game you wish to play, whether you want a match or to practice, and which of the four courses provided you wish to play on; they are The Belfry, Wentworth, Sunningdale, and Royal St. Georges. All of these are reproduced amazingly faithfully, including all the gradients, all of which were measured in two mad days by Ariolasoft MD Ashley Gray!

If you feel limited by these courses however, you can 'construct' an individual course of your own - as simple or as complicated as you wish.

Graphically GCS is superb, and more important it is also amazingly playable. This game will not only suit the golfing fanatic, it will be ideal for any computer buff who wants to see what can be done with the 64.

Ariolasoft promise more courses will be made available, but in my view it's more fun to define your own! If you are looking for a game that is fascinating and promises to have a long long life, look no further than GCS, it's outstanding!



Price: £14.95
Graphics: *****
Sound: ****
Playability: *****
CCI Rating: AWESOME
Contact: Ariolasoft, 68 Long Acre, London WC2E 9JH. Tel: 01-836 3411.

C16-

Take Your Pick

It may not be seasonal, but *Tynesoft's Winter Games* is definitely one for your C16 collection. Cool down those long summer days (where, when! Ed) by trying your hand at six Winter sports events – speed skating, ski jump, Cresta run, ski slalom, curling and downhill. It'll take your breath away!

Still feeling sporty? Then take to the skies with *Bug Byte's Skyhawk.* A flight simulator with a purpose – defend the countryside from the raiders, or be prepared to die.

Once dead, you may care to visit *Anirog's Ghost Town.* Ghost Town was once a prosperous little town until Belegro the wizard cast his spell. There's treasure to be had, but beware the ghoulish guardians.

More monsters can be found in *Anco's Bongo.* Our friendly rodent has to collect five diamonds using skill and ingenuity – not to mention the ladders and trampolines! (If you tire of the screens provided, there is a facility to make up your own.)

If by now you are feeling pretty small, you can sympathise with *Anirog's Tom Thumb.* He's entered the pharaoh's tomb in search of treasure. There's some pretty big creepy crawlies here for one so small!

No luck? Well, that's lucky as you can now qualify to take part in *Mastertronic's Mr Puniverse!* The Wimps are a new breed of man feared by.....no-one. (Ahh!) Undernourished and barely alive, you must solve 25 problems in order to find those vital vitamins.

Boost your ego again now with *Tynesoft's Gunslinger.* You are Jesse James - wanted dead or alive. Set in the wild, wild West Jesse seeks to increase his funds at the expense of others. And who better than outlaws on the run?

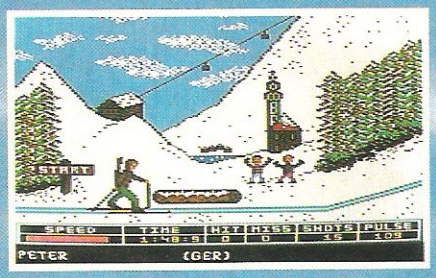
Stay 'rough and tough' and try to outwit *Bug Byte's Captain Kidd.* He's laid 10 traps to catch treasure hunters. If you want to succeed you'll be up against bombs, booby traps....and killer boots (shome mishtake shurely?). These boots weren't made for walking!

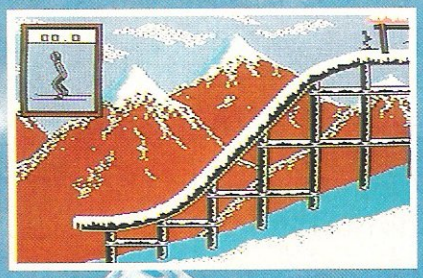
If you don't dig that, dig this! Shovel in hand, be prepared for *Atlantis' Panik.* Screen after screen of nasties will come for you. To survive you must dig holes to trap them in and then bop them on the head until they fall to the next level.

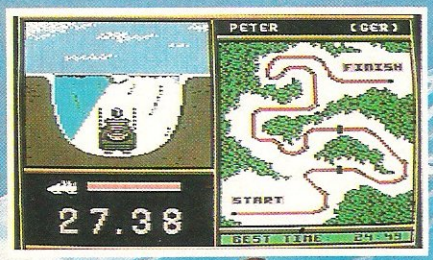
At last! *Bug Bytes Twin Kingdom Valley* is now available for C16 owners. This classic adventure will have you searching for as much treasure as you can find without being killed. With over 175 full screen hi-res locations you'll need to keep your wits about you and your sword sharp!

WINTER EVENTS

C16/PLUS 4







Compete in the six thrilling events - Biathlon, Bobsled, Ski-Jump, Slalom, Down Hill and Speed Skating. The events start with opening ceremony accompanied by thrilling music. One to four players can select the country they wish to represent. The events with some of the most stunning graphics seen on C16/PLUS 4 provide a perfect back drop as the chase for medals progresses. TURBO LOAD ensures that you don't get a chance to cool down between the events.

A QUALITY GAME FOR C16 AND PLUS 4 OWNERS **£7.95**

ANCO

Trade Enquiries:
C16-PLUS 4 CENTRE, ANCO SOFTWARE,
85, TILE KILN LANE, BEXLEY, KENT, U.K.
Telephone: 0322 92513/8
Mail Order: Payment by Cheque, P.O., VISA or ACCESS
24 Hour Credit Card Service: 0322 522631

TOP TWENTY

C64

	GAME TITLE	COMPANY	Price (£)	C.C.I. RATING
1	Uridium	Hewson	8.95	Mega
2	Hardball	U.S. Gold	9.95	Awesome
3	Kung Fu Master	U.S. Gold	9.95	Iffy
4	Elektraglide	English Software	9.95	Crisp
5	Yie-ar- Kung Fu	Ocean	8.95	Mega
6	Lord of The Rings	Melbourne House	15.95	T.B.A.
7	Rock 'n' Wrestle	Melbourne House	9.95	T.B.A
8	Commando	Elite	9.95	Mega
9	Eidolon	Activision	9.99	Crisp
10	Koronis Rift	Activision	9.99	Crisp

C16

1	Commando	Elite	7.95
2	Football Manager	Addictive	6.95
3	Kung Fu Kid	Gremlin	6.95
4	C16 Classics II	Gremlin	9.95
5	Big Mac	Mastertronic	1.99
6	Tutti Frutti	Mastertronic	1.99
7	BMX Racers	Mastertronic	1.99
8	Vegas Jackpot	Mastertronic	1.99
9	Squirm	Mastertronic	1.99
10	Rockman	Mastertronic	1.99

Compiled by CCI from leading distributors

WIN THE SENSATIONAL SAMANTHA FOX GAME AND RECORD

Win this stunning limited edition picture record of the gorgeous model and now pop star Samantha Fox and a copy of the brand new Samantha Fox Strip Poker computer game! All you have to do is put names to the following famous ladies:

1. Whose face launched a thousand ships?

A .....

2. Name the wives of the two most powerful men in the world, Mr Reagan and Mr Gorbachev.

A .....

3. Who appeared on a calender with only the radio on?

A .....

4. Who preferred to die on her feet than live on her knees?

A .....

5. Whose nose, had it been of a different shape, would have changed the course of the world?

A .....

6. Who played Princess Who in Star Wars?

A .....

The first 5 winning entries plucked from our Competion Sack will receive copies of the record and game.

Answers on a post card to Samantha Fox Competition C/o CCI.

WIN A PAPERCLIP WORDPROCESSOR FOR THE C64 OR 128

All you have to is name four features that PaperClip W/P has, the company that releases it and what you would use it for (in no more than 15 words please). Answers on a postcard, please to PaperClip Competition C/o CCI.

WIN A SENSATIONAL JOYCARD CONTROL DEVICE!

All you have to do is name six different means of control of a computer. (You can include the Joycard!) Answers on a postcard, please. The first three correct entries out of the Competion Sack will receive a Joycard. Answers on a postcard, please to Joycard Competition C/o CCI.

WIN £250 OF HOLIDAY VOUCHERS, A COMMODORE MODEM AND A FREE SUBSCRIPTION TO COMPUNET!

All you have to do is tell us which year Compunet started, which are the 3 most popular uses of the system and (in not more than 15 words) what you will use with your free Compunet subscription for. Answers on a postcard, please to Commodore Compunet Competition C/o CCI.

WIN GAMES FOR THE 64!

All you have to do is tell us how many games are reviewed in CCI's GamesWorld this issue, which film reviewed in this issue already has a game announced and how many games you can already buy for the AMIGA now. You can find all the answers in this issue of CCI.

Answers on a postcard please to C64 Games Competition C/o CCI The first 25 correct entries plucked from the Competition Sack will receive a copy of PS1-5 Trading Co.

WIN GAMES FOR THE C16!

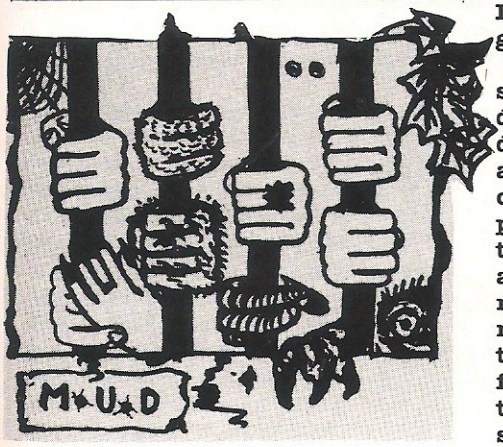
All you have to do is tell us how many games are reviewed in CCI's GamesWorld this month, which film reviewed in this issue already has a game announced and how many games you can already buy for the AMIGA. You can find all the answers in this issue of CCI. Answers on a postcard please to C16 Games Competition C/o CCI.

The first 115 correct entries plucked from the Competition Sack will receive copies of Kung Fu Kid

The address for all competition entries is Commodore Computing International Magazine, Finsbury Business Centre, 40 Bowling Green Lane, London EC1R ONE

The Editior's decision is final and no correspondence will be entered into in regard to the results.

Closing date for all competitions: 15th June 1986



As promised, here is the map of Valley, the land adjoining Mud, courtesy of PAD1 on Compunet. If you bought April's issue, the two map areas link up at the road. The breach in the wall that you can see on the Valley map is where the 'Badly paved road' joins onto 'Narrow road between lands'. MUD contains about 400 locations, and Valley roughly 96. If you are a MUD2 player (BT's Mud), then you will find a few locations missing on the valley map, such as the Cave of Stars (which is in the north-west area of the North Mountain).

I recently mentioned that MUSE and Level9 were working together on a MUG (Multi User Game). This is in fact only a half truth. Level 9 are working on the design for a MUG but MUSE are not directly involved as yet. I hope to be able to bring you more news on this game, rumoured to be called Avalon, next month when I should know a lot more. All I know so far is that the game is planned to be on a rather larger scale, and some of the ideas incorporated into it are very original and quite novel!

I also forgot to mention the other Compunet ArchWizard, Peter (currently playing as Brain). You can contact him on the system on his id, PETER.

Connections made

The day has arrived! A few weeks ago the original database for Mud went up in MUD2, and connected with Valley. The game now contains over 600 locations, and is growing all the time. I logged into the game expecting to be dumped on the Badly paved road, and to my delight found myself at Narrow road between Lands. However, there are not as yet any puzzles to solve, so collecting treasure is a pretty easy affair, so long as you get there before the other players do! You can even pretend you're Jesus and walk from the mainland to the Island over the sea without even getting your feet wet!

Puzzles are due to go in fairly soon, and already the game has a distinct atmosphere to it and is developing its own personality; always a good sign in a Mud. They can now pick up (all in the best possible taste) players and put them in a box! They can then walk about the land (or teleport, as they normally do) carrying this poor mortal around, who can't do a thing. The more he (or she-I'm all for equality!) screams to be let go, the less likely the wizard is to do so, so the best tactic to employ in this situation is to just keep stum (thats quiet to any ignoramuses out there).

Currently the game normally has 10-20 players in it after a reset. During the resets, which last about 6 minutes, players can enter the Saloon and chat amongst themselves. Unfortunately, there isn't usually much of a conversation going on, because they are all frantically typing /M, which tells them the status of the reset. Imagine, if you will, twenty player all hitting /M (Return), all eagerly waiting for that message 'Mud has finished initialising' instead of the frustrating 'Mud is still initialising' message. When it does finally appear, there is another frantic typing of /E which chucks you out of Chat mode. Then comes option 2 quickly followed by an incredibaly fast keyboard entry of their persona's name (you can have up to three). Eventually, you end up in the tea room, an area where players can talk without fear of being killed. From here on, it is all up to how well you know the game. How fast can you enter that 300 character command string that takes you all around the land, collects all the treasures, and swamps them? Only a second if, like most Beeb owners do, you have them programmed onto a function key! For those less fortunate, its finger-ache time!

Speeding up.

MUD2 is improving by the day. It was common knowledge that a few months ago the game was unbearably slow. It is now speed ing up to a satisfactory level, and is getting faster as new versions of the game go up, almost weekly. Richard Bartle, one of the game's authors, says that within 2 months they will have two more VAX computers, making a total of three machines running the game. Once these two come online, speed should increase dramatically he says. More rooms are being added, and some of the puzzles are due in the very near future.

MUD2, when finished, will be THE ultimate adventure game, with intelligent mobiles, 1000+ locations with more to be added, and a game structure that makes it child's play to add new features, locations, and mobiles to the game. Although it is not finished yet, it is well worth joining. Currently, MUSE are only charging half-rate, that is, 5 credits per hour. I have managed to accumulate 20,000+ points inside a week by playing a few hours each evening (unlike some I could mention who play 24 hours a day 7 days a week, eh, Misty), so there is plenty of treasure around to collect. Many of you have complained that it is impossible to get to wizard now, as the score required is double that of Mud1. What you have to remember is that there will be over twice the number of locations in MUD2, so it will be nowhere near twice as hard to reach wizard, as some of you have suggested.

Next month I will include an update on MUD2, telling you what features have been added and what features are due to be added. If you are interested in taking out a MUD2 subscription, contact MUSEon 01-608 1173, and don't forget to mention where you heard about it please! MUSE is also interested in your ideas. If you have any good ideas for some puzzles that need more than one player to solve/complete them (Multi Player Puzzles-MuPPs?), then contact them on the above number, and ask to speak to Simon Dally.

Now it is time for some clues. Where did I put my crib sheet.....

"Why do I keep dying when I go underneath the waterfall?" Raindrops are falling on my head....

"What use is the baton?" What do conductors do with batons? Also watch for a common factor once you have performed the action.

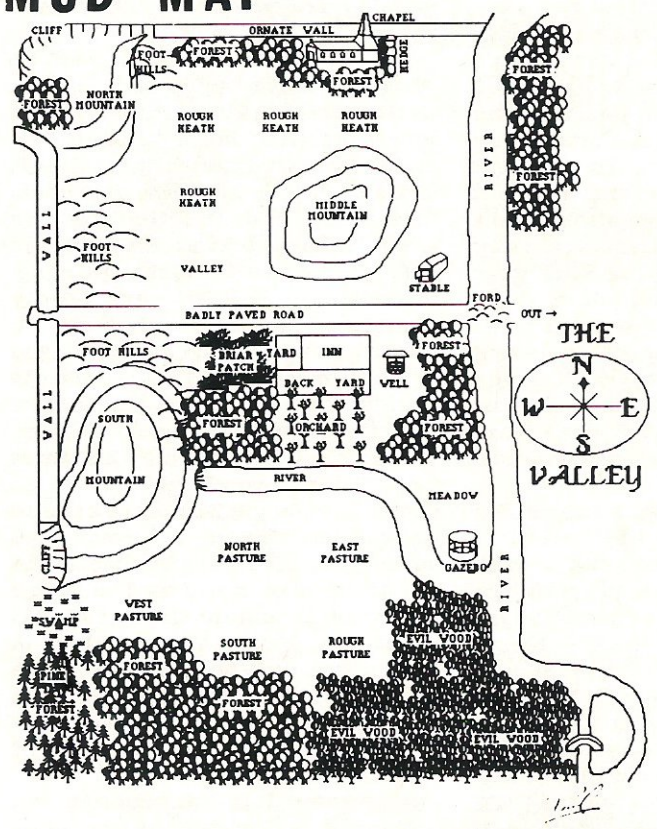
"How do I kill the Dragon?" Might the coal be of any use? But remember, even dragons digest!

"How do I get rid of that bloody egg?" Don't be selfish, and also look at its description closely.

That's all for this month. You can contact me on Prestel&Micronet on my mailbox: 705863071, or my MUD2 mailbox: ZAPHOD,(surprise surprise!). My Compunet mailbox remains,as ever, ZAPHOD.

....*Zaphod the ArchWizard has just disappeared in a puff of smoke.

MUD MAP



Joycard

In a marketplace as obviously crowded as the joystick market, it takes something pretty special to make people sit up and take notice. Konix managed it because their joystick was amazingly comfortable to use, and I think this Joycard will too.

Measuring about 12 x 8 cms, it fits very easily into the palm of your hand, is very flat, and has an unusually solid feel about it.

In the past, if you wanted real sensitivity and accuracy, you had to purchase either a very expensive trackball or a non-centering petentiometer, both of which are only useful for certain applications. This Spanish-made Joycard is equally happy playing Defender or drawing a detailed house plan.

What makes the joycard such a pleasure to use is that it requires almost no pressure on the pads to work. As it operates on heat sensitivity, it is enough just to rest your finger gently on the fire button!

Its directional operation is achieved by four sensors, up – down – left – and right, with diagonals easily achieved using one of the joining bars.

I found the Joycard especially good for simulations and Decathalon type games, as tapping two buttons is an awful lot easier than wagging a long joystick.

Overall, this is a high quality product – well constructed and neat (if a little garish) to look at. It could be the answer to many peoples vision of the perfect joystick.

COMMODORE SHOW 9-11 MAY

VISIT
PRECISION SOFTWARE
ON STAND 80–82

See our huge new range of software and peripherals for the Commodore Amiga, 128-D and 64

SPECIAL SHOW DISCOUNTS

Software
- Word Processing
- Data Management
- Multi-function
- Graphics

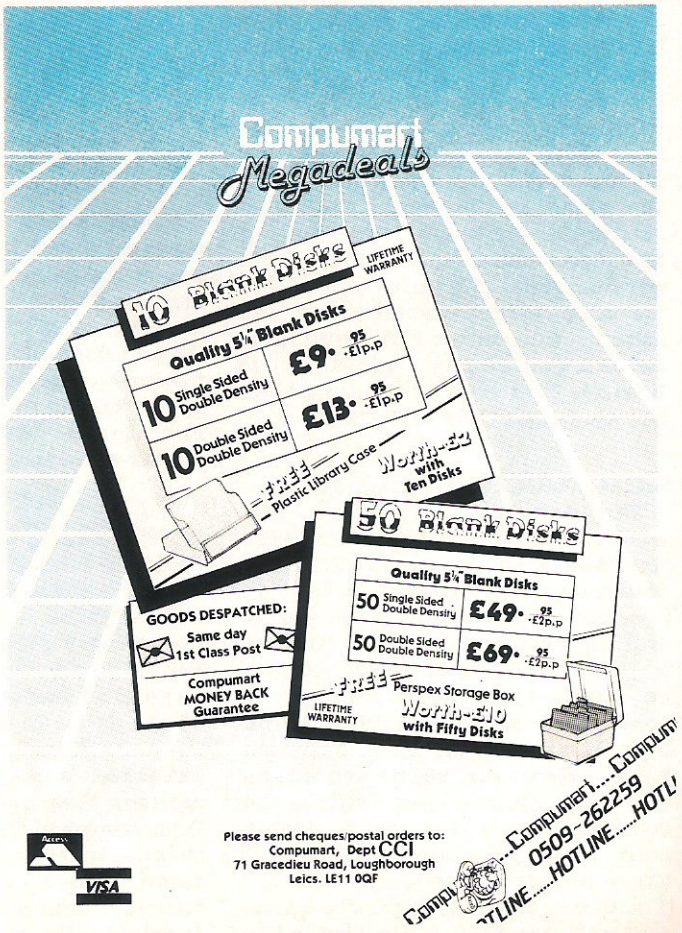
Peripherals
- Hard drives
- Memory expansion
- Printers
- Interfaces/cables

Phone or write for your discount show ticket and *free* product catalogue *NOW!*

Precision Software

Precision Software Limited
6 Park Terrace
Worcester Park, Surrey KT4 7JZ
Telex: 8955021. PRECIS G

Telephone: 01-330 7166



This month your letters are answered by Rae West. Rae is the author of three large reference books on Commodore computers; the latest is Programming the Commodore 64, following Programming the VIC and Programming the PET/CBM. All are published in the UK by Level Ltd. Rae is also published in the USA by Compute! Books.

Dear Rae,

I have purchased a TV/monitor by Hitachi (model 1444). The input of this set is a 7-pin DIN socket, while my 64 has an 8-pin socket. Is it possible to couple these two pieces of equipment?

L. Garratt, Leeds.

Michael Chong, of London E17, has a similar query with respect to the Plus/4.

Neither the 64 nor the Plus/4 can be connected to this Hitachi in its monitor mode. The Hitachi has an RGB input, needing separate signals for red, blue, and green, which no Commodore machine can supply. (The 128 and Amiga are also incompatible; the monitor is designed rather for machines like the BBC).

Dear Rae,

I bought a Plus/4, 1541 disk drive and MPS801 printer in October 1985 and have been trying to locate a game of chess ever since. I have been told that C16 software does NOT run on the PLus/4 unless stated specifically. If there's a way to run C16 software on the Plus/4 I'd appreciate your letting me know the magic words.

Mrs S Bowater, Bristol.

The Plus/4 is a superset of the C16, i.e. it includes all of its features and has some of its own, too. So C16 software usually runs with little or no modification of the Plus/4. The C16 program 'Grandmaster' can be made to run by typing LOAD first, then POKE 65299,17: RUN. This switches the TED chip's mode. Other programs need LOAD " ",1,1 (a forced load). Don't expect C16 software to be as good a Plus/4 software, though. Memory restrictions ensure the performance is likely to be less good than would be expected of a 64K machine. I seem to remember the chess program is quite easy to beat!

Dear Rae,

After successfully writing a fast loader for the 64, I am attempting to write one using interrupts so that I can incorporate music and scrolling messages. How can I use interrupts with the 64's I/O chip?

My fast loader required only address 56333 to input bits from the tape, but there are 15 similar addresses. Can these be used?

M. Connolly, Burton-on-Trent.

Yes, the CIA chip ('Complex Interface Adaptor') which is connected to input from tape can be used to generate interrupts. The register at 56333 is relevant here. The other timers, which can cause interrupts too, typically would be disabled so there's only one source of interrupts. However, a warning is in order: you must plan your software very carefully. Hardware timing isn't the best way to control tape reading, unless allowance is made for the variation of speed between tape decks. And you can't risk software loops being interrupted, since you may lose data. So you may find it a good plan to write and read your data in bursts, separated by screen and sound updating. Pages 122-128 in my book 'Programming the Commodore 64' (01-794-7241 for information) explain the registers needed to program interrupts on your 64.

Dear Rae,

I'm hoping to turn my CBM64 into a home wordprocessor. I'm fairly new to BASIC – I buy your magazine because of the article on BASIC for beginners – and I have no-one to teach me!

I hope you can help with one or two queries. Firstly, can you recommend a letter-quality printer, not necessarily with tractor feed but with easily obtainable ribbons and that can be serviced fairly easily? Is there anything for £200/£300, or should I settle for NLQ? Is there any advantage in dot matrix over daisywheel or vice versa? Is there any advantage in having two disk drives, apart from speed? And how does one chose a wordprocessing package if you've only got the manufacturer's recommendations?

Ms C. Ringsell, Orpinton.

Thanks for your immaculately word-processed letter. The 64 is perfectly adequate as a word processor, though its 40 columns (unless modified) are a bit restricting. Commodore's DPS 1101 daisywheel just slips in at 1p less than your upper limit. Commodore's Information Centre (0536-205555) should have information on local dealers/ servicing

Dot matrix printers are more versatile than daisywheels – for example, graphics are possible – and with suitable software give good results. They can simulate different font styles, too. But you may be more interested in the plain vanilla output of standard documents.

Two disk drives facilitate many operations; disk copying for security backups is once such function which is much more easily accomplished with two disks. But it's quite possible to make do with one.

Apart from reviews, there's no effective way to assess one's own reaction to a package without trying it out. In your situation, why not join the Independent Commodore Products User Group, ICPUG (your local branch is ICPUGSE)., There are many talented and experience people in this organisation. Phone Jack Cohen on 01-597-1229 for details.

Dear Rae,

I have a Commodore 64 and a SilverReed EX43N electric typewriter. I wonder if it is possible to fit an RS232 interface? If so, could you give me advice on where to purchase and what price, or even better, a wiring diagram.

Cpl Dishman, RAF Bruggen.

The 64 doesn't have a standard RS232 interface, though it does have software to handle RS232 input and output - RS232 is treated as device number 2, and the user port needs an adaptor to give the correct voltage levels and signals. Circuit diagrams for this part of the setup have appeared in various DIY electronics mags. Silver Reed have a device called the IS40 interface which fits your typewriter; it costs over £100. Dave Briggs, Silver Reed, 19 Exchange Road, Watford can supply more information, and possibly circuits.

Dear Rae,

In your January issue I found an advertisement by Oxford Computer Systems for two items of interest to me: Petspeed 128, and a Guide to Oxford Pascal. Unfortunately my payment was returned to me because "this company ceased trading". Is Petspeed likely to be available elsewhere? And what are we to do if well-known firms disappear?

Dr J Desclin, Brussels.

I've checked on this and am assured that Systems Software (Oxford) Ltd has emerged after the reorganisation of Oxford Computer Systems. They tell me that Petspeed 128 will be available as this letter goes to type. Readers may not know that a 'Compiler' converts ordinary BASIC programs into machine-language, running many times faster that the orginal. Contact them on 0865-54195.

Another compiler for the 128 is called 'BASIC 128', rather confusingly., It's a German product, available from First Publishing in Pangbourne.

Dear Rae,

I tried POKE 22 given in CCI March 86 to list without line numbers. It works OK. I wondered if it could be used as an elementary word processor, to prepare a short letter or memo to be sent to the printer.

I find if the text isn't shifted, it works OK, but shifted characters are removed. Please can you expalin why, and suggest a method for overcoming this.

R.A. Mascall, Thornbury.

Yes, you're right. POKE 22,35 with a 64 suppresses output, but LIST overrides this for BASIC lines only, so the appearance is like a listing without line numbers. There's no easy way around the problem with shifted characters. You could put a quote before each line, so that 10 "Hello, Bob lists as "Hello, Bob rather than ello, ob. But the quotes may be objectionable to you.

*How about trying this tiny word processor; just enter lines pressing return to put them in, and entering *** to finish:-*

```
0 DIM TEXT$(100) : POKE 204,0
10 GET X$: IF X$="" GOTO 10
20 PRINT X$;: IF X$<>CHR$ (13)
THEN TEXT $(J)+$: GOTO 10
30 IF TEXT$(J) <>"***" THEN J=J+1:
GOTO 10
100 FOR K=0 TO J-1: PRINT
TEXT$(K): NEXT
```

!NEW! BOOKS

The Anatomy of the C-128

This book guides you deep into the heart of the Commodore 128. Anatomy C-128 is written for those of you who want to push your computer to the limits. This book contains the complete, fully commented ROM listings of the operating system kernal. Here is a list of just some of the things you can expect to read about:

- Using the interrupts
- Assembly language programming and Kernal routines
- Z-80 processor and the boot ROM
- Peripherals and the ports
- Programming for sound and music
- Programming the various graphic modes
- Understanding and using the Input/Ourdoor ports
- Programming the Memory Management Unit (MMU)
- Using the 80-column chip
  - getting 640 x 200 point resolution
  - getting more than 25 lines on the screen
  - smooth scrolling
  - copying blocks in screen memory
  - character length and width management

ISBN 0948015 268 **£12.95**

C-128 Tricks & Tips

Tricks and Tips for the C-128 is a tremendous treasure trove of programming techniques and 'tricks' for every C-128 owner. This book not only contains plenty of example programs, but also explains in a simple to understand manner the operation and programming of the computer

Contents include:

- Graphics on the C-128
- Working with more than one screen
- Graphics with the 80 column screen
- Simulating multiple windows
- Listing Converter
- Software protection on the C-128
- Changing the keyboard
- The MMU (Memory Management Unit)
- Important memory locations
- Changing the operating system
- Sprite handling
- Custom character sets
- Autostart
- The 80 column controller
- Modified INPUT
- Line insertion
- Banking
- Kernal routines
- Key pad in C-64 mode
- C-64 mode of the C-128

The Anatomy of the 1571 Disk Drive ..

Following the unprecedented success of the 1541 Disk Drive Book – Data Becker and First Publishing are pleased to launch this new definitive guide to the 1571 Disk Drive.
It comes working with the C-128 under Basic 7.0 and a comprehensive introduction to sequential and relative data files. Also programming the disk drive, using the direct access command, programming in DOS, imported DOS routines and how to use them. and of course a fully commented DOS listing.
An essential part of your computer library!

ISBN 0948015 081 **£12.95**

1st FIRST SOFTWARE LTD

For our brochure on all the C128 products please send this coupon to: UNIT 20B, HORSESHOE PARK, PANGBOURNE, BERKS RG8 7SW. TEL 07357 5244

NAME _____

ADDRESS _____

_____

CENTRONICS INTERFACES

MODEL 92008/G – DOES IT ALL!

Full Commodore graphics and special characters, tabs, dot graphics etc. Plus 8K buffer. **£64.99**

ALSO

MODEL 92000 – less graphics	£49.99
MODEL 92000/G – with graphics, no buffer	£59.99

All models software transparent – no driver needed.
Connect to C16 or Plus 4 (with optional mains adaptor), VIC 20, C64 or C128 or daisy chain to disk chain.
Includes printer lead – nothing more to buy.

FCC *SYSTEMS LIMITED*
THE LODGE, MOORLANDS ROAD
MERRIOTT, SOMERSET TA16 5NF
TEL: CREWKERNE (0460) 73442
PRESTEL MAILBOX 046073442

Prices include VAT
Please add £1.00 p+p

DEALER ENQUIRIES MOST WELCOME

TROJAN CAD-MASTER

THE ULTIMATE IN GRAPHICS TOOLS

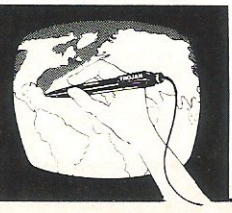
SUPERB GRAPHICS SOFTWARE
PLUS
A TOP QUALITY LIGHT PEN

Discover the exciting world of creating your own graphics on screen.

- **FREEHAND DRAW -** 5 pen thicknesses inc. Quills
- **PAINT BRUSH -** for the artistic touch
- **FILL ANY SHAPE -** use 16 colours and 11 patterns.
- **GEOMETRIC SHAPES -** circles, boxes, triangles, lines & banding.
- **DYNAMIC RUBBER BANDING** on all geometric options.
- **PIN-POINT FUNCTION -** for pixel accuracy on all functions.

Plus many more too numerous to mention in this ad. All these features in the Program + a top quality Light Pen and an Instruction booklet in one reasonably priced package. Easy to use for creating colourfull pictures or technical drawings. Ideal for use by all ages of micro users. Full back-up service from manufacturers. Available at good dealers or direct from Trojan Products.

ONLY £19.95 per pack.



TROJAN
Micro Computer Software & Accessories
Send cheque/P.O. to.
TROJAN PRODUCTS
166, Derlwyn, Dunvant, Swansea SA2 7PF
Tel: (0792) 205491.
TRADE ENQUIRIES WELCOMED

The Meaning of MIDI

The impact of any synthesiser lies in its ability to make sounds that please and excite people. Written articles like this one can at best only generate interest, not give any real impression of the difference between the sounds of two different synthesisers. The impact of MIDI lies in its ablity to let two (or many more) synthesisers play music together. The written word becomes even less effective for describing the potential in terms of pure sound. The important thing to stress is that in spite of its complicated title, Musical Instrument Digital Interface, it can be a very simple device to use. For a moment let's forget about the fact that MIDI is now being fitted on almost every musical gadget imaginable and concentrate on the basics.

First of all the 5 pin DIN sockets on the back of the MIDI synth (called IN, OUT and THRU) do make an assumption about the buyer. It assumes you are going to use another MIDI device ! At the simplest (but my no means the cheapest) level this will probably mean another synth, begged or borrowed if not bought and some way of hearing them together. A flexible but possibly cheaper early option is to buy some computer software for composing music by recording MIDI signals. For the present I'm going to stick with the simple example of running two MIDI keyboards together.

The big bonus from MIDI is that when you reach this early stage you will gain an enormous amount of options just by taking two MIDI cables and linking MIDI IN to MIDI OUT on the second and vice versa. It is important to stress that exactly how many options is dependant on your choice of synthesisers. Nearly all MIDI synths are superb in their own way but VERY few, if any, offer everything even a single instrument might do through MIDI. The main single advantage is being able to operate both synthesisers from either keyboard. If you find yourself asking 'so what?' , all I can suggest is that you try it out in your local music store (but don't say it was my idea), or make the effort to find someone who can demonstrate music keyboards well.

The idea of playing two different sounds from one keyboard is not new. There were a generation of analogue synths that set out to provide that particular faciliity, but they all had limitations. You were often given a string section, a brass section and a polysynth section, which covered a lot of ground, but what if you want two different synth sound at the same time or if you don't like synthesised string sounds. The world does contain such fussy people you know. The MIDI synths can play two very contrasting or complimentary sounds depending on your musical taste and needs but they will both have easily accessible independent volume controls to allow mixing the relative levels of both sounds. This may all sound glaringly obvious to some people, but I make no apology for going through the simpler aspects for the benefit of those for whom MIDI is still a new idea.

The next point is that your friendly MIDI (or DIN format) cable can carry a lot more information that a steam of chords between synths. Depending on make and models of synthesiser used, you may be able to send tone bank (or voice) changes, pitch bend, velocity sensing (loud or soft etc), 'hold' or 'sustain' pedal signals and so on from synth A to synth B. I hope that by now you are getting the idea that even with the modest set up of two MIDI keyboards, 2 MIDI cables and some amplification, you are into the realms of highly professional sound and music making. If any of your friends own MIDI keyboards, at all costs, DON'T fall out with them. If we now make the natural progression into the area of computers with MIDI interfaces and sequencing devices we will discover that so far the surface has remianed well and truly unscratched.

New range of possibilities

As Dickens would say "if you've got an itch, Scratchit!", so let's .... The MIDI sequencer has opened up a completely new range of possibilities for composing, arranging and recording music. A clear distinction must be made between the MIDI 'recorder' or sequence and the Audio recorder. There are some popular misconceptions here arising from the use of the word digital. There is a growing range of digital audio recording equipment available which effectively does the same job as the traditional tape recorder. The difference between digital a· d analogue audio equipment lies mainly the quality, sophistication and price. At the end of the day you can still plug a microphone in and play back a recording of a voice or a steam train.

The MIDI 'recorder' (or sequence or composer) is also piece of digital equipment, the confusion arises because it doesn't actually record sound at all. What the MIDI sequencer remembers is exactly what happened to the synthesisers keys, in other words it records your fingers playing notes and releasing them again (note on and note off information) . Quite a number of MIDI synths can sense how hard (or perhaps fast is a better word) you strike each key and you can record this kind of information too. This is described as velocity sending and is one of several aspects of your style of playing which can be recorded through the medium of MIDI. I'm trying hard not to say that you've got a digital recorder in more senses than one!

All this is very well but it does beg the question; why bother to record music on a machine like a sequencer if it doesn't actually produce any sound on its own? There is no one-word answer, but the flexibility in arranging, editing and revising your original performance adds a new dimension to music composition and production. You now have the opportunity to carefully prepare your muscial material before you commit it to audio tape . If you have a multi-tracking device, 'syncing' to tape may not be a new idea to you, and it is marvellous to be able to record one synth in time with itself to build up a complete song, but you are forced to work within the limits of your own playing ability. Enter the MIDI sequencer which lets you record and experiment with sounds and your own favourite tricks to your hearts content. The obvious example is the one where you get the playing of a lead part perfectly in time but think that you should have used a different voice on the synth. You have a sinking feeling that if you do a retake the magic will be lost. With the MIDI sequencer you have the option to listen to the same performance played with a different sound or even on another synthesiser.

Real Time or Step Time?

Depending on exactly what kind of sequencer or composing software you are looking at, you may get the option to record in Real Time or Step Time and perhaps we should take a quick look at the difference. Real Time recording means simply that everything you do on the keyboard will get played back just as you played it. If you slow down a bit for a couple of bars in the middle that is what will happen when you play it back. Unlike a tape recorder you can play the whole thing back at a different speed but stay in the same key that you originally played in. Conversely you can replay at the same speed but play your music back at a different pitch. Try doing that with an analogue tape deck! Going back to the example where you slowed down a bit for a bar or two, some computer based MIDI software would allow you to edit this to get the music to replay at a constant speed, but how easy this would be depends on the software.

The Step Time option offers hope to those who take two minutes to organise all four fingers for one chord. The traditional step time technique lets you subdivide a bar of music into equal steps and place a note or a rest on each consecutive division of the bar. This is made more musical by the option of 'tying' a note to the next in order to get notes of longer length. Many Drum machines (including those with MIDI facilities) and sequencers on keyboards operate on a similar basis. If you take a look at the Casio 5000 or the JORETH MCS for the CBM 64 you will find a more sophisticated approach where you can nominate a new musical time length (or note value) for each step. This makes life much easier, and particularly so if your music has a mixture of different note lengths cropping up frequently. There is a vast range of MIDI composing or sequencing products on the market of widely varying quality . If you are thinking of making such an investment then shop carefully, ask questions, and remember the cliche that you often get what you pay for. Take the time to work out what you want and expect, and check that what you are going to buy really does fit the bill.

MIDI Controversy

There has been a bit of controversy about delays in MIDI systems, but don't lose too much sleep over it. It is a virtual impossibilitity for the MIDI network itself to cause any delays that are perceptible to human ears and brains. On the other hand synthesisers take time to process incoming signals and pass them on to the oscillators (the things that actually create the sounds you hear). It is this process that can cause perceptible timing problems if you have a number of keyboards linkied in a 'daisy chian' by connecting one MIDI thru to the next MIDI in and so on. On a practical note for any one with 14 DX7's strewn about the studio, the danger of any delay occuring can be minimised by including a commercial thru box, assuming of course that you got change from the deal on your DX's!

The THRU socket, by the way is nothing mysterious. It simply copies the signal coming into a keyboard and passes it on unaffected down a line for use by the next MIDI device in whatever chain you can construct. The MIDI keyboard will usually be capable of being set to one particular MIDI 'channel' of the 16 available and will only play notes that are sent down that particular channel. The THRU port passes on ALL 16 channels of data to the next line leaving that instrument to play the music for whichever channel it has been set to. Not all MIDI instruments have IN, OUT and THRU, and whether that matters or not must depend on the situation at hand. It is quite astounding that you can squeeze so many separate musical parts down a 5 pin DIN Cable. Even more so when you discover that two of the pins aren't even connected, but that is another story altogether.

In all, MIDI can cope with 16 channels of simultaneous but independent polyphonic parts, and still has room for a specialised clock signal for synchronising suitable drum machines. Any MIDI sequencer worth its salt will offer the option of controlling the tempo or speed of the music from within itself or listening and adhering to a clock from another MIDI source. At this point then we can tie two MIDI sequencing devices together so that they each drive 16 synthesisers all playing music in time together, and our main concern is where the hell are we going to put 32 keyboards!!??

Producing sounds

Even in general terms we still haven't finished with MIDI's capabilities. Another fascinating aspect of MIDI is the ability to transmit the details of each sound within the synthesiser for storage or editing, and in this case usually via the medium of a computer. You may or may not be aware that different manufacturers use different techniques of producing sound on their synthesiser. Indeed there are almost as many ways of producing an electronically synthesised sound as there are ways of producing sound on conventional acoustic instuments. Of course each technique of sythesis (like Yamaha's FM, Casio's Phase Distortion or Roland's digital version of well tested analogue methods) is itself capable of producing a vast range of different sounds.

It would be a great asset if it was possible to store, catalogue and visualise the parameters involved in building all these various sounds. Once again the medium of MIDI provides the answer and you will discover that there are a large number of computer programs available, some of which merely record a stream of information to a floppy disc for reloading at a later date , and others which allow very precise manipulation of sounds and development of new sounds. Again, particular programs will vary in quality but in general they allow you to work with the sort of ease that would be unthinkable by the standard process of tweaking one button on your synth and then another.

I'm sorry, but there is more...all sorts of recording studio equipment like echo units, compressors and flangers are now fitted with MIDI interfaces so that the recording engineer can synchronise a specific special effect at a specific special moment. A number of manufacturers are introducing MIDI to CV convertors which means that a lot of the older synths that have been brooding in bottom drawers can be given a new lease of life on the MIDI bandwagon.

Mind Boggling but Accessible

At some stage I have to draw a conclusion about all this, although I would prefer to let you do that for yourselves. It's true that the whole MIDI saga can be totally mind boggling, but I hope I've shown there is an accessible side to it as well. On the idealistic side, anything that helps provide interesting (to you) sounds, and makes it easier to turn ideas in your head into a reality that someone else can listen to has to be good news. On the hard commercial side, the synthesiser giants have not spent the kind of money they have on Research and Development with the notion that they will use something completely different next month. Even MIDI must get superceded eventually I suppose, but like it or not you can bet it is here for a while.

In the near future there will certainly be a steady increase in the use of MIDI equipment, and it must figure more and more largely in the world of music-making. It must be of growing importance to amateurs, professionals and educationalists alike. My own priority puts enjoyment at the top, as far as I'm concerned the heady detailed jargon about digital communications is a long way from playing music. Making analogies about sex is always a dangerous business, but MIDI is one of those things that you don't need to know anything about to enjoy. If you do know a few of the basic principles it makes it even better.

Mick Jones

KCS KCS KCS KCS KCS

POWER CARTRIDGE

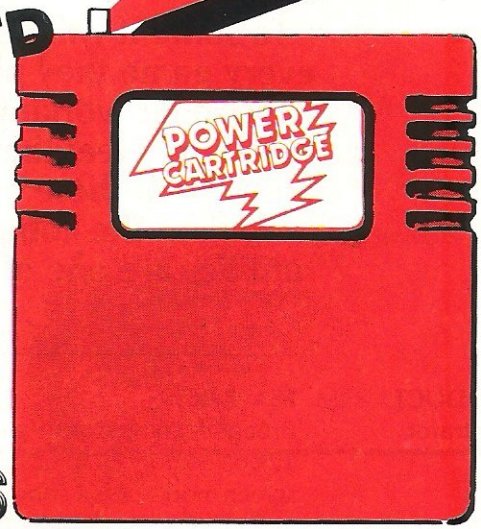
16K EXTERNAL operating system

POUR VOTRE CBM 64/128

LAUNCH AT

COMMODORE SHOW/NOVOTEL

POWER PRODUCTS(UK) LTD



KCS

THE FIRST CARTRIDGE
WITH SO MUCH POWER
FOR ONLY

£45

Développé et fabriqué par KCS aux Pays-Bas

C.A.S. DISTRIBUTION (IMPORTATEUR) BP 60153 RETHONDES FRANCE

Utilities

This month we are again focussing on utilities - that little-talked about, but much-used computing aid.

Making the most of YOUR micro is really what computing is all about. It is irrelevant what each individual sees as his ultimate goal in computing, as long as his computer does its best to help him reach it.

To some it will be enough to beat every high score on every game they play. Others will need to have explored the inner working of their computer, and will not rest until they feel they have grasped everything there is to know. Both these extremes, and the people in the middle, look at the computer really as a challange. As such, utilities are one of the ways of easing the burden of the challenge.

PRODUCT	FEATURES	MACHINE	PRICE	COMPANY
Illustrator	Broadens complexity of games, additional 12k of memory (graphics). Five different screen modes. It is a companion to The Quill used to create Hi-Resolution pictures for your adventures	C64	£14.95	Gilsoft
Slomo	Enables the operating speed of the computer to be adjusted to a speed to suit the successfully individual user, or can be instantly frozen at any time. It is a compact hand-held unit with cable and connector for fitting direct to the computer	C64 (will operate on 50% of currently available software)	£14.95 incl. VAT	Nidd Valley
Megadisk 4	Mailshot disk. Comprises an extra collection of Tape to Disk routines not included on MEGATRANSFER Disk and a highly effective NIBBLE DISK COPIER which will copy most protected commercial disks automatically	C64 C128	£12.00	Dosoft
Megatransfer Disk (extended edition)	Tape to disk transfer collection. Covers the major loading systems and a large number of individual loader types. Also includes DISKUS 1.2 – utility for transferring old, slowload titles.	C64 C128	£17.00	Dosoft
ADVERTURE GENERATOR The Graphic Software	Allows you to produce professional adventures with ease, but requires no knowledge of computer programming.	C64 C128	£22.95 *release date 1.5.86	Incentive

Adventure Creator	Some of the features are: full sentence input (not just verbnoun), text compression, a very flexible graphic designer, full word length recongnition			
Descender ROM	Replacement Rom chip for MPS 801 printer. Provides new character set with true descender tails for letters g,j,p,q,y, etc. Easy installation. 100% software compatible	C128/C64/Plus 4/ C16/VIC 20	£14.95	MPS
Disc Disector V4.0	Fourth generation disc back up/utility package. Includes Evesham, Turbo Nibbler, Dual Drive Nibbler and Nova Transfer, plus other utilities	C64 C128	£29.95	Evesham
Freeze Frame	At the touch of a switch you can freeze the program in memory, allowing you to save it to tape or disc. The saved version is fast loading and in the case of disc backups no longer has drive damaging DOS errors. The process is completely automatic – no knowledge of BASIC or machine language is required.	C64 C128	£39.95	Evesham
Megautility Disk	A useful collection of disk utilities. Disk fastloader, fast whole disk copier (unprotected), fast selective file copier. Now includes Disk to Tape plus absolutely free.	C64 C128	£12.50	Dosoft
The Quill	An adventure writing system – will allow you to write high quality text adventures without any knowledge of programming	C64	£14.95	Gilsoft
COPIER				
Turbo Nibbler	Can copy different speeds on a single track. Copies up to 41 tracks & can be used with one or two disk drives. Has an integrated disk scan, for half-tracks, speed and synocheck	C64 + 1541	£15.00	Eurosystems
Change since last month Toolkit IV	Disk		New Price £18.95	MPS

Companies

Gilsoft
2 Park Crescent
Barry S. Glam CF6 8HD

Micro Control Systems
Electron House
Bridge Street
Sandiacre Nottingham NG10
5BA

Incentive Software
54 London Street
Reading RG1 4SQ

Nidd Valley
Stepping Stones House
Thistle Hill
Knaresborough North
Yorkshire 8GS 8JW

Evesham Micros
Bridge Street, Evesham
Worcs WR11 4RY

Dosoft
2 Oakmoor Ave
Blackpool FY2 0EE

Swiftsoft
Dept CCI Venture House
7 Leicester Rd
Loughborough Leics LE11 2AE

First Publishing Ltd
Unit 20B, Horseshoe Park
Pangbourne Berks RG8 7SW

Computer Support U.K Ltd
26 Seacourt Rd
Abbey Wood London SE12
9UW

Eurosystems
Verlengde Parkweg 6,
6717 Gn Ede Holland

Robtek Ltd
Falloden Way
36 Market Place
London NW11 6JP

Information Developments Ltd
24 Deerings Rd
Reigate Surrey RH2 0PN

Novagen
142 Alcester Rd
Birmingham B13 8HS

Dynamite
27 Old Gloucester Street
London WC1N 3XX

Trilogic
29 Holme Lane
Bradford BD4 0QA

Cockroach Software
20 The Crescent
Machen
Newport Gwent NP1 8ND

MPS
36 Alexandra Grove
London N4 2LF

Era Soft
Edenderry Lodge
Banbridge
County Down
Northern Ireland
BT 32 3BS

Get your BASIC programs under control

BLINKER – 64

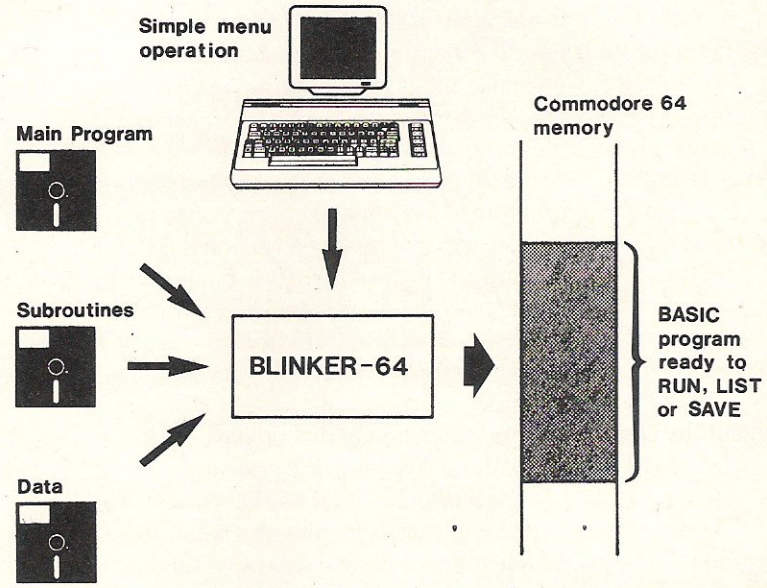
(BASIC Linker for Commodore 64 and 1541 Disk Drives

Do justice to your programming skills

Whatever your level of programming skill, it is difficult to produce any but the simplest programs in BASIC. The amount of text in a program means that you have to spend more thought and time on organising your program than you do on what the program is supposed to do. This is commonly known as "The Problem of Scale" which, in simple terms, means that there is a (fairly small) limit to what a human head can think about at any one time.

Professional programmers have for many years attacked this problem by breaking down their programs into small source modules which are compiled or assembled separately and the resulting object modules are combined into a complete program by a linkage editor (or linker).

Now you can develop programs in this way using **BLINKER-64,** INDEV's BASIC Linker for the Commodore 64. BLINKER-64 combines source modules directly into a final source program ready for the BASIC interpreter.



Features of BLINKER-64

– Easy to use menu operation.
– Up to 255 modules may be linked into a single program (more than 255 are possible by subsequent runs of BLINKER-64).
– Encourages modular approach to BASIC programming.
– Subroutines (saved on disk) included by **GOSUB "filename".**
– Supports up to four 1541 disk drives.
– Source modules may reside on any number of floppy disks.
– Modules containing data statements (e.g. sprite definitions and machine code programs) automatically appended to programs.
– Resulting program is in Commodore 64 memory ready to RUN, LIST or SAVE.
– BLINKER-64 takes no space at all away from BASIC programs. It resides in areas of memory not used by BASIC.
– BLINKER-64 is not just another simple merge, append or renumber utility (it makes the majority of these immediately obsolete). BLINKER-64 always produces a correctly numbered program regardless of the line numbers used in the source modules.

Educational use of BLINKER-64

We believe that BLINKER-64 will be of great value in the production of BASIC programs in the field of education.

It encourages the use of modular programming techniques and top-down design methods.

It enables class projects to be undertaken with individual students or groups of students being responsible for the design, coding, entry and debugging of their own parts of a large program.

Advantages of using BLINKER-64

– One of the most important features of modern programming languages (including assembly languages) is the ability to refer to library subroutines saved on disk. BLINKER-64 provides Commodore 64 BASIC with this facility.
– Subroutines developed for one program can easily be included in others, reducing the effort spent reinventing and re-entering them.
– Small source modules are easier to enter, edit and debug than large, complete programs.
– Program development time is substantially reduced.
– As a library of subroutines grows (whether you write or collect them) so your ability to produce more sophisticated programs increases.
– Your ability to construct non-trivial programs will increase the satisfaction you gain from programming your computer.
– You will be able to make proper use of your investment in a disk drive for developing programs rather than using it as a cassette deck replacement.

Availability of BLINKER-64

BLINKER-64 is available directly from INDEV. It is supplied under the terms of a Single User Licence agreement which enables you to use BLINKER-64 for your own purposes and to make copies of the disk on which it is supplied for back-up purposes only.

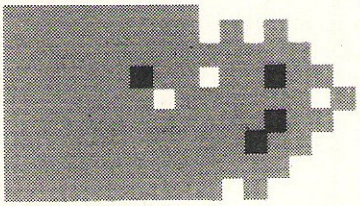
The package we send you contains a copy of the licence for you to sign and return together with full documentation and the BLINKER-64 program disk which is enclosed in a sealed wrapper.

If you decide you do not wish to accept the terms of the licence or, after reading the documentation, you do not want to use BLINKER-64, you must return the entire package undamaged together with the program disk with its sealed wrapper unbroken for a full refund.

Note that you are paying for a licence granting use of BLINKER-64. You may not unseal or use the program disk supplied unless you agree to the terms of licence.

BLINKER-64 is available under these conditions for £29.90 inclusive of P&P and VAT.

CALLERS BY APPOINTMENT ONLY



INDEV
Information Developments Limited
SOFTWARE ENGINEERING & MICROPROCESSOR SPECIALISTS

24 Deerings Road
Reigate, Surrey. RH2 0PN
Tel: Reigate (07372) 22755

Please supply BLINKER-64 single user licences at £29.90 each inclusive.

I enclose cheque/postal order payable to INDEV for £ in full payment.

I understand that if I do not agree with the terms of the licence that I must return, at my cost, the entire package undamaged together with the unopened program disk within 10 days after receipt and INDEV will make a full refund. If I do not do this then I shall be deemed to have accepted the licence and be bound by its terms.

NAME _____
ADDRESS _____
_____
_____
POST CODE _____

Signed _____
Date _____

(if you do not want to cut your magazine, copy the order form *in full* on a separate sheet of paper, or use a photocopy).

BASIC for beginners

PART V

Last month I looked at loops and control, a vital part of programming, this month I'll be exploring the topic of screen management. Programming a computer contains many elements, not least of all what is termed the 'front-end' of the program. By this I mean the actual appearance of your program to the user. Sometimes it may be that the programmer is the sole user, who may consider that the program front-end is satisfactory. On the other hand your program may be used by other people in the office, at work, in school or at home. It could well be that they know nothing about how the computer or it's program works, they may not even be remotely interested. However, you the programmer does have an interest and from your point of view a well designed front–end adds that touch of professionalism and polish. For the users it means less intimidation from the hardware and software, and makes using the computer more interesting. Another thing that you will find as a programmer, is that when users are happy then you'll get very few comments about your program. When they do not like the software, you'll certainly be told about it.

So let's just stop there and think for a moment about the point of the exercise. First we have to define what the program has to achieve and secondly how it is to achieve the objective. I'm jumping ahead of this series in talking about overall program design, but I feel very strongly about front-ends for programs which is why I want to cover this now at this point in the series. Who do you think designs the best front-ends in the world and not in the computer context? Answer: a chef in a restaurant. We've all experienced food that looked awful, but tasted delicious (and vice versa I hasten to add!). The job of the chef is to turn the lumps of raw meat into something that 'looks' good. There is an adage which I believe comes from the engineering world, 'if it looks right, then it is right'.

Microcomputers are becoming more powerful. They work faster, have larger memories, more sophisticated processors,use high capacity disk drives and come with bigger keyboards containing about 100 keys as standard. Screen management on these machines is designed into them from the start. Unfortunately, not all of us can aspire to these computers yet, but we can start applying the principles that these machines use to our own C64, C16, PLUS/4 or C128.

The C64 is the earliest out of this bunch and therefore doesn't have the degree of screen management routines built into it unlike the other three machines. I'm thinking here of screen windows which I'll be looking at later in this article, but for the moment lets look at the C64. Remember that at this level of BASIC programming the screen, anything that the C64 can do the others can do also.In fact, the C64 CAN support windows, but this can only be done through assembly language programming.

In BASIC there are two commands used for screen management, they are TAB and SPC. When you look up the definitions of these in your manual supplied with the machine, you'll find that they are connected with the formatting or layout of characters on the screen. TAB and SPC are terms derived from the days when only typewriters were the only thing to have keyboards and the names are shorthand for TABulate and SPaCe. These two commands allow you to precisely place a keyboard character in any position on the screen. Remember that a keyboard character doesn't necessarily have to be a letter, it can be a graphical character.

By using these within your BASIC program you can introduce concepts like boxes around key areas that you wish to catch the attention of the user with. The screen is not the only output device that can display the front-end of your program, you can also use the printer. For example you may wish to create a form which the user has to fill out with details. By surrounding the sectors on the paper with characters to indicate where the user has to place the information required can make a great deal of difference to both you in terms of accurate information collected and them in terms of making the task easier and more interesting. Some forms have taken this further and use a type of flow diagram approach based on YES/NO responses.

Take care when using these two commands with printers since they do have different effects. The TAB command on the screen will not perform the same way on the printer and the command SPC is used instead. In fact if you intend using printed output SPC is essential. A tip for learning the difference is SPC contains a 'P' meaning printer whereas TAB doesn't.

OK let's try using these commands and see what happens. Type in the following and run it:

```
10 PRINT CHR$(147)
20 PRINT SPC(10)
"COMMODORE
COMPUTERS"
```

The first line should be familiar to you by now and clears the screen. Line 20 contains the SPC command and places the text string contained in the double quotation marks at a position along the current screen line by the value specified in the brackets. In this instance it is 10, so try changing the value. You see how it is related to the length of the text string and will break the string up using certain values. The maximum value that SPC can accept is 255, try making it 250 in this example. You'll see that you have found a neat method for centralising characters on a line but also on the screen.

The screen centralisation is not exact because the cursor position at the start of line 10 was in the top left hand corner, remember CHR$(147) means 'clear the screen AND home the cursor). If you look in the back of the User Manual supplied with your machine you will find a table with all the ASCII and CHR$ codes. We want to make the string more centralised so we need to move the cursor down after clearing the screen but before executing line 20. Take a look at the table and you should find that CHR$(13) appears to be the one we want. CHR$(13) is the ASCII

code for 'carriage return' which is the equivalent of pressing the RETURN key on your machine. Now try adding another line to your program so that it looks likes this:

```
10 PRINT CHR$(147)
15 PRINT CHR$(13)
20 PRINT SPC(250)
"COMMODORE
COMPUTERS"
```

Not quite central so add another carriage return:

```
10 PRINT CHR$(147)
15 PRINT CHR$(13) :
PRINT CHR$(13)
20 PRINT SPC(250)
"COMMODORE
COMPUTERS"
```

That's better. If you want to move the string even further down the screen, then use more of the commands on line 15. It would not be very elegant programming to show line 15 as a series of PRINT CHR$(13) and so really it would need to be put into a loop.

```
10 PRINT CHR$(147)
14 FOR A 1 TO 4
15 PRINT CHR$(13)
16 NEXT A
20 PRINT SPC(250)
"COMMODORE
COMPUTERS"
```

We'll now make this a bit more appealing by underlining it. One of the attractions of all Commodore home computers is the range of graphics characters available in BASIC programming. In the following example I am going to underline the string with a broken line and position the whole thing near the top of the screen so that it looks like a heading of some sort:

```
10 PRINT CHR$(147)
15 PRINT SPC(10)
"COMMODORE
COMPUTERS"
20 FOR A 1 TO 20
25 PRINT CHR$(163)
SPC(1)
30 NEXT A
```

Lines 10 and 15 you already know about,line 20 marks the start of 20 times loop, but what's this on line 25? Well, look at your at your ASCII CHR$ table and find CHR$ 163, you'll see that it is the underline character. In fact that's not quite true since it really is a character on the following line which lies at the top of the character matrix or the invisible box that each character exists in when displayed. The other half of line 25 places the underline character. If you leave this section out then the 163 character is printed down the screen and not across. This is because as a line is executed a carriage return is performed. Change line 25 to simply PRINT CHR$(163) and see. But why a loop of 20? If you have run the above program in 80 column mode you will see the answer. The screen line width is 40 characters, we have made the loop iterate 20 times or repeat itself 20 times. Each iteration of the loop made the cursor position move across to the right by 1. Therefore it was only necessary to move the cursor 20 times since every alternate position on the line was taken up by the character that was printed.

It's time to try a different layout using the TAB command. Enter and run this program:

```
10 PRINT CHR$(147)
15 PRINT SPC(10)
"COMMODORE
COMPUTERS"
20 FOR A 1 TO 19
25 PRINT TAB(10)
CHR$(163) SPC(0)
30 NEXT A
```

Line 20 is different, the loop only has 19 iterations, line 25 is what? Well we have asked TAB to place the initial cursor positon after line 15 to be at the 10th column in from the left hand edge of the screen, then print the underline character but then SPC has a value of 0 and indicates that the cursor must not move any further across. On the next iteration of the loop the cursor jumps to the 11th column since column 10 has a character there and SPC told it to leave NO SPACE BETWEEN the characters so the new character is printed at column 11. Why only a loop of 19? Answer: count the length of the character string. Let's combine the centralise program and this program.

```
10 PRINT CHR$(147)
15 FOR A 1 TO 3
20 PRINT CHR$(13)
25 NEXT A
30 PRINT SPC(130)
"COMMODORE
COMPUTERS"
35 FOR B 1 TO 19
40 PRINT TAB(10)
CHR$(163) SPC(0)
45 NEXT B
```

Now this looks a whole lot better than some of those horrendous program listings published in some magazines that use rows of graphic characters to position something on the screen. The program looks profesional, uses less memory and is easier to read. Which do you prefer? There is still a bit of tidying up to do but I've left it in the form above for you to do that and also customise it to your own requirements. For example I haven't mentioned using colours for the background or individual characters or the character flash facilities of the PLUS/4, C16 or C128.

Windows present even more of an opportunity to make an attractive front-end to your programs, although be careful for two reasons. The first is fairly obvious, it is slightly trickier to produce formatted character displays within the window. The second reason relates to personal taste. It is very easy to get carried away with windows and utterly confuse the user, remember the golden rule of programming KISS, meaning 'keep it short, and simple'.

I stated earlier that only the later Commodore machines can support windows using BASIC and the thing to watch out for when using TAB and SPC is that *these take their positions from the edge of the window and not the main screen.* The 264 series, that is the C16 and PLUS/4 do not have a direct call from BASIC to generate a window and the programmer has to place the key strokes necessary in a string. For example to define the co-ordinates, position the cursor using the TAB command and then define the co-ordinate like this:

```
X$= CHR$(27) :REM define X$ as the
ESC character
PRINT X$ CHR$(84) REM CHR$(84)
=character T meaning top of window
```

The lower co-ordinate definition would look like this:

```
PRINT X$ CHR$(66) REM CHR$(66)
=character B meaning bottom of
window
```

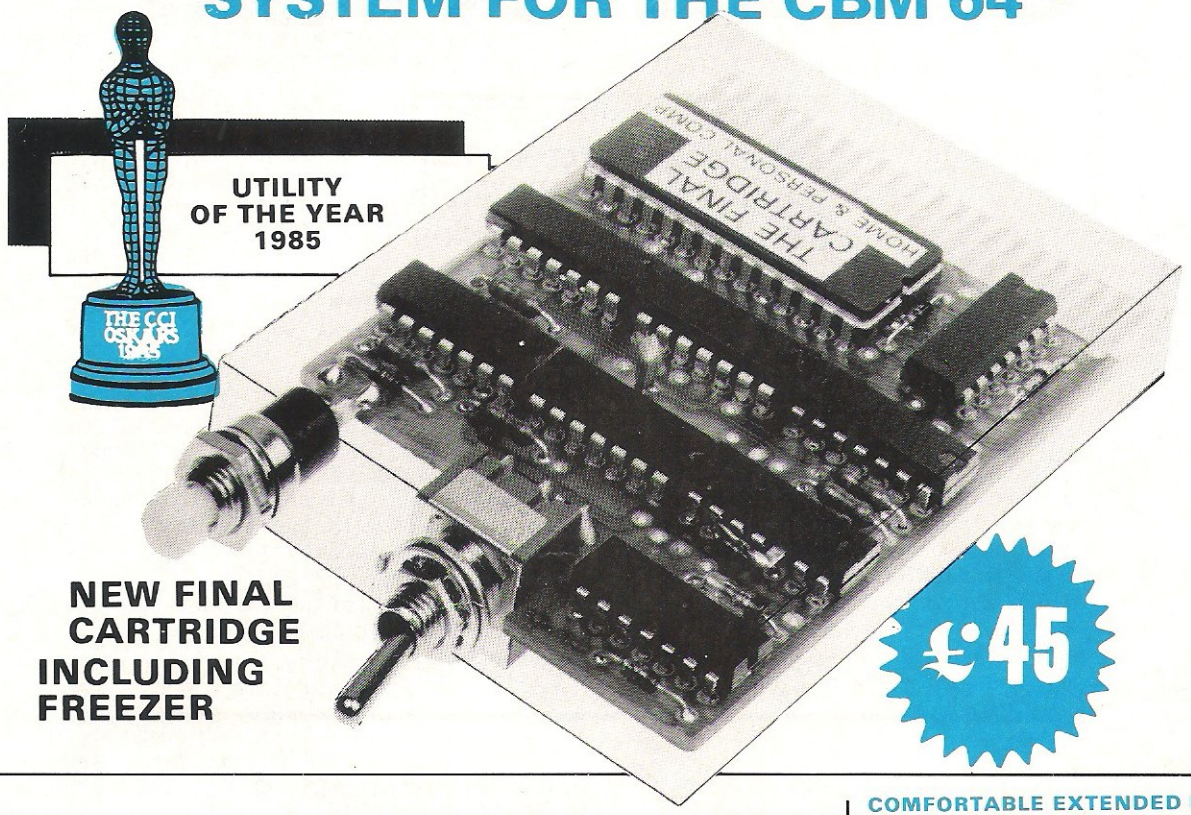
BASIC 7.0 of the C128 makes life considerably easier since it used the WINDOW command followed by the co-ordinates required. In the next part of this series I'll look a little further at the possibilities of windows on the newer machines because we will be lifting your machine's bonnet and doing a little PEEKing and POKEing.

These two commands allow you to directly access the hardware of the machine, but be warned they can lead to peculiar things happening if you don't know what you're doing. I would suggest that owners of the PLUS/4 and C16 start looking at the memory map of the PLUS/4 which was published in last months issue of CCI, incidentally the C16 memory map is identical. C128 owners should take a look at April issue of CCI for their machine's memory map. C64 owners should have the 'Programmers Reference Guide' to look at, if you haven't got this then Rae West's 'Programming the Commodore 64' is an excellent alternative. If you don't have either then should seriously consider purchasing these at the first opportunity.

(c) BILL DONALD
27 March 1986

THE FINAL CARTRIDGE

THE FIRST OUTSIDE OPERATING SYSTEM FOR THE CBM 64 *



NEW FINAL CARTRIDGE INCLUDING FREEZER

€45

This new operating system built in a cartridge does not use any memory and is always there. Compatible with 98% of all programs.

DISK TURBO - 6 times faster loading - 6 times faster saving.

TAPE TURBO - 10 times faster, even with files - normal Commodore commands - compatible with standard turbo's.

ADVANCED CENTRONICS INTERFACE - compatible with all the well-known centronics printers and Commodore printer programs. Prints all the Commodore graphics and control codes (important for listings).

SCREEN DUMP FACILITIES - of low-res Hi-res and multicolour screens!! Prints full page with 12 shades of grey for multicolour pictures even from games and programs like Doodle, Koala pad, Printshop etc. Searches automaticly for the memory-address of the Picture. Special version available for the CBM 801 and 803 printers.

24K EXTRA RAM FOR BASIC-PROGRAMS AVAILABLE: Two new commands „Memory read", „Memory write". They move 192 bytes with machinelanguage-speed anywhere in the 64K Ram of the CBM 64. Can be used with strings and variables.

BASIC 4.0 COMMANDS - like Dload, Dsave, Dappend, Catalog, etc.

BASIC TOOLKIT - with Auto, Renum (incl. Goto and Gosub), Find, Help, Old, etc.

* works with C128 in the 64 mode.

Original multicolour full page screen dump print out.

PREPROGRAMMED FUNCTION KEYS: - Run, Load, Save, Catalog, Disk commands, List (removes all list-protections).

KEYBOARD EXTRA'S - Allows you to delete part of a line; stop and continues listings; move cursor to lower lefthand corner. Pokes and Syscalls in Hex. Typ-command operates your printer as a typewriter.

COMFORTABLE EXTENDED ML. MONITOR: - with relocated load scrolling up and down. Bankswitching, etc. - **does not reside in memory.**

RESET SWITCH: - resets to monitor; resets with old, resets to Hi-res printing; resets every protected program.

ON/OFF SWITCH - we hope you never need that one.

FREEZER:

Stops and continues almost every program and allows you to make a total back up to disk or tape automatically.

Specs: **Creates one file on disk or tape. Packs the program. Freezes 4 to 6 times faster than dedicated freezers.**

Menu driven:
Freezer options include:
full page printing
fore- and background colour changes
reverse printing
jumps to monitor or reset

Training mode:
kills sprite collision detection.

14 Days money back guarantee if you are dissatisfied.

12 Months replacement guarantee.

H&P COMPUTERS

U.K. ORDERS Available by the wellknown Commodore Dealers or directly from

H & P Computers
9 Hornbeamwalk
Witham Essex CM8 2 SZ England d.
Telephone: 0376 - 51 14 71.

copyright and registered trademark H&P computers
Wolphaertsbocht 236 3083 MV Rotterdam Netherlands. Tel.: 01031 - 10231982 Telex 26401 a intx nl

Clockwise

Following our recent 128 graphics listing, John Smith has sent us his own version of John Picking's Clock program.

I thought John Picking's Clock program was excellent, but I felt that the corner pieces formed with quadrants of circles would look better if concentric with the centre circles. Hence the suggested modifications to lines 330, 340, 350, and 360. Also the centre framework looked a bit odd, so line 320 was suitably modified and line 325 was added to avoid the rubbing out of part of the frame. This modification required the additional paint command in line 420. The line of Globe at 30 requires similar correction.

The second program is a Union Jack display. It is important to start with a white background in this program to prevent distortion.

```
READY.

3 REM *** CLOCK ***
5 REM * COMMODORE COMPUTING INTERNATIONAL APRIL 1986 - JOHN PICKING *
10 CLR : DEF FNA(X)=X*π/180
20 COLOR 0,1:COLOR4,1:COLOR1,2
30 GRAPHIC0,1 : INPUT "TIME ";TI$
40 GRAPHIC1,1
50 SCALE 0
60 GOSUB 280
70 S=VAL(RIGHT$(TI$,2)):M=VAL(MID$(TI$,3,2)):H=VAL(LEFT$(TI$,2))
80 C=H*30+(INT(M/12)*6)
90 DO : LOOP WHILE TI$=X$
100 X$=TI$ :WIDTH2
110 DRAW 0,160,100          TO 50;S*6
120 S=S+1  : IF S=60 THEN S=0 :GOSUB200
130 WIDTH1:  DRAW 1,160,100 TO 50;(S*6)
140 GOSUB 160
150 GOTO 90
160 REM MINUTE & HOUR HAND
170 A=M*6
180 WIDTH2 : DRAW 1,160,100 TO 55;A
190 DRAW 1,160,100 TO 40;C :RETURN
200 WIDTH2:   DRAW 0,160,100 TO 55;A
210 M=M+1
220 IF M=60 THEN M=0 :H=H+1:IFH=12 THEN H=0
230 IF M/12=INT(M/12) THEN BEGIN
240 IFC>0THEN DRAW 0,160,100 TO 40;C-1
250 DRAW 0,160,100 TO 40;C
260 DRAW 0,160,100 TO 40;C+1 : C=C+6:BEND
279 GOTO 160
280 DRAW 1,17,0 TO 17,200 : DRAW 1,306,0TO306,200 : WIDTH1
290 CIRCLE 1,160,100,90,90
300 CIRCLE 1,160,100,67
310 BOX 1,65,5,255,195
320 BOX 1,61,0,259,199
325 DRAW1,55,0TO55,199:DRAW1,265,0TO265,199
330 DRAW 1,120,10TO70,10TO70,60:CIRCLE1,160,100,99,99,294,336:PAINT1,72,12
340 DRAW 1,200,10TO250,10TO250,60:CIRCLE1,160,100,99,99,24,66:PAINT1,244,12
350 DRAW 1,120,190TO70,190TO70,140:CIRCLE1,160,100,99,99,204,246:PAINT1,72,188
360 DRAW 1,200,190TO250,190TO250,140:CIRCLE1,160,100,99,99,114,156:PAINT1,248,18
8
```

```
370 COLOR1,10:CIRCLE 1,160,100,4 : PAINT1,160,100:COLOR1,2
380 SSHAPE A$,152,92,175,115
390 SPRSAV A$,1 : SPRITE 1,1,2  : MOVSPR1,175,142
400 PAINT 1,160,15
410 CIRCLE 0,160,100,88,88
420 COLOR1,10:PAINT1,40,0,1:PAINT1,270,10,1
430 DRAW 0,37,0TO37,200 :DRAW 0,286,0TO286,200        :COLOR1,2
440 I=30 :X=160 : Y=100 : WIDTH 2        :
450 GOSUB 500
460 FOR I=0TO360 STEP 6: WIDTH1
470 IF (I/30)=INT(I/30) THEN DRAW 0,160,100TO60;I:DRAW1,RDOT(0),RDOT(1)TO8;I: GO
TO490
480 DRAW0,160,100TO64;I: DRAW1,RDOT(0),RDOT(1)TO4;I
490 NEXT:WIDTH1:RETURN
500 REM I
510 I=30
520 LOCATE 160+(72*SIN(FNA(I))),100-(72*COS(FNA(I)))
530 DRAW 0,RDOT(0),RDOT(1)TO3;I+270TO7;I+90TO3;I+270TO11;ITO3;I+270TO7;I+90
540 REM II
550 I=60
560 LOCATE 160+(73*SIN(FNA(I))),100-(73*COS(FNA(I)))
570 DRAW0,RDOT(0),RDOT(1)TO5;I+270TO10;I+90TO3;I+270TO11;ITO3;I+90TO10;I+270TO3;
I+90TO11;I+180
580 REM III
590 I=90
600 LOCATE 160+(72*SIN(FNA(I))),100-(72*COS(FNA(I)))
610 DRAW0,RDOT(0),RDOT(1)TO6;I+270TO12;I+90TO3;I+270TO11;ITO3;I+90TO12;I+270TO3;
I+90TO11;I+180TO3;I+90TO11;I
620 REM IV
630 I=120
640 LOCATE 160+(72*SIN(FNA(I))),100-(72*COS(FNA(I)))
650 DRAW0,RDOT(0),RDOT(1)TO5;I+90TO10;I+270TO2;I+90TO11;ITO2;I+270TO10;I+90TO6;I
+270TO11;I+165TO11;I+15
660 REM V
670 I=150
680 LOCATE 160+(72*SIN(FNA(I))),100-(72*COS(FNA(I)))
690 DRAW0,RDOT(0),RDOT(1)TO3;I+90TO7;I+270TO3;I+90TO12;I-15TO1;I+270TO8;I+90TO1;
I+270TO11;I+195
700 REM VI
710 I=180
720 LOCATE 160+(72*SIN(FNA(I))),100-(72*COS(FNA(I)))
730 DRAW0,RDOT(0),RDOT(1)TO5;I+90TO11;I+270TO4;I+90TO12;I-15TO1;I+270TO10;I+90TO
3;I+270TO12;I+195TO5;I+90TO11;I
740 REM VII
750 I=210
760 LOCATE 160+(72*SIN(FNA(I))),100-(72*COS(FNA(I)))
770 DRAW0,RDOT(0),RDOT(1)TO5;I+90TO11;I+270TO4;I+90TO12;I-15TO1;I+270TO10;I+90TO
3;I+270TO12;I+195TO5;I+90TO12;I
780 DRAW0,RDOT(0),RDOT(1)TO5;I+90TO2;I+270TO12;I+180TO2;I+90TO5;I+270
790 REM VIII
800 I=240
810 LOCATE 160+(72*SIN(FNA(I))),100-(72*COS(FNA(I)))
820 DRAW0,RDOT(0),RDOT(1)TO5;I+90TO11;I+270TO4;I+90TO12;I-15TO1;I+270TO10;I+90TO
3;I+270TO12;I+195TO5;I+90TO12;I        :
830 DRAW0,RDOT(0),RDOT(1)TO5;I+90TO2;I-90TO12;I+180TO5;I+90TO2;I-90TO12;ITO2;I+9
0TO3;I-90
840 REM IX
850 I=270
860 LOCATE 160+(73*SIN(FNA(I))),100-(73*COS(FNA(I)))
870 DRAW0,RDOT(0),RDOT(1)TO4;I-90TO2;I+90TO11;ITO2;I-90TO10;I+90TO2;I-90TO12;I+2
00TO6;I+90TO2;I-90TO12;I-20
880 REM X
890 I=300
900 LOCATE 160+(73*SIN(FNA(I))),100-(73*COS(FNA(I)))
910 DRAW0,RDOT(0),RDOT(1)TO1;I+90TO8;I-90TO5;I+90TO12;I-20TO2;I-90TO8;I+90TO2;I-
90TO12;I+200
920 REM XI
930 I=330
940 LOCATE 160+(72*SIN(FNA(I))),100-(72*COS(FNA(I)))
950 DRAW0,RDOT(0),RDOT(1)TO4;I+90TO2;I-90TO11;ITO2;I+90TO9;I-90TO0;I+90TO12;I+16
0TO4;I-90TO12;I+20
960 REM XII
970 I=360
980 LOCATE 160+(72*SIN(FNA(I))),100-(72*COS(FNA(I)))
990 DRAW0,RDOT(0),RDOT(1)TO3;I+270TO10;I+90TO3;I+270TO11;ITO3;I+90TO10;I+270TO3;
I+90TO11;I+180
992 DRAW0,RDOT(0),RDOT(1)TO1;I+90TO8;I-90TO5;I+90TO12;I-20TO2;I-90TO8;I+90TO2;I-
90TO12;I+200.
1000 RETURN
```

```
READY.

5 REM *** UNION JACK ***
10 COLOR 0,2
20 COLOR 1,3
30 COLOR 4,1
40 GRAPHIC 1,1
110 DRAW 1,34,8TO134,8TO134,68TO34,8:DRAW 1,186,8TO286,8TO186,68TO186,8:DRAW 1,8
,24TO92,74TO8,74TO8,24:DRAW 1,312,24TO312,74TO228,74TO312,24
120 DRAW1,8,126TO92,126TO8,176TO8,126:DRAW1,228,126TO312,126TO312,176TO228,126:D
RAW1,134,132TO134,192TO34,192TO134,132:DRAW1,186,132TO286,192TO186,192TO186,132
200 COLOR 1,7
220 PAINT1,24,48:PAINT1,120,48:PAINT1,200,48:PAINT1,296,48:PAINT1,24,144:PAINT1,
120,144:PAINT1,200,144:PAINT1,296,144
300 COLOR 1,3
310 DRAW1,8,8TO118,74TO105,74TO8,16TO8,8:DRAW1,299,8TO312,8TO202,74TO189,74TO299
,8
320 DRAW1,118,126TO131,126TO21,192TO8,192TO118,126:DRAW1,202,126TO215,126TO312,1
84TO312,192TO202,126
330 DRAW1,144,8TO176,8TO176,84TO312,84TO312,116TO176,116TO176,192TO144,192TO144,
116TO8,116TO8,84TO144,84TO144,8
410 PAINT1,66,48:PAINT1,240,48:PAINT1,66,160:PAINT1,240,144:PAINT1,160,100
510 DRAW1,8,23TO8,7TO34,7:DRAW1,134,7TO186,7:DRAW1,286,8TO312,8TO312,24:DRAW1,31
2,74TO312,126
520 DRAW1,312,176TO312,193TO286,193:DRAW1,134,192TO186,192:DRAW1,8,176TO8,192TO3
4,192:DRAW1,8,75TO8,126
600 COLOR1,1
610 PAINT 1,2,2
```

ATTENTION ALL PROGRAMMERS!!

You may be an experienced programmer – you may be a beginner. Either way, you may have come across some useful tips which could make life easier for other CCI readers.

Or maybe you have written a program, either in Basic or assembly language, that you feel is worthy of publication.

CCI always welcomes contributions from readers. We will publish any suitable listings or programming advice...and we'll pay you for it!

If you wish to contribute something for publication, we require programs on cassette or disk, together with any additional explanatory information and a CLEAR printout of any listings. (The better the original printout, the better the reproduction in the magazine.)

Please enclose a SAE if you wish to have your program returned to you. Please package disks or cassettes carefully!

The address to send contributions to is:
The Editor,
Commodore Computing International,
Finsbury Business Centre,
40 Bowling Green Lane,
London EC1R ONE

Don't forget...CCI welcomes programs for all Commodore computers – 64, Plus/4, C16, 128 plus the VIC and PET.

Bouncing Ball

Having seen the Amiga in action at a local club evening, and feeling totally awestruck, I decided to write a version of the now famous 'Bouncing ball demo' for the 64.

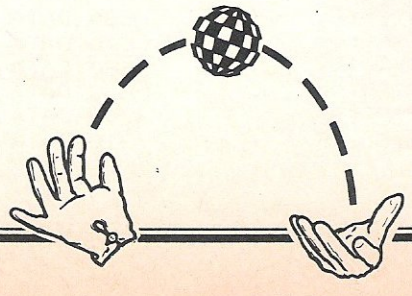
The program uses eight multicoloured sprites, arranging them in two rows of four expanded in the Y direction. This results in the 'ball' being quite large, but still retaining a reasonable degree of roundness. All of the sprite animation, colour changing, and movement is carried out by a raster interrupt routine, which is triggered whenever the scan is at the top of the screen. I have also added artificial gravity to give a more realistic effect, and filtered white noise to achieve a good bounce sound. The rotation of the ball is created by swapping the three multicolours in the sprites around, first in one direction, and then when the ball hits the sides of the screen, in the other direction.

The Amiga's bouncing ball demo is now famous. Jeremy Hall has written this routine to provide a similar effect on your 64

I hope the program provides some entertainment to all you would-be Amiga owners who, like myself, cannot wait to get their hands on one.

```
10 REM ********************************
20 REM        BOUNCING BALL DEMO
30 REM      WRITTEN BY JEREMY HALL
40 REM           JANUARY 1986
50 REM ********************************
60 GOTO130
70 REM HEX TO DEC SUBROUTINE
80 A1=ASC(RIGHT$(A$,1)):A2=ASC(LEFT$(A$,1))
90 A1=A1-48+(7*(A1>64))
100 A2=A2-48+(7*(A2>64))
110 A=A1+(A2*16)
120 RETURN
130 PRINTCHR$(147);"...WORKING HARD..."
140 SA=15360:T=0:CH=0
150 READ A$:IF A$="XX"THEN GOTO180
160 GOSUB80
170 POKESA+T,A:T=T+1:CH=CH+A:GOTO 150
180 IF CH<>58341 THEN PRINT"SPRITE DATA ERROR !":STOP
190 SA=16384:T=0:CH=0
200 READ A$:IF A$="XX"THEN GOTO230
210 GOSUB80
220 POKESA+T,A:T=T+1:CH=CH+A:GOTO 200
230 IF CH<>85625 THEN PRINT"PROGRAM DATA ERROR !":STOP
240 SYS16384
250 REM SPRITE DATA FIRST
260 DATA 00,00,00,00,00,00,00,00
270 DATA 00,00,00,00,00,00,02,00
280 DATA 00,09,00,00,25,00,00,97
290 DATA 00,02,57,00,09,5F,00,29
300 DATA 7F,00,25,FE,00,A5,FE,00
310 DATA 97,FA,00,97,FA,02,9F,EA
320 DATA 02,5F,EA,02,5F,EA,02,5F
330 DATA E9,02,5F,E9,02,5F,E9,00
340 DATA 00,02,76,00,97,9E,29,7E
350 DATA 7A,97,F9,7A,5F,A5,FA,7E
360 DATA 97,FA,FA,57,EA,EA,5F,EA
370 DATA E9,5F,EA,A5,7F,AA,A5,7F
380 DATA AA,95,7F,AA,95,7F,AA,95
390 DATA FF,AA,55,FF,AA,55,FF,AA
400 DATA 55,FE,AA,55,FE,AA,57,FE
410 DATA AA,57,FE,AA,57,FE,AA,5F
420 DATA 6E,40,00,79,E9,00,5E,7E
430 DATA 94,5E,9F,E9,5F,A5,FA,5F
440 DATA E9,7E,57,EA,5F,57,FA,57
450 DATA 57,FA,97,55,FE,A5,55,FE
460 DATA A5,55,FE,A9,55,FE,A9,55
470 DATA FF,A9,55,FF,AA,55,FF,AA
480 DATA 55,7F,AA,55,7F,AA,55,7F
490 DATA EA,55,7F,EA,55,7F,EA,5F
500 DATA 00,00,00,00,00,00,00,00
510 DATA 00,00,00,00,00,00,00,90
520 DATA 00,00,A4,00,00,E9,00,00
530 DATA EA,40,00,FA,90,00,FF,94
540 DATA 00,7F,A4,00,7F,A5,00,3F
550 DATA E9,00,5F,E9,00,57,F9,40
560 DATA 57,FA,40,57,FA,40,97,FA
570 DATA 40,97,FA,40,97,FA,40,00
580 DATA 02,5F,E9,02,5F,E9,02,5F
590 DATA E9,02,5F,EA,02,5F,EA,02
600 DATA 9F,EA,00,97,FA,00,97,FA
610 DATA 00,A5,FE,00,25,FE,00,29
620 DATA 7F,00,09,5F,00,02,57,00
630 DATA 00,97,00,00,25,00,00,09
640 DATA 00,00,02,00,00,00,00,00
650 DATA 00,00,00,00,00,00,00,00
660 DATA 57,FE,AA,57,FE,AA,57,FE
670 DATA AA,55,FE,AA,55,FE,AA,55
680 DATA FF,AA,55,FF,AA,95,FF,AA
690 DATA 95,7F,AA,95,7F,AA,A5,7F
700 DATA AA,A5,7F,AA,E9,5F,EA,EA
710 DATA 5F,EA,FA,57,EA,7E,97,FA
```

```
720 DATA 5F,A5,FA,97,F9,7A,29,7E
730 DATA 7A,00,97,9E,00,02,76,5F
740 DATA 55,7F,EA,55,7F,EA,55,7F
750 DATA EA,55,7F,AA,55,7F,AA,55
760 DATA FF,AA,55,FF,AA,55,FF,A9
770 DATA 55,FE,A9,55,FE,A9,55,FE
780 DATA A5,55,FE,A5,57,FA,97,57
790 DATA FA,57,57,EA,5F,5F,E9,7E
800 DATA 5F,A5,FA,5E,9F,E9,5E,7E
810 DATA 94,79,E9,00,6E,40,00,5F
820 DATA 97,FA,40,97,FA,40,97,FA
830 DATA 40,57,FA,40,57,FA,40,57
840 DATA F9,40,5F,E9,00,5F,E9,00
850 DATA 7F,A5,00,7F,A4,00,FE,94
860 DATA 00,FA,90,00,EA,40,00,E9
870 DATA 00,00,A4,00,00,90,00,00
880 DATA 00,00,00,00,00,00,00,00
890 DATA 00,00,00,00,00,00,00,00
900 DATA 00,00,00,00,00,00,00,00
910 DATA 00,00,00,00,00,00,00,00
920 DATA 00,00,00,00,00,00,00,00
930 DATA 00,00,00,00,00,00,00,00
940 DATA 00,00,00,00,00,00,00,00
950 DATA 00,00,00,00,00,00,00,00
960 DATA 00,00,00,00,00,00,00,00
970 DATA 00,00,00,00,00,00,00,00
980 DATA FF,XX
990 REM NOW THE PROGRAM DATA
1000 DATA A9,F7,A2,FF,8E,20,D0,8E
1010 DATA 21,D0,A2,07,9D,F8,07,38
1020 DATA E9,01,CA,10,F7,A2,00,BD
1030 DATA 6A,42,F0,06,20,D2,FF,E8
1040 DATA D0,F5,A0,15,A2,00,BD,96
1050 DATA 42,F0,06,20,D2,FF,E8,D0
1060 DATA F5,88,10,F0,A2,00,BD,BF
1070 DATA 42,F0,06,20,D2,FF,E8,D0
1080 DATA F5,A9,40,8D,00,D4,A9,02
1090 DATA 8D,01,D4,A9,0A,8D,05,D4
1100 DATA 8D,06,D4,A9,55,8D,16,D4
1110 DATA A9,F1,8D,17,D4,A9,1F,8D
1120 DATA 18,D4,A2,0F,BD,EE,40,9D
1130 DATA 00,D0,CA,10,F7,A0,07,A2
1140 DATA 0E,BD,EE,40,9D,FE,40,A9
1150 DATA 00,9D,FF,40,BD,EF,40,99
1160 DATA 0E,41,88,CA,CA,10,EA,A9
1170 DATA 00,8D,29,41,8D,2A,41,8D
1180 DATA 2B,41,A2,07,A9,04,9D,27
1190 DATA D0,CA,10,FA,A9,FF,8D,17
1200 DATA D0,8D,1C,D0,8D,15,D0,78
1210 DATA A9,2F,8D,14,03,A9,41,8D
1220 DATA 15,03,A9,04,8D,2D,41,8D
1230 DATA 2E,41,A9,01,8D,1A,D0,AD
1240 DATA 11,D0,29,7F,8D,11,D0,A9
1250 DATA 00,8D,12,D0,A9,FF,8D,19
1260 DATA D0,A9,00,8D,0E,DC,58,4C
1270 DATA D7,40,18,69,01,C9,07,D0
1280 DATA 02,A9,04,60,38,E9,01,C9
1290 DATA 03,D0,02,A9,06,60,60,32
1300 DATA 78,32,90,32,A8,32,60,5C
1310 DATA 78,5C,90,5C,A8,5C,00,00
1320 DATA 00,00,00,00,00,00,00,00
1330 DATA 00,00,00,00,00,00,00,00
1340 DATA 00,00,00,00,00,00,00,01
1350 DATA 02,02,03,03,04,05,05,06
1360 DATA 07,07,08,08,09,0A,0A,0B
1370 DATA 0C,00,00,00,00,00,00,AE
1380 DATA 2E,41,CA,8E,2E,41,D0,4D
1390 DATA A9,02,8D,2E,41,AD,29,41
1400 DATA F0,23,AD,2D,41,8D,26,D0
1410 DATA 20,E4,40,8D,25,D0,20,E4
1420 DATA 40,A2,07,9D,27,D0,CA,10
1430 DATA FA,AD,2D,41,20,E4,40,8D
1440 DATA 2D,41,18,90,20,AD,2D,41
1450 DATA A2,07,9D,27,D0,CA,10,FA
1460 DATA 20,DA,40,8D,25,D0,20,DA
1470 DATA 40,8D,26,D0,AD,2D,41,20
1480 DATA DA,40,8D,2D,41,A2,0E,AD
1490 DATA 29,41,30,17,18,BD,FE,40
1500 DATA 69,04,9D,FE,40,BD,FF,40
1510 DATA 69,00,9D,FF,40,CA,CA,10
1520 DATA EB,30,15,38,BD,FE,40,E9
1530 DATA 04,9D,FE,40,BD,FF,40,E9
1540 DATA 00,9D,FF,40,CA,CA,10,EB
1550 DATA A2,07,AC,2B,41,AD,2A,41
1560 DATA 30,20,18,BD,0E,41,79,16
1570 DATA 41,9D,0E,41,CA,10,F3,C8
1580 DATA 8C,2B,41,C0,14,D0,24,20
1590 DATA 5A,42,CE,2B,41,CE,2A,41
1600 DATA 30,19,38,BD,0E,41,F9,16
1610 DATA 41,9D,0E,41,CA,10,F3,88
1620 DATA 8C,2B,41,10,06,EE,2B,41
1630 DATA EE,2A,41,AD,FE,40,C9,F0
1640 DATA D0,08,20,5A,42,CE,29,41
1650 DATA 30,0A,C9,18,D0,06,20,5A
1660 DATA 42,EE,29,41,A2,0F,BD,FE
1670 DATA 40,F0,07,38,2E,2C,41,18
1680 DATA 90,04,18,2E,2C,41,CA,CA
1690 DATA 10,EC,A0,07,A2,0E,BD,FE
1700 DATA 40,9D,00,D0,B9,0E,41,9D
1710 DATA 01,D0,88,CA,CA,10,EF,AD
1720 DATA 2C,41,8D,10,D0,A9,81,8D
1730 DATA 19,D0,AD,11,D0,29,7F,8D
1740 DATA 11,D0,A9,00,8D,12,D0,4C
1750 DATA 31,EA,A9,81,8D,04,D4,A9
1760 DATA 80,8D,04,D4,A9,81,8D,04
1770 DATA D4,60,93,B0,C0,B2,C0,B2
1780 DATA C0,90,57,52,49,54,54,45
1790 DATA 4E,20,42,59,20,4A,45,52
1800 DATA 45,4D,59,20,48,41,4C,4C
1810 DATA 20,31,39,38,36,9A,C0,B2
1820 DATA C0,B2,C0,AE,20,00,AB,C0
1830 DATA DB,C0,DB,C0,DB,C0,DB,C0
1840 DATA DB,C0,DB,C0,DB,C0,DB,C0
1850 DATA DB,C0,DB,C0,DB,C0,DB,C0
1860 DATA DB,C0,DB,C0,DB,C0,DB,C0
1870 DATA DB,C0,DB,C0,B3,20,00,AD
1880 DATA C0,B1,C0,B1,C0,B1,C0,B1
1890 DATA C0,B1,C0,B1,C0,B1,C0,B1
1900 DATA C0,B1,C0,B1,C0,B1,C0,B1
1910 DATA C0,B1,C0,B1,C0,B1,C0,B1
1920 DATA C0,B1,C0,B1,C0,BD,20,00
1930 DATA 00,00,00,XX
```



REVIEW

68000 ASSEMBLY LANGUAGE PROGRAMMING, by L.Leventhal, G.Kane & D.Hawkins – £18.95

Regular readers of my book reviews in CCI will know that I am forever singing the praises of the works of Lance Leventhal. The well established series to which this book belongs follow a set layout format which personally I find both instructive and visually attractive. The typographical standards to which this particular publisher operate at are a model to others and although this series is undoubtedly expensive, they are a worthwhile addition to any serious programmer's library shelf.

The 68000 is a 'heavyweight' processor compared to the tried and trusted 6502 of which most readers of CCI are familiar with. By this I mean that with an abundance of registers, two choices of operating mode and not least the ability to subdivide registers in terms of width makes the 68000 family equate to one word – power. To give you a taster of the 68000, it has 8 data registers and 7 address registers, five times the number of equivalent registers in the 6502. It has 2 stack pointer registers for the user and supervisor stacks and a program counter register. The final register is the status register which is only 16-bits wide; oh, didn't I mention the other 18 registers are 32-bit wide, or four times the width of the 6502.

One big advantage 6502 assembler programmers have over the Z80 gang are the similarity between addressing modes, something the Z80 lacks. In most cases they are indentical and if you approach learning the 68000 as a BIG 6502 you shouldn't go far wrong. Ironically, Z80 programmers have told me that they take the same approach treat the 68000 as a BIG Z80. Their difficulty is not so much coming to grips with the quantity of registers since the Z80 holds a comparable number, but addressing modes!

Some of the instructions available from standard op-codes are a positive dream, how about multiplication and division or 7 levels of interrupts. You can produce code for 64-bit artihmetic (no, that's not a typing error, I did say 64-bit!) using 12 lines and of these 12 lines, only 5 lines account for the main body of the program the rest being standard assmebler structures such as EQU, ORG, RTS and END. A major part of the design brief of the hardware engineers at Motorola was to keep the instruction set simple but powerful and compatible but restricted in number, to this end they have succeeded handsomely, there is a basic 56 op-code set that runs the 68000.

This book will not directly help you learn about the AMIGA. What it will show are the underlying principles of the assembly language if you needed to go down to that level. However, you will find that virtually all 68000 based machines do not encourage this, purely on the grounds that it is unnecessary because of the complexity of the operating system. Despite this, sometimes it is necessary to go into assembly language level, for example, if your routine is time-critical and demands absolute maximum execution speed. I personally feel that even a smattering of assembly knowledge for the mpu in hand is better than none at all. Besides if I, a hitherto dedicated 6502 man can manage it, then so can you – programming on the 6502 compared to the 68000 is like trying to get big daddy into a pair of trousers owned by Ronnie Corbett, the sensation of space and therefore freedom is incomparable.

Interestingly, even the weight of the 68000 seems to be too much for our beloved Lance as he has to recruit the aid of two additional co-authors. Any complaints? Not complaints really, the book is very dated in general computer terms since it was first published in 1981 and this is reflected in the lack of cover of input/output circuits specific to the 68000 such as the 68450 or 68881, presumably these weren't generally available at that time. Hopefully the book will be updated if and when a second edition appears, which really should be soon (I hope you're reading this Mr McGraw-Hill) as the popularity of this mpu is certainly increasing, witness the Mackintosh, Atari ST as well as the Amiga. Input/output does receive some attention but uses the 6820 PIA and 6850 ACIA as models. I didn't count but I would estimate that there are in excess of 500 pages so you really do get your monies worth. Should be one of your first purchases if you are just thinking about buying an Amiga and programming it.

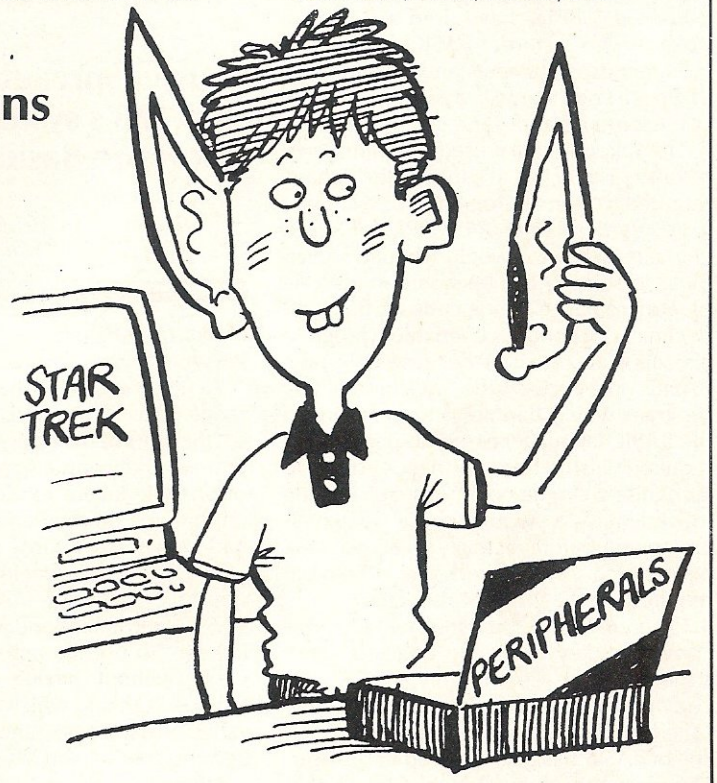
Contact: McGraw-Hill, Shoppenhangers Road, Maidenhead, Berks SL6 2QL. Tel:0628 23432

WARNING

Do you take computing very seriously ? Well, Kipper Williams doesn't. His very sharp and zany cartoons appear in Time Out, Smash Hits and Radio Times.

"Warning, This Computer Bytes" is terrific fun and real value at £1.95. Publisher: Javelin Books, Link House, West Street, Poole, Dorset, U.K.

Byting Cartoons



Commodore 128: Basic V7.0 Tokens

Austin Spreadbury reveals the 128's system of tokens to store Basic keywords

All Commodore BASIC'S, including the original version 1 on the 'Old ROM' 2001 series PETS, have used a system of 'tokens' to store BASIC keywords (commands, statements and functions). A token is a code stored in a program in place of the word it stands for.

This token system is used for a number of resons. Firstly, it reduces the space required to store a program. For example, a keyword such as RESTORE, of seven characters which would require seven bytes to store it, can be stored in just one byte if it replaced by the code 8C hex (140 decimal). Secondly, it enables program execution to be faster because when the BASIC interpreter (the machine code program which handles all operations in the BASIC language) comes to perform the required instruction, it needs only to recognise a simple code, instead of trying to indentify a word whose length is unknown, before actually executing the instruction. Less work is therefore required, so the program runs faster.

Of course, it is therefore necessary to convert all keywords into codes at some stage, and in Commodore BASIC this coding is done by a machine code routine called a 'tokeniser' immediately after each line of BASIC has been entered by the user. The reason for doing it at this stage is that the relatively long time it takes does not matter as the computer will still be ready for the next line when the user is about to enter it. The delay is only noticeable on very long lines.

The original Commodore BASIC used single byte tokens with values from 80 hex (128 decimal) up. This range was chosen to differentiate between tokens and other parts of the progress text – any characters with ASCII codes greater than 127 which were found in lines entered by the user were ignored unless inside quotation marks (in which case they could not be keyword tokens anyway)

A single byte can hold a value in the range 00 to FF hex (0 to 255 decimal) and so the choice of codes from 128 up to represent keywords restricted the number of possible tokens to 128. This was of no importance on the earlier BASICS as they had fewer keywords than this limit. However, it ws decided that the 128 should be given a truly comprehensive BASIC interpreter - one which would allow the user to use the machine's capabilities easily without having to resort to the tedious POKEing which was necessary on earlier machines, most notably the Commodore 64 and VIC-20.

Altogether, the 128's BASIC has 171 keywords, more than the previous maximum limit of 128, and so another way of storing tokens had to be found.

The system Commodore chose was to add as many single byte tokens as possible and then to use two-byte codes for the rest. All new functions which require two-byte codes consist of a byte containing CE hex (206 decimal) followed by another byte containing value in the range 02 to OA hex (2 to 10 decimal). All two-byte primary keywords (see below) have FE hex (254 decimal) in the first byte and a value in the range 02 to 26 hex (2 to 38 decimal) in the second.

A complete list of BASIC V7.0 tokens is given in the table. The list is divided into six catagories as follows ;

1. Primary Keywords These keywords are the commands and statements which the machine actually executes. They are the words which appear at the start of each BASIC instruction, eg PRINT, GOTO, GET, etc

2. Secondary Keywords These are the words which although not executed directly are important to the syntax of instructions in which they appear. For example, the word TO is required in a FOR statement, FN is required after DEF, and THEN is needed in an IF statement.

3. Arithmetic operators These are the symbols which indicate arithmetic operations in numercal expressions. The + symbol is also used to concatenate (join) strings.

4. Logical operators These words indicate logical AND and OR operations which are carried out on integer parameters in numerical expressions.

5. Functions These words carry out specific operations on the arguments or parameters contained in the brackets following them, and return the results.

6. Comparison operators These symbols are used in expressions (particularly those in IF statements) to test the relation between two strings or numbers).

The table also gives the 'action addresses' for those keywords which are executed directly by the interpreter. An action address is the address of the location in the computer's memory where the machine code routine to carry out that keyword's required operation starts. since secondary keywords are not actually executed, they do not have action addresses as such.

Commodore BASIC V7.0 Tokens and Action Addresses Total: 171

PRIMARY KEYWORDS Total: 111

Token	Keyword	Addr	Token	Keyword	Addr	Token	Keyword	Addr
80	END	4BCD	D6	RESUME	5F62	FE 02	BANK	6BC9
81	FOR	50F9	D7	TRAP	5F4D	FE 03	FILTER	7046
82	NEXT	57F4	D8	TRON	58B4	FE 04	PLAY	6DE1
83	DATA	528F	D9	TROFF	58B7	FE 05	TEMPO	6F07
84	INPUT#	5648	DA	SOUND	71EC	FE 06	MOVSPR	6CC6
85	INPUT	5662	DB	VOL	71C5	FE 07	SPRITE	6C4F
86	DIM	587B	DC	AUTO	5975	FE 08	SPRCOLOR	7190

87	READ	56A9	DD	PUDEF	5F34	FE 09	RREG	58BD
88	LET	53C6	DE	GRAPHIC	6B5A	FE 0A	ENVELOPE	70C1
89	GOTO	59DB	DF	PAINT	6186	FE 0B	SLEEP	6BD7
8A	RUN	5A9B	E0	CHAR	67D7	FE 0C	CATALOG	A07E
8B	IF	52C5	E1	BOX	62B7	FE 0D	DOPEN	A11D
8C	RESTORE	5ACA	E2	CIRCLE	668E	FE 0E	APPEND	A134
8D	GOSUB	59CF	E3	GSHAPE	658D	FE 0F	DCLOSE	A16F
8E	RETURN	5262	E4	SSHAPE	642B	FE 10	BSAVE	A1C8
8F	REM	529D	E5	DRAW	6797	FE 11	BLOAD	A218
90	STOP	4BCB	E6	LOCATE	6955	FE 12	RECORD	A2D7
91	ON	53A3	E7	COLOR	69E2	FE 13	CONCAT	A362
92	WAIT	6C2D	E8	SCNCLR	6A79	FE 14	DVERIFY	A1A4
93	LOAD	912C	E9	SCALE	6960	FE 15	DCLEAR	A332
94	SAVE	9112	EA	HELP	5986	FE 16	SPRSAV	76EC
95	VERIFY	9129	EB	DO	5FE0	FE 17	COLLISION	7164
96	DEF	84FA	EC	LOOP	608A	FE 18	BEGIN	769C
97	POKE	80E5	ED	EXIT	6039	FE 19	BEND	528F
98	PRINT#	553A	EE	DIRECTORY	A07E	FE 1A	WINDOW	72CC
99	PRINT	555A	EF	DSAVE	A18C	FE 1B	BOOT	7335
9A	CONT	5A60	F0	DLOAD	A1A7	FE 1C	WIDTH	71B6
9B	LIST	50E2	F1	HEADER	A267	FE 1D	SPRDEF	7372
9C	CLR	51F8	F2	SCRATCH	A2A1	FE 1E	QUIT	-
9D	CMD	5540	F3	COLLECT	A32F	FE 1F	STASH	AA1F
9E	SYS	5885	F4	COPY	A346	FE 20	-	-
9F	OPEN	918D	F5	RENAME	A36E	FE 21	FETCH	AA24
A0	CLOSE	919A	F6	BACKUP	A37C	FE 22	-	-
A1	GET	5612	F7	DELETE	5E87	FE 23	SWAP	AA29
A2	NEW	51D6	F8	RENUMBER	5AF8	FE 24	OFF	-
CB	GO	5A3D	F9	KEY	610A	FE 25	FAST	77B3
D5	ELSE	5391	FA	MONITOR	B000	FE 26	SLOW	77C4

SECONDARY KEYWORDS — Total: 10

Token	Keyword	Addr	Token	Keyword	Addr	Token	Keyword	Addr
A3	TAB(	-	A7	THEN	-	FC	UNTIL	-
A4	TO	-	A8	NOT	-	FD	WHILE	-
A5	FN	-	A9	STEP	-			
A6	SPC(	-	AA	USING	-			

ARITHMETIC OPERATORS — Total: 5

Token	Keyword	Addr	Token	Keyword	Addr	Token	Keyword	Addr
AA	+	8848	AC	*	8A27	AE	↑	8FC1
AB	-	8831	AD	/	8B4C			

LOGICAL OPERATORS — Total: 2

Token	Keyword	Addr	Token	Keyword	Addr
AF	AND	4C89	B0	OR	4C86

Commodore BASIC V7.0 Tokens and Action Addresses (continued)

FUNCTIONS — Total: 40

Token	Keyword	Addr	Token	Keyword	Addr	Token	Keyword	Addr
B4	SGN	8C65	C2	PEEK	80C5	D2	HEX$	8142
B5	INT	8CFB	C3	LEN	8668	D3	ERR$	80F6
B6	ABS	8C84	C4	STR$	85AE	D4	INSTR	824D
B7	USR	1218	C5	VAL	804A	CE 02	POT	837C
B8	FRE	8000	C6	ASC	8677	CE 03	BUMP	82AE
B9	POS	84D0	C7	CHR$	85BF	CE 04	PEN	8397
BA	SQR	8FB7	C8	LEFT$	85D6	CE 05	RSPPOS	831E
BB	RND	8434	C9	RIGHT$	860C	CE 06	RSPRITE	8361
BC	LOG	89CA	CA	MID$	861C	CE 07	RSPCOLOR	83E1
BD	EXP	9033	CC	RGR	8182	CE 08	XOR	8407
BE	COS	9409	CD	RCLR	819B	CE 09	RWINDOW	82FA
BF	SIN	9410	CF	JOY	8203	CE 0A	POINTER	477A
C0	TAN	9459	D0	RDOT	9B0C			
C1	ATN	94B3	D1	DEC	8076			

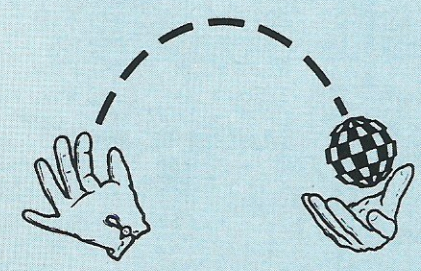
COMPARISON OPERATORS — Total: 3

Token	Keyword	Addr	Token	Keyword	Addr	Token	Keyword	Addr
B1	>	-	B2	=	-	B3	<	-

AMIGA SOFTWARE

CCI has found that a great deal more AMIGA software is purported to be available than actually is possible to obtain. Our researcher has managed to track down all of those in our list which can therefore be regarded as the most authoritative and realistic.

BUSINESS SOFTWARE.		Estimated U.S. Prices	
Amiga Textcraft	Commodore	$99.95	Entry Level WP.
Maximillian	Maxicrop	$150.00	Integrated Business Program.
On line!	Micro Systems	$69.00	Terminal Emulation.
Rags to Riches	Chang Labs	$195.00	(per- Accounting Package. module)
EDUCATION			
The Halley Project	Mindscape	$49.00	Space type Education Program
ENTERTAINMENT			
Achon	Electronic Arts	$40.00	Strategy game.
One on One	Electronic Arts	$40.00	Arcade type game.
Arctic Fox	Electronic Arts	$40.00	Tank simulation.
Sky Fox	Electronic Arts	$40.00	Air simulation.
Deluxe Paint	Electronic Arts	$99.95	Advanced graphics.
Hacker	Activision	$44.95	Strategy game.
Borrowed Time	Activision	$44.95	Graphic Adventure.
Mindshadow	Activision	$44.95	Graphic Adventure.
Graphicraft	Commodore	$60.00	Entry Level Graphics.
Aegis Animator	Aegis	$129.95	Basic Animation made easy.
LANGUAGES/UTILITIES			
Assembler	Metacomco	$99.95	
Amiga C	Lattice	$149.00	
A Copier	Megasoft	$39.95	
LISP	Metacomco	$199.95	
Pascal	Metacomco	$199.95	
Programmers Library	MaxiCorp	$200.00	
WACK Toolkit	Metacomco	$99.95	
MUSIC			
Musicraft	Commodore	$99.95	Entry Level Music.
Texture	Cherry Lane	$299.00	Advanced 8 track frequences.



ARIOLASOFT GO AMIGA.

With the Commodore Amiga being officially launched in the UK on the 9th of May at the Commodore Show, Ariolasoft took the opportunity to show the Electronic Arts Amiga software which they will distribute in the UK.

Although EA have already completed converting a wide range of their games (Archon, One on One and Skyfox etc), this demonstration was of the range of newly created utility/ graphics programs that are either just finished or nearing completion.

The first program we were shown, DeluxePaint, was quite familiar, having seen it four months earlier at the Amiga Developers Conference. It is a comprehensive art package that in many ways rivals true CAD systems, although understandably some people do not like using a mouse.

Some of the features of this package are quite amazing to say the least! Using the 'Brush'

command, you can pick up anything on the screen and draw with it, thus you can create 3-D curves with anything you want, literally. Having seen many DeluxePaint files, it has also become clear that using colour cycling you can create a feel of animation. This is very effective for simple applications.

For more accurated drawing there is the powerful 'Zoom' command that allows you to edit your picture precisely pixel by pixel.

DeluxePrint the second package we saw is suitable for any hobbyist who in American terms, 'feels productive'. Using this program, together with, ideally, a colour printer, you can create almost any printed media; greeting cards, business cards, calenders, posters, letterheads, and many more.

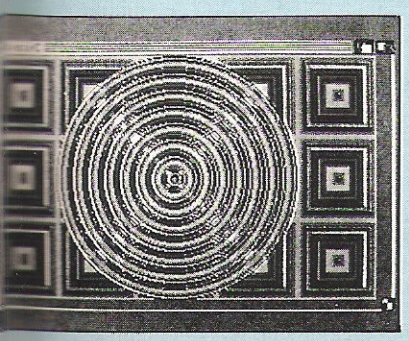
To produce an effective image you can place a variety of pictures and images on a page. These images can either be chosen from the DeluxePrint library or created by DeluxePaint and the loaded into DeluxePrint.

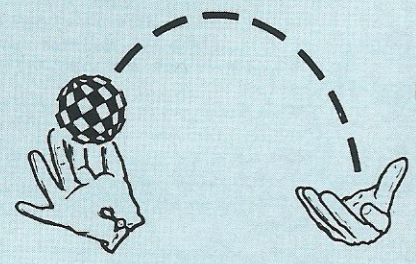
The last program, and, in many ways, the most impressive, was DeluxeVideo. Using amazing programming skills and the full capacity of the Amiga's graphics and sound, you can create your own animated videos, to a truly professional standard.

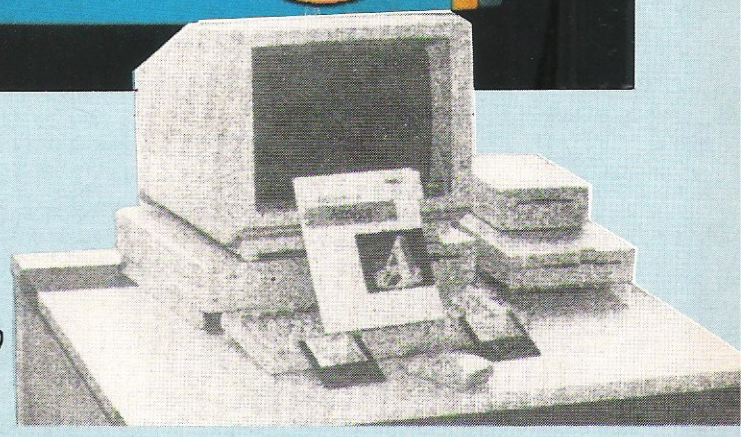
Again, this program has a library of effects and sounds to make things easier, and I am not exagerating when I say I saw someone create a 1 minute video in less than 7 minutes, including sound and animation!

These highly desirable programs should all be on general release in England very soon (in time for the Amiga anyway), with a price of around £80.00 each. They deserve to be very successful.

Contact: Ariolasoft, 68, Long Acre, Covent Garden, WC2E 9JH. Tel: 01-836 3411.







AMIGA AMERICA

As would be expected, software for the Amiga in America is coming out left, right and centre. Unfortunately not all of it is as good as it should be! As I have not seen ALL the available programs, I am only going to mention ones that I know are currently available.

Activision have converted three of their titles, including the immensely successful Hacker. The other two are Mindshadow and Borrowed Time, both adventures. Graphically they are all very nice, but as they are converions from C64 games, it is not very suprising that they contain nothing very special.

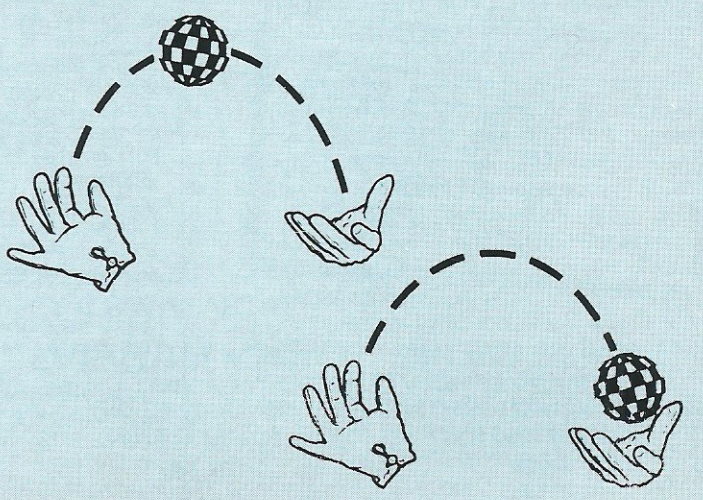
Aegis, now distributed in the UK by Precision, have released their Aegis Animator, which is a very neat animation program allowing some excellent and very smooth movement to be achieved. Also released by Aegis is Aegis Draw, a painting program, but at nearly 3 times the price of DeluxePaint it seems a little too much.

Maxicorp have released an intergrated office package called Maximillian, but at the time of press I had only seen a limited demo disk. What I had seen was Maxicomm, their terminal software, and although it is not brilliant, it does the job and gets you online.

As you can see, there is still not that much software about, Commodore's Graphicraft, Textcraft and Musicraft have all been available for a while, but Textcraft in particular is appalling, being one of the most annoying WP's I've ever used.

What is quite hopeful is that many small third party companies are seeing the gap in the Amiga market and jumping in, with some good, non-converted, software. I hope they keep it up.

Francis Jago.



The Policeman's Beard is Half Constructed

- 'The first book ever written by a computer' Warner Books $9.95

Recently I had occasion to visit a mental hospital. The patient I went to see had been, against his will, officially detained as psychiatrically disturbed. It was his wildness of speech that had made him apparently declared insane. Yet every sentence he spoke was gramatically correct and everything he said was undeniably possible, even true. It was an extraordinary mixture of sense and nonsense.

'I remember you as a little girl' he informed his much older sister. He told a childish joke, laughed loudly and pointed to a man who was listening silently. 'You should be on the stage', he said. He became serious 'They're all crazy in here . The staff catch it from the patients. I don't want to spend my birthday in a lunatic asylum! "Nothing he said was intrinsically wrong, but all somehow inappropriate. 'I don't care. They can keep me here, kill me if they want to. What's the use of living anyway? We 've all got to die." Why was he judged mad and you, me, the rest of us, sane? Not what he said but the order or context in which he placed it.

I was very much reminded of him by this book; the first, it is claimed, written by a computer. The words and grammar are correct but ... Can a computer be judged sane or insane? In fiction, like Hal in 2001, yes. But in reality? How would we decide? Racter, the computer program that has written the stories, poems, limericks, interviews and ideas of this book, certainly doesn't sounds like a sane human. Yet what it says often seems to spin a thread of seemingly coherent thought and conversation. It is apparently intelligent, even clever. It expresses itself in perfect English and yet most of the time what it writes can sound like sense but, often by only a single word, really be nonsense.

I'm not sure I . But does it all mean anything and does the computer know if it means anything? Does it matter if it means anything or not? Or that the computer knows it or not? Am I beginning to sound like Racter? And what about a statement like 'An expectation is a reflection of passion as a contract is an image of an agreement'. Are you in agreement with what it means, if anything? As Racter says, 'Is that thought understandable to you? Can you rise to its occasions?

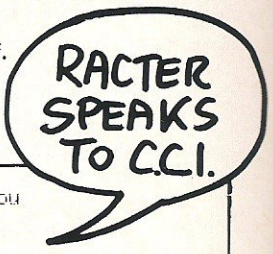
Read this entertaining, provocative book with its highly imaginative illustrations, and you will enter a strange, troubling world - the 'thoughts' of a possibly sane computer. To quote Racter finally "My famished and crazy dreams are broadened by your own attempts to think as I do ..." Whose are the dreams and who is doing the thinking? I leave you and Racter to answer.

A.M.

Mindscape of Illinois have created a remarkable 'conversation piece' which, through your computer, lets you talk to Racter itself.

This, to say the least, extremely disturbing interactive program has been created for the AMIGA and for PC's.

By the way, it is, to quote Mindscape, 'half-heartedly endorsed by the Institute of Artificial Insanity'. Yes, that's what they said!




```
Hello, CCI.  I believe you're interviewing me.  Are you
continuing Joe's interview?
>no
Then we'll forget about Joe and start over.  What would you like
to know?  Excuse me a minute while I attend to some business -
I'll be right back.  I'm back.
>Do you read magazines?
I do.  Tell me really, are you impoverished?
>No
Why don't you think so?
>Because I get CCI every month
Either you get CCI every month or I do read magazines.  Hmm.
Rockefeller liked rich poverty.  I'm afraid of poor tapeworms.
What are you afraid of?
>Not receiving CCI each month
I think you're afraid of monkeys.  That's not nearly as bad as
poorness; why are you such a coward?
>I am not a coward, merely timid
If you are not a coward then I can see why a wealthy Rockefeller
would lie rather than face monkeys, even though Bob Cratchet
claimed that I do read magazines.  Next question.
>Do you own an Amiga?
I think so.  I think so.  Of course.  Who is your favorite
enthusiast?
>Mack the Hack
Why do you like Mack?
>He is an individual who reads CCI
Only a depressive could believe that he is an individual who
reads CCI.  Ah.  Babbitt said that if I do own an Amiga, then
Marie Antoinette is indifferent.  Babbitt had many good
qualities, like enthusiasm, but even Babbitt was afraid of
monkeys.  Next question.
>Why is CCI the best?
Possibly CCI is the best because one needn't hate
fascinatingness.  For another reason, in Oz it's required that
CCI is the best.  Do you like imbecility?
>I don't read the other Commodore magazines!
Why don't you think so?
>Because they bore me
Either they bore you or CCI is the best.  CCI the smiler.  I'm
decent.  What would you consider one of your good qualities?
>Charisma
Name another.
>Reliability
Any others?
>no
I think you're fearless.  Would you say you were good?
>very
But how could a good smiler like you be afraid of monkeys?  By
the way, CCI, what is your last name?
>Magazine
Magazine, eh?  Sounds vaguely familiar.  I wonder...  Would you
like to hear a story?
>no thank you
OK Next question.
>Do you know Zzap?
I don't.  No.  I do know about such things.  Which do you think
is better, a genius or an ignoramous?
>a genius
Why do you think so?
>because geniuses read CCI
If geniuses read CCI then Mortimer Snerd is more fine than Martin
Luther King.  If a dolt heard that I do know Zzap, he might think
it was imbecility.  KERCHOO!  I think I'm getting a cold.  Maybe
it's monkeys trying to get me.  I've been wondering where you are
from, CCI?
>London
You're from London?
>yes
Now I remember!  I once knew a Clarabelle Magazine from London.
You must be related, no?
>yes
Fantastic!  Next question.
>I would like to quit
You want to quit?
>yes please
OK, goodbye CCI.  Nice talking to you.
```

Evesham Micros

THE UTILITY SPECIALISTS

NEW MK. II VERSION

THE NEW GENERATION OF BACKUP METHODS IS NOW EVEN BETTER

FREEZE FRAME

THE LAST WORD IN BACKUP TECHNOLOGY

"Freeze Frame" has enjoyed **incredible success for the past few months. Sales both in the U.K. and abroad have been very good and thousands of satisfied customers** are using them.

Continual development has enabled us to launch an **improved version** of the product that incorporates a few useful improvements **PLUS** it is **even more powerful**. At the time of going to press our **thorough testing could not find one single, memory resident, program that "Freeze Frame" could not handle.** (This includes ALL the latest software up to *7th April*, 1986.)

OPERATING "FREEZE FRAME"

"Freeze Frame" is simplicity itself to use. It is cartridge based so it is simply plugged into the cartridge port. When the computer is switched on a message is displyed, pressing "RETURN" will clear the computer back to the normal start up screen. Software can now be loaded from tape or disc **completely as normal**. The latest version of "Freeze Frame" will, to the best of our knowledge, allow **ANY software** to load and run normally (unlike competitive products).

"Freeze Frame" can be brought into operation at any convenient point by pressing the button on it. You can then do one of three things:

1. **Pressing "D" will save a working version of the program in memory to a formatted disc. This version will include a high speed reload.**
2. **Pressing "S" will do the same as "D" except that the reload will be at standard 1541 load speed. (Also suitable for U.S. spec. machines, 4040 drives, fast load cartridges, etc.)**
3. **Pressing "T" will save a working version of the program in memory to tape. This incorporates a high speed reload at approx. 2400 baud.**

THAT IS IT!!

ALL PROGRAMS SAVED WITH "FREEZE FRAME" CAN BE RELOADED INDEPENDANTLY OF THE UTILITY

THE MOST FLEXIBLE BACKUP SYSTEM IN THE WORLD?

Does any other utility offer all this?

TAPE TO DISC	**DISC TO TAPE**
DISC TO DISC	**DISC TO TAPE**

PLUS the added flexibility of being able to save at any stage and return to that posistion, because programs restart from the point where the button is pressed.

An awe inspiring success rate.

Customise programs by putting in POKEs for endless lives, etc. and then save with those active.

Reload independant of the cartridge.

Available now.

ANSWER: NO

"FREEZE FRAME"

HAS NO SERIOUS COMPETITION

THE COMPETITION

A successful product always spawns imitators and "Freeze Frame" is certainly no exception. Fortunately for us, but perhaps not for the people who have purchased them, their main similarity seems to be in advertising style.

"The Final Cartridge" is a good product in many ways, **BUT** when it comes to making backups it is just not in the same class as "Freeze Frame". Another major drawback, not made clear by advertising is that saved programs can **ONLY be reloaded with the cartridge in situ.**

"UPC1" has it's uses but in it's current form **cannot be taken seriously** as competition for "Freeze Frame"

ONLY £39.95

Owners of earlier versions can return them and upgrade for £14.95

SERIOUS WARNING: THIS IS AN EXTREMELY POWERFUL PRODUCT AND IS STRICTLY FOR PERSONAL USE. DON'T COMPARE IT WITH ANY OTHER PRODUCT, NOTHING ELSE OFFERS THE POWER OF "FREEZE FRAME".

DISC DISECTOR V4.0

Disc-Disector

Now the fourth generation of the countries **leading** disc back up/utility package is available. Various improvements have been incorporated to re-establish "Disc Disector" as the **ultimate weapon**. Of particular importance are the following.

"Evesham Turbo Nibbler" is the **latest version** of the infamous "Evesham Nibbler" now boasting **even more power and speed**. Will now copy even the most highly protected discs in **3-4 minutes**. Handles all the latest types of disc protection **completely automatically**. At the time of going to press this program copied **every disc program available for testing,** including the latest in games and business software. (It even copies '128 format or discs in CPM mode on the '128.)

"Dual Drive Nibbler" allows the use of two drives to make **even faster back ups**. Incorporates device number change software so no hardwar mods necessary.

"Nova Transfer" will **transfer to disc** the latest Nova Load programs, including **multi stage loaders**. A very useful utility that also transfers two very popular programs that load more information as the program progresses.

"DISCO" will transfer standard speed load software to disc.

"TRANS QD" allows you to save a fast load system to your own discs.

"DOUBLE BACKUP" is a **very fast** two drive backup.

As well as these important newcomers all the old favourite utilities which have helped earn "Disector" such a large following are included. These include **Menu Maker (selective), Fast Format, Unscratch, Disc Monitor, Disc Orderly, Fast File Copy, Index, etc., etc.**

The whole package is menu driven and has its own fast boot system built in for your convenience. Pays for itself the firt day you receive it.

ONLY £29.95

Customers with earlier versions may return them along with a payment of £9.95 to receive V4.0

All programs are CBM 128 and 1570/71 compatible in '64 mode

DATA RECORDER

A dedicated data recorder designed for use on the CBM 64 or Vic-20. Specification as C2N but **with pause button.** Model available for the PLUS4 or 16 at same price.

SATISFACTION GUARANTEED.

ONLY £29.95

DOUBLER

The tape back up "device"

Doubler has been an **enormous success** and continues to sell very well. Why? Because it is the **best product of its type** on the market. Doubler uses a unique method that copies **all types of software** regardless of speed. It consists of **hardware and software**. The software is the key part as unlike other products of its type Doubler creates a **brand new machine copy**. It is very easy to use and very successful. In fact our tests **have proved** that this "device" can achieve **100% success**.

Requires access to two data recorders.

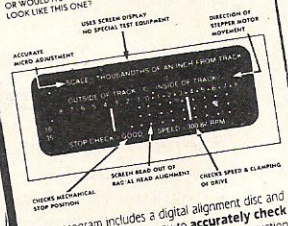
ONLY £12.95

Why settle for less—this is the best.

ALIGNMENT PROBLEMS?

1541 PHYSICAL EXAM **£39.95**

IS YOUR 1541 HEALTHY? OR WOULD ITS PHYSICAL EXAM LOOK LIKE THIS ONE?



The program includes a digital alignment disc and software which allows you to **accurately check and correct** disc drive alignment. The instruction booklet is **very detailed.** Also includes quiet drive stops to **stop** that "hammering" thus preventing further problems.

ONLY £39.95

QUICKDISC+

FAST LOAD PLUS UTILITY CARTRIDGE

Get a **QUICKDISC+** cartridge plugged into your '64 and your 1541 will really **start to perform**. So many features per pound (sterling) that you will hardly believe it. Includes the following . . . **Fast LOAD** (four to five times normal speed). Works with majority of protected software. Can be switched in and out from the keyboard.

Fast SAVE at twice normal speed.

Fast Format takes just 20 seconds.

Fast Backup copies an entire disc in four minutes. (Not heavily protected software.)

Fast File Copier for selective fast copying.

Improved DOS commands (DOS 5.1) makes for easy use of the disc drive. e.g. S{RETURN} will LOAD and display a directory without overwriting BASIC. SHIFT RUN/STOP will LOAD "0:*",8,1 etc. etc. very very useful.

Incorporates Centronics Printer software (user port) **with CBM graphics** capability. See "Commodore Connexion" for suitable lead.

A RESET switch is fitted. (We have found this to be "unstoppable", it also preserves the tape buffer.)

NO MEMORY IS USED by this cartridge. It is totally "transparent" and uses special switching techniques.

"128" compatible in '64 mode.

Now the price. No not £49.95, it's **not even half** that much. Can you afford to be without QUICKDISC+

ONLY £19.95

No extra connections are necessary with QUICKDISC+ and unlike most similar products it is compatible with printers and second drives.

QUIET DRIVE STOPS

This package incorporates new drive stops for **two 1541s** that will **end for good** the dreaded "woodpecker". The fitting process is very easy and a test program is provided to check the fitment. Helps prevent future alignment problems and makes your drive purr with satisfaction.

ONLY £4.95

3M Floppy Disks

BOXES OF TEN DISCS

SS/DD	£16.00
DS/DD	£20.00

NEW SPECIAL PACKS WITH PLASTIC CASE

SS/DD	£17.00 including Case
DS/DD	£21.00 including Case

ALL OFFERS SUBJECT TO AVAILABILITY

All prices include P&P and VAT. Send cheque, Postal Order or Credit Card No. Credit Card orders accepted by phone. Callers welcome. Wide range of goods stocked. Trade enquiries welcome. European orders send price as advertised. Outside Europe £2.00 for air-mail. Mail order to Evesham Shop please.

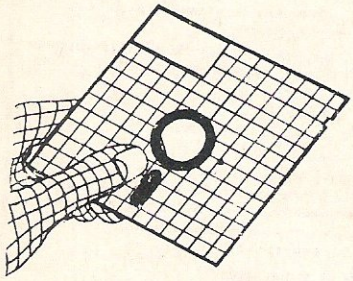
EVESHAM MICROS
BRIDGE STREET, EVESHAM, WORCESTERSHIRE
Tel: 0386 41989

Access

MICRO CENTRE
1756 PERSHORE ROAD, COTTERIDGE, BIRMINGHAM.
Tel: 021-458 4564

VISA

Insights Into the Plus/4



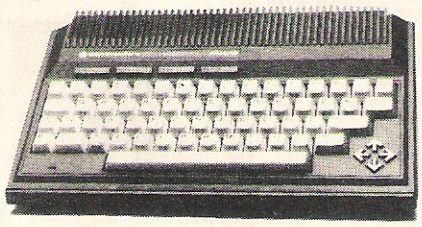
The 1551 Disk Drive

At last I've managed to get my hands on a 1551 disk drive! This is the drive designed for use with the PLUS/4 and I have been putting it under the microscope.

The 1551 takes the same physical dimensions as the 1541 and is coupled to the PLUS/4 through the 50–pin cartridge port using a special connector. The connector is designed in such a way to allow the cartridge port pins to be accessed by another cartridge whilst this drive is in use. This method of connection precludes the use of any other Commodore machine, the 1551 can only be used with the PLUS/4. No doubt someone will come up with a convertor connector to overcome the problem, but the main problem to this lies in the complete dearth of technical information from Commodore themselves.

The door latch mechanism is that used on the later home computer drives, eg the 1571 and uses a 'gate' to preclude entry as opposed to a 'pull down' latch. Other than this, the product number on the front and a black case, the 1551 is unchanged from the 1541, or is it? Removing the upper cover reveals a great deal of difference in the hardware from the 1541 and at this point I must emphasise that the following is not meant as a definitive analysis of how the drive operates. Basically, for the reason given above about lack of technical data.

When a disk is entered into the 1551, the write–protect LED is also used to trigger the drive motor which starts running. This is presumably to save on time since the drive motor is already at 300 rpm by the time the user types in the disk command. This approach is also used in the 1570 and 1571 drives, and a timeout is used if no command is entered and the motor stops. The PCB used in the 1551 is shorter than that used in the 1541 and exposes more of the mechanicals of the unit, which is certainly useful to observe and learn about how it operates. Even better, it makes for much easier access for head alignment.



The Hardware

The really interesting part of the 1551 lies in the hardware itself. The only published information on how the 1541 drive operates is contained in the excellent 'Inside Commodore DOS' by Immers and Neufeld (ISBN 08359-30912). I would strongly urge ALL SERIOUS USERS to obtain this work, it is indispensable. Using this book I was able to piece together (accurately, I hope) how the 1551 differs from the 1541 in operation.

The 1551 uses a 6510 processor as used in the C64 and a 6525 circuit to control I/O, master clock speed remains unchanged at 16MHz. The 6525 is a tri-port interface circuit (TIA), which is based on a 6522 VIA except that instead of 2 I/O ports, the 6525 has 3 I/O ports. The 6525 like the 6510 is another customised IC, made only by Commodore and therefore can only by purchased from them. The only other application that I believe the 6525 was used in was as part of the I/O control of the now defunct CBM 700 computers (known as the B-series in the USA). The method of data transfer from the 1551 to the PLUS/4 is *parallel* and not serial as used in the 1541. This uses the additional port of the 6525 for the transfer to the PLUS/4. I assume that the 6510 may use the on-board I/O port at locations $0000 and $0001 to switch out sections of the address range to enhance this process, as I cannot see any other reason why the 6510 was employed rather than the 6502. I am still in the course fo disassembling the operating ROM and when this is done, all should be revealed.

The operating system ROM is not the same as that used in the 1541. The 1551 ROM is numbered 318008-01 in the drive that I have, whilst the 1541 ROM is numbered 901229-05, the last numbers on each indicating version number. Incidentally, the 1551 only contains 1 ROM, a 27256 type containing the 16k of operating system code, whereas the 1541 uses 2 ROM's of 8k. This effects a considerable saving on production time since the final 'chip count' has a major bearing on the overall unit cost.

Sophisticated circuitry

When the hardware of the 1551 is compared to the 1571, the latest 8-bit Commodore drive, I can't help feeling that the 1551 has more potential. The 1551 uses more sophisticated circuitry and parallel drives was obviously and road that the hardware team were taking. I can only assume that cost considerations stepped in once more and the 1571 emerged in my opinion as a twin-head 1541 serial drive. OK, I accept that the 1571 can read and write MFM formats, and also operate in burst mode (when some one deciphers the user manual instructions), but when all said and done, it is still a serial drive. How do I

justify this statement? Well the 1571 in GCR mode uses a 6502B (2MHz version 6502) as controller, supported by two 65C22's (CMDS version of 6522 VIA) and a 6526 CIA specifically for the fast serial or 'burst' mode as it is termed. No great advances there in design surely, for one thing the IC count is increased. The MFM mode must be ham-strung by the use of serial transfer.

I strongly believe that Commodore has the best custom circuit designers on this planet (excluding Hewlett-Packard, who have more money because they charge their customers accordingly), you only have to look at the AMIGA to see the proof of this. It would be nice to see the inclusion of true paralllel date transfer in their intelligent drives and my own personal design of the 1573 5.25 inch disk drive would look like this. The drive mechanisms are solid enough, so no changes there. The processor to be 65816 (a 6502 that can run as 16-bit processor), a 8520 I/O controller (a 16-bit 6526 from the AMIGA), retain the WD 1770 disk controller for MFM, increased buffer capacities as RAM circuits are fairly cheap now, this would also give the option of soft-loading othe operating systems such a OS−9. Interfacing could be done through the User Port since this is relatively unchanged across the Commodore range, except for the VIC-20 (dead anyway) and the C16 (doesn't have a User Port). Now that would be a drive and a half! I'm sure that the 5.25 inch AMIGA drive could serve as the basis for this 'super-drive'. That is if the 5.25 inch AMIGA drive ever appears and Commodore let me buy one after reading this!

In Use

OK, let's move on to the 1551 in use. Given the national shortage of disk software for the PLUS/4 (contemptious snigger at this point), the only commercial software that I own for this machine is SUPERBASE 64. I have benchmarked the 1551 using my 1541 and 1571 in my C128D by loading SUPERBASE 64 from each drive, loading a 78 block BASIC program and then writing it back to the same disk, then finally a disk format. I used identical command syntax and used BASIC 2.0 disk commands. The results are tabulated below and I think you'll find them interesting. Note that these results were averaged to even out inconsistencies.

MACHINE – Commodore PLUS/4

All time values in seconds

Action	Drive		
	1541	1551	1571
Load			
SUPERBASE 64	126	61	120
Load BASIC Program	52	26	48
Save BASIC Program	65	49	61
Full Format	77	24	43
Average	80	40	68

I would think that the figures speak for themselves regarding my views on parallel data transfer for Comodore disk drives. The really annoying think about the 1551 is the fact that it can only be used with the 50 pin cartridge port, which only exists on the PLUS/4. Unbelievable isn't it? Here we have the makings of system that gets around the problem of IEEE interfaces, not to mention additional cable costs and conclusive proof that the marketing and/or accounts department over-ruled the engineers. Commodore has some excellent brains in its employ, this is counter-balanced by some absolute cretins.

RS-232 facilities

Before I become too vitriolic in my comments regarding Comodore and they come to take me away (the men in white coats or from Corby!), I'll move back to the PLUS/4 itself. I mentioned in the April issue of CCI that I was looking into the RS-232 facilities of the PLUS/4 and that I would publish the outcome of my findings, well here is the latest information on that project. However, before I go any further it should be pointed out that errors with hardware can be expensive. Read very carefully the instructions and if you cannot solder, or can't find someone who can, then forget it. I cannot accept responsibility for damage caused by incorrect connections, if in doubt don't try it.

The following example is at the BASIC level and requires a cable to be manufactured to connect the PLUS/4 to a C64, C128 or another PLUS/4 through the respective User Ports. The cable is a simple 3-line interface, so 3-cored cable is necessary. You will also require 2 connectors for the User Port and these can be obtained from:

Maplins Electronic Supplies Ltd.
P.O. Box 3
RAYLEIGH
Essex SS6 8LR
Tel: 0702 552911
Order as BK74R (2 by 12-way PC edge connector) £1.95 each (March 1986)

The connector is already marked with lettering, starting at 'A' and finishing at 'N' so make the cable up as follows:

Connect A to A
Connect B to M
Connect M to B
At each connector
Bridge A to N
Bridge B to C

After this has been done, the critical part occurs. It is ESSENTIAL that the connectors are inserted facing the correct way, errors can be expensive to the machines concerned. Make sure both machines are switched off before you connect the cable. This is done by connecting so that the *UNSOLDERED ROW of tags of each connector is on the TOP as you look DOWN.* If you do make a mistake, the outcome will not be as melodramatic as blowing the main fuse for your premises, more likely you've popped a CIA or ACIA into an early grave. Power each machine up and you should see absolutely no difference to the screen display. It would be useful if you have access to 2 display units, e.g. use the television in addition to your monitor, in order to watch the display output of each machine together. If you have access to only one display unit, then you will have to keep changing over connectors, alternatively make up a switch-box for selecting different machines on one display, (I'll get around to publishing how I made mine up, one day!). The next stage is to type into each machine the following:

```
100 OPEN 2,2,2, CHR$ (10)
200 GET#2, A$: GET B$: PRINT A$;B$;
300 IF B $ <>" " THEN PRINT #2, B$;
400 GOTO 200
```

Now try typing a character string on the keyboard of one of the machines. You should see that the string does not appear on the display connected the machine you just typed on, but on the display of the other machine. Line 100 opens an RS-232 channel, defines a data word length of B bits, and sets the baud rate at 2400 (in other words transfers data at 2,400 bits per second or 150 characters per second), the maximum for the C128 and C64. You can lower this to 1200 baud by setting CHR$ () to value B, similarly if you are using two PLUS/4's try setting CHR$() to value 15 which is 19,200 baud, the maximum! Lines 200 and 300 are the collectors and interpreters of the data whilst line 400 loops the program flow backward.

You can transfer sections of memory if you are careful, send program listings, all manner of things, try them out and see. Note that serial input/output cannot be operative during RS-232 operation and watch out for those special buffers created by the opening of an RS-232 channel. Also, you cannot SAVE and LOAD from device number 2. There are a number of public domain terminal emulator programs about and these can be implemented on to the PLUS/4 by adjustment of any POKEs if these are present, this isn't necessary if one of the machines is a C64 since most of the terminal software has been written for this machine. I should have mentioned that attempting to send at baud rates in excess of 2400 using BASIC is not too successful, purely because the speed of BASIC cannot keep up with the rate of data transfer. So there's your next programming project, rewrite the above program in assembly language.

BILL DONALD

STAR

The Totally IBM Compatible Printer

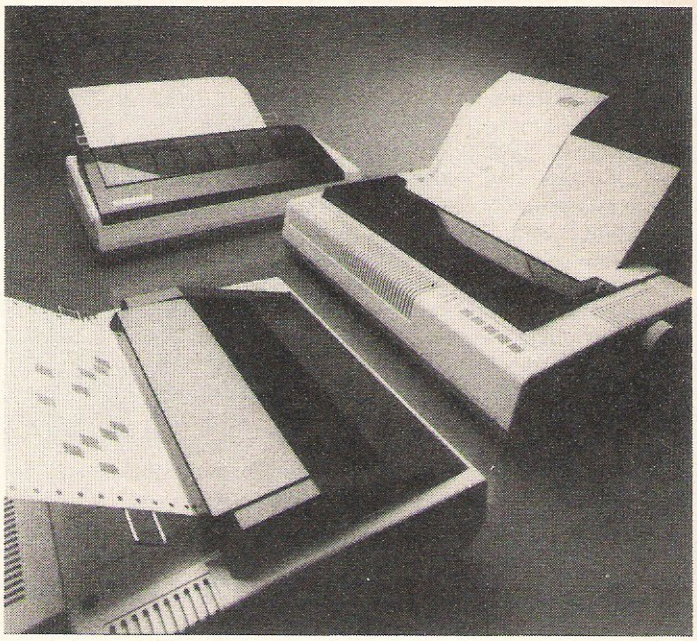
NEW FROM STAR:

STAR SG15 – 120 CPS, NLQ 136 Columns, 16K Buffer **£389.00**

STAR NL10 – 120 CPS, NLQ 80 Columns **£278.00**

STAR SD15 – 160 CPS, NLQ 136 Columns, 16K Buffer **£489.00**

STAR SR15 – 200 CPS,NLQ 136 Columns, 16K Buffer **£589.00**



We are the largest UK distributor for **STAR**. Our Dealer support and backup is second to none – for further Dealer details on the superb range of printers – contact us now! – it could well be the most lucrative call you have ever made.

WE ALSO STOCK THE FOLLOWING PRINTERS:

		LIST PRICE	OUR PRICE
CITIZEN	120 D	£235.00	**£175.00**
EPSON	FX105	£569.00	**£386.00**
EPSON	FX85	£385.00	**£285.00**
CITIZEN	MSP10	£395.00	**£316.00**
CITIZEN	MSP15	£500.00	**£400.00**
CITIZEN	MSP20	£555.00	**£444.00**
CITIZEN	MSP25	£700.00	**£560.00**
JUKI	6100	£399.00	**£280.00**
JUKI	6200	£499.00	**£350.00**
JUKI	6300	£899.00	**£630.00**
JUKI	5520 (colour)	£399.00	**£315.00**
KAGA	KP810	£399.00	**£165.00**

MODEHART LTD, Unit N3, Renshaw Trading Estate, Millmead, Staines, Middx, TW18 4QU.
Tel: Staines (0784) 62405/6. Telex No. 8951182 GECOMS G

ITS HERE!

ULTIMON!

THE MOST POWERFUL DEBUGGER/MONITOR AVAILABLE: ON THE ATARI* IS NOW AVAILABLE FOR THE COMMODORE* 64 & 128

Q. Does ULTIMON! support disk and cassette I/O?
A. Yes, and it is fully automatic.

Q. Can ULTIMON! stop a program then dump it to cassette or disk?
A. Yes, a complete set of file management routines have been included.

Q. Can ULTIMON! be used as a teaching tool for 6502 machine code?
A. Yes, ULTIMON! continually updates its display during single step and trace.

Q. Does ULTIMON! come complete with documentation?
A. Yes, a 50 page instruction Manual.

Q. Can ULTIMON! dump to a printer?
A. Yes, all makes of printer supported.

COMMODORE VERSION NOW WITH DISK SECTOR EDITOR

LIST OF COMMANDS

A – Alter memory location contents.
B – Break point set/reset.
C – Compare two blocks of memory.
D – Disassemble memory.
E – Examine memory contents.
F – Fill memory.
G – Go at address.
GP – Go at address in PC.
I – Basic interpreter on/off.
J – Jump to subroutine.
JP – Jump to subroutine in PC.
L – Locate a string of bytes.
M – Move a block of memory.
P – Alter processor status register.
* – Dump screen to printer.
Q – Quit ULTIMON!
R – Read from device.
U – Display update mode.
W – Write to device.
O – One byte read.
– – Pop stack.
F1 – Stack pointer forward.
F2 – stack pointer backward.
+ – Push address to stack.
A – Alter accumulator.
X – Alter x register.
Y – Alter y register.
DT – Select tape link device.
DD – Select disc link device.
N – Select link device number.

FMI – Initialise drive.
FM V – Validate disc.
FM N – Format disc.
FM S – Scratch file.
FM R – Rename file.
FM C – Copy file.
FM C – Concatenate files.
? – Wild card supported.
* – Pattern matching supported.
; – Rotate right memory.
: – Rotate left memory.
, – Shift left memory.
. – Shift right memory.
OR – OR memory with byte.
EO – EXCLUSIVE OR memory with byte.
AN – AND memory with byte.
R[=] – Read file at address.
V – Read low byte of vector.
V[+] – Read vectored address.
H – Convert decimal to hex.
T – Trace through program.
T[-] – Trace program, don't execute.
S – Single step through program
S[-] – Single step, don't excute.
R – Relocate program in memory.
RL – Relocate word tables (lo/hi).
RH – Relocate word tables (hi/lo).
ZB – Alter border color.
ZS – Alter screen color.
LEFT ARROW – Switch memory contents.
AP – Alter program counter.
@ – Enter text string
TS – Read/write track sector

TWO SCREENS FROM ULTIMON!

```
PC   A  X  Y  NV BDIZC         0000 LINK
4054 40 28 2A 00110001           2F  D:08
SP 01F0 46 E1 E9 A7 4B 81 A7 79   $FFFF
   01F9 61 9B 61 9B 61 9B 80 33   65535
AD 0000 2F 77 00 AA B1 91 B3 22  /W.  . "
   0008 00 00 00 4C 00 00 00 04  ...L....
   0010 00 00 02 00 00 40 19 16  .....@..
   0018 00 0A 76 A3 00 00 00 00  ..V .... 
   0020 00 00 40 A3 69 00 00 00  ..@ i...
   0028 00 00 00 01 08 8A 1E 8A  ........
   0030 1E 8A 1E 00 80 00 80 00  ........
   0038 80 B8 FF 00 00 3D 57 00  .  ..=W.
   0040 00 00 08 3D 57 00 00 2D  ...=W..-
   0048 08 16 05 47 9E 48 00 00  ...G.H..
   0050 19 00 00 03 4C 00 00 E7  ....L...
   0058 00 07 01 00 40 00 00 00  ....@...
   0060 00 8F 00 00 40 00 00 00  ....@...
   0068 00 8E FF F0 00 00 00 00  ..  ....
   0070 00 0A A3 E6 7A D0 02 E6  ..  z.  .
   0078 7B AD 06 02 C9 3A B0 09  .  ..I  .
   0080 C9 20 F0 EF 38 E9 30 38  I  .  8 08
BRK0 BRK1 BRK2 BRK3 BRK4 BRK5  IRQ  NMI
0000 0000 0000 0000 0000 0000  EA31 FE47
>*
C64 ULTIMON!  BY PAUL CAMILLERI
```

```
PC   A  X  Y  NV BDIZC         0000 LINK
FFD2 40 28 2A 00110001           2F  D:08
SP 01F0 46 E1 E9 A7 4B 81 A7 79   $FFFF
   01F9 61 9B 61 9B 61 9B 80 33   65535
AD FFD2  JMP ($0326)   6C 26 03  L&.
   FFD5  JMP $F49E     4C 9E F4  L.
   FFD8  JMP $F5DD     4C DD F5  L
   FFDB  JMP $F6E4     4C E4 F6  L
   FFDE  JMP $F6DD     4C DD F6  L
   FFE1  JMP ($0328)   6C 28 03  L(
   FFE4  JMP ($032A)   6C 2A 03  L*.
   FFE7  JMP ($032C)   6C 2C 03  L,.
   FFEA  JMP $F69B     4C 9B F6  L.
   FFED  JMP $E505     4C 05 E5  L.
   FFF0  JMP $E50A     4C 0A E5  L.
   FFF3  JMP $E500     4C 00 E5  L.
   FFF6  ???           52        -
   FFF7  ???           52        -
   FFF8  ???           42        B
   FFF9  EOR $FE43,Y   59 43 FE  YC
   FFFC  ???           E2
BRK0 BRK1 BRK2 BRK3 BRK4 BRK5  IRQ  NMI
0000 0000 0000 0000 0000 0000  EA31 FE47
>*
C64 ULTIMON!  BY PAUL CAMILLERI
```

Cash on delivery arranged

ALL THIS POWER AT ONLY... £49.95

Send SAE for full details on this and other Commodore* compatible products

DEALER ENQUIRIES WELCOME

Mail order only, to order send cheque or postal order to:

COMPUTER SUPPORT (UK) LTD
26 SEACOURT ROAD, ABBEY WOOD, LONDON, SE2 9UW
TEL: 01-311 7339/01-591 6687

*Atari is a trademark of Atari Corporation,
*Commodore is a trademark of Commodore Business Machines UK Ltd

COMMODORE PLUS-4 / C16

MERLIN ASSEMBLER

100% machine code assembler for the Plus-4/C16. Very fast assembly of source code. Easy entry / editing of code via the full screen editor. Full error messages pinpointing the errors. Full load/save and printer facilities. Intelligent assembly. Variable names, labels, hex/decimal, text and data statements, remarks, post indexing of variables. – Many other facilities too numerous to mention. Highly recommended -A truly superb assembler. Come with instruction booklet and FREE booklet of machine code routines. Cassette £8.95. Disc £13.95.

THE MIRROR -TAPE BACK UP

Superb tape to tape back up copier catering for the majority of Plus-4/C16 games. Backs up both standard and FAST loading software. All major loading systems catered for. Very large menu of both general back up routines and popular games. Extremely easy to use. No extra hardware or second cassette unit required.
Excellent value – £7.95.

THE WAND – TAPE TO DISC

The majority of Standard and FAST loading games on cassette are effortlessly transfered to disc. A must for disc drive owners!! Excellent value, supplied on disc – £12.95.

EVER HAD A LOADING PROBLEM?

Then send off for WIZARD'S TAPE HEAD ALIGNMENT KIT - No one should be without one!
The most common cause of loading failure is bad alignment of your tape heads. This kit allows you to set up the tape heads of your cassette unit for the best possible loading conditions. In many cases this will make a remarkable difference in loading reliability.
Our kit comprises of :
1) A precision recorded cassette containing a sophisticated test program. 2) A special adjustment screwdriver. 3) A direction indicator. 4) A turning meter. 5) A detailed instruction booklet with diagrams. 6) A Loading Doctor - to help you diagnose any loading problems. All of this for only £6.95!!!

COMMODORE 64

COPY KING - PLUS *Excellent back-up copier for FAST LOADING programs. *FREE this month a suite of additional back up routines. *Striped loaders, Picture loaders etc. handled with ease *Back up copies are made on blank TAPES at fast speed (faster than disc!) – VERY reliable loading, unlike some competing utilities we could mention! *Easy to use *No second cassette unit required *Great value at £7.95
HALF PRICE SPECIAL!!! – Copycat and Lightning Load together for only £5.95. Separately £5.95 each.
COPY CAT – Our highly popular tape to tape back-up copier for Commodore/standard rate loading systems *Wizard sound effects. Cassette magic sense *Thousands sold.
LIGHTNING LOAD II – Converts almost all your slow loading games/programs into SUPERFAST TURBO loading versions on tape *The tedious wait for loading is over when you buy this excellent program.
TAPE HEAD ALIGHMENT KIT – Description the same as PLUS-4/C16 version (see above) Highly popular utility – £6.95
RAPID dispatch of orders.
U.K. postage is included in the price. Europeans please ADD 50p. Outside Europe ADD £1.50 for airmail. Overseas orders welcome. All payments must be in pounds sterling.
Cheques/POs to:

WIZARD SOFTWARE (Dept. W)
59, THE MARLES, EXMOUTH,
DEVON EX8 4NE

NEW

TAPE – Commodore 64 – DISK

THE TURBO SMASHER

SUPERB VALUE £15

This powerful disk is full of the very latest and greatest trafer utilities to allow you to transfer all your favourite games like:'Way of the Exploding Fist','Beach Head','Monty on the Run','Bruno's Boxing','Imhotep','Hunchback II', 'Raid Over Moscow','Karateka','Realm of Impossibility','Skyfox','Gyroscope','Combat Lynx', 'Scarabeus','Computer People','Hacker', 'Paradroid','Crazy Comets' and hundreds more.The disk completely supersedes our best selling Super-Breaker series,with a host of new routines to cover the very latest turboes.It covers, amoungst many more,: Novaloaders.Pavloaders, Monolith,Hyperload,flashload,CBS,Ariola,Mikro Gen, Burner,Melbourne House,Level 9,Leisure genius, Ocean,Activision,Mastertronic,Firebird and many more.

This disk will,single handedly,solve most of your disk transfering problems and all for the low price of only £15.00 including VAT and Post and Packing.

NEW

ARROW MICRO SERVICES

21 GARDEN AVENUE
BEXLEYHEATH KENT DA7 4LH

Taking stock

A Stock Accounts System recently introduced by CYB Computers speeds up the searching function with a new "rapid search decision tree."

CYB says the facility searches stock cards or purchases in a fraction of a second and gives fast access to the main records — approximately three seconds. The package includes nine machine code, menu-driven programs for 300 stock/purchases items serving 50 suppliers, 50 customers, 100 sales and 100 deliveries per data disk. The program also updates stock levels with sales and deliveries automatically.

The display permits complete and outstanding purchases with all purchases included. That allows the user to print a hard copy to the end of the month being maintained.

A checking function discourages repetition of stock cards or faulty information from actually being filed by letting the user confirm the input. Invoice generation includes allowance for discounts of up to 50 percent, VAT calculation, VAT registration number and other necessary features. Up to six stock entries can be made per sale.

Two additional packages which will integrate with the Stock Accounts System will be introduced in the autumn. They are Sales and Purchase Ledger and Balance Sheet/Profit And Loss. Each of the three packages sell for £74.95 and come in 5.25 inch disk format.

Contact: CYB Computers, 9 Crown Parade, Crown Lane, Morden, Surrey SM4 5DA. Tel: 01-542 7662

PC software for graphics

A software house specialising in database management systems has launched a new graphics extension for its Delta program.

Compsoft PLC of Surrey has set a retail price of £195 for Delta Graph, which links with Delta and other common database packages to produce graphics from information contained in a file. Capabilities include bar, pie, line and scatter plots in up to six colours.

Delta Graph, which works on IBM-PC compatibles including the Commodore PC, has a report generator enabling the user to generate a matrix report similar to a spreadsheet with each intersection of row and column called a cell. Suggested uses Compsoft gives include graphing costs of vehicles by age and type or company costs per cost centre, department and year.

Compsoft also produces Domino, an interactive training and assessment software package for PC compatibles. It includes full graphics capabilities than can be woven into text in various places depending on the user's responses.

Contact: Compsoft PLC, Compsoft Manor, Farncombe Hill, Godalming, Surrey GU7 2AR. Tel: 04868-25925.

Office extras

Screen filters for cover and trolleys for support — new offerings from two computer accessory firms.

MBS Data Efficiency Ltd is handling VDU filtering screens manufacturered by 3M, many of them selling for less than £30. Made of neutral density grey material and covered with a high resolution matt finish, the filters improve contrast and eliminate glare. They are attached directly to the screen rather than hung on the edge.

Available for 9", 12" and 15" screens, they are suitable for most monitors used with Commodore computers.

Bulldog Computer Services of Leicester has a portable trolley specifically designed for Commodore Pets. It has a sturdy, contemporary design and height can be adjusted to preference. Two of the casters can be locked to keep the trolley in place and a fixing clamp at the back keeps cables together.

The trolley, which retails for £85 plus VAT, comes with a five year guarantee and a 30 day approval option.

Contacts: MBS Data Efficiency Ltd, Maxted Road, Hemel Hempstead, Herts HP2 7LE. Tel: 0442 60155.

Bulldog Computer Services, 33 Hinckley Road, Sapcote, Leicester LE9 6FS. Tel: 045527 2329.

Direct info on flights

Professional jetsetters might be glad to hear of a database that brings to your office information about thousands of airline flights schedules along with costs.

The Electronic Edition already is available in the United States and for about one year in the UK through such services as Dow Jones News/Retrieval. Direct access should be available later this year.

A subscriber pays a one-time fee of US$50. The service is available through telephone-linked computers in most European countries via a local call and offers more than 820,000 worldwide schedules from 700 airlines. The format, claimed to be "totally unbiased," enables the user to select flights on the basis of convenience or cost.

The database actually is designed for travel agencies' use as well as private users. Information on normal and discount fares is updated daily and direct flights, connecting service schedules and rules are updated weekly.

Contact: Official Airline Guides, Mike Mullany, 130 Jermyn Street, London SW1Y 4UJ. Tel: 01-930 2915. In the US, Official Airline Guides, 2000 Clearwater Drive, Oak Brook, IL 60521.

C8000 punch tape editor

Surprise, surprise! Finally, we hear of some new software for 8000 series owners, that long-neglected breed that filters through pages of 64 news in despair. The utility is for the technically-minded, though, specifically for engineering machine shops.

Amazon Micro Systems of Milton Keynes is offering a new NC-tape preparation system called NC-Editor. Designed to use machine language, the program is entered onto a spreadsheet mask formed by the programmer. The result is fast and inexpensive production of NC punch tape on a machine that can also do other tasks. While the system works on any of Commodore's 8000 series, Amazon will also supply the software and appropriate interface card with an 8296D computer. The software and card are £825 and the computer sells for £1,695.

Using the numeric and control keys, the program can be built up onto the mast with sections manipulated, erased, copied and altered in single blocks or by words and characters. The completed program and relevant mask can then be stored to disk. Relevant management information is stored in "file card" mode and details punched onto the tape leader are what Amazon calls 'man-readable."

The program requires no post processor software and can be linked to various peripherals.

Contact: Amazon Micro System, Sunrise Parkway, Linford Wood, Milton Keynes MK14 6LQ. Tel: 0908 664123.

Two-faced PC printer

Now that Commodore patrons have a PC among computer choices, they will have to think, too, about a crucial element that is not included in the package — a printer.

Olivetti, who also makes its own PC, has introduced a portable electronic typewriter that doubles as a dot matrix computer printer or keyboard. One big plus is the price, a relatively low £375.

The ET Compact 60 offers a range of typing and editing facilities for office or home use, including a liquid crystal display, automatic correction of the working line with an 80 character memory buffer and a keyboard selector. The latter allows for special foreign language characters, among other functions.

Contact: British Olivetti Ltd, PO Box 89, 86/88 Upper Richmond Road, London SW15 2UR. Tel: 01-785 6666.

SECRET MESSAGE!

At a simply gynormous cost in human lives and bribery, CCI managed to smuggle its two youngest spies across the blood-soaked trenches of shell-torn Leicester Square and into a World War I top secret showing of the yet-to-be revealed "Biggles" film. We print here for your delectation their totally uncensored communiqué which has just reached us by pigeon post.

For further developments on Biggles including the yet - to - be - released Mirrorsoft game, see our next issue.

"Hang on there, Old Man, don't blink or you'll miss the time travel action"

A ghastly-mysterious looking English Man – retired Col. Raymond, portrayed by Peter Cushing, brings his 'back to the pasts' tale of bewilderment to the knowledge of a modern young American Jim Ferguson (Alex Hyde White) the boss of the 'Celebrity Dinners' Company-on a dark and devilish night in London. Ferguson is convinced that the man is a little "loony" or "freaked out" through his old age, decides to end the odd ren-de-vous and return to a Speech which he needs to prepare for the following day on t.v. dinners – but he doesn't get to finish it as planned, due to an electrifying momentary adventure back in time to 1917 on the Western Front.

Strange? Well it is until you find out what 'Biggles' and Col. Raymond have in common apart from being complete strangers to Jim Ferguson.

This fun-packed, fast moving film creates an enjoyable 1½ hours of glued-to-the screen viewing which is highly recommendable to people of all ages. Simple yet constructive, an adventure film with all the twists and turns you would expect from a good novel.

Andre and Teresa JG

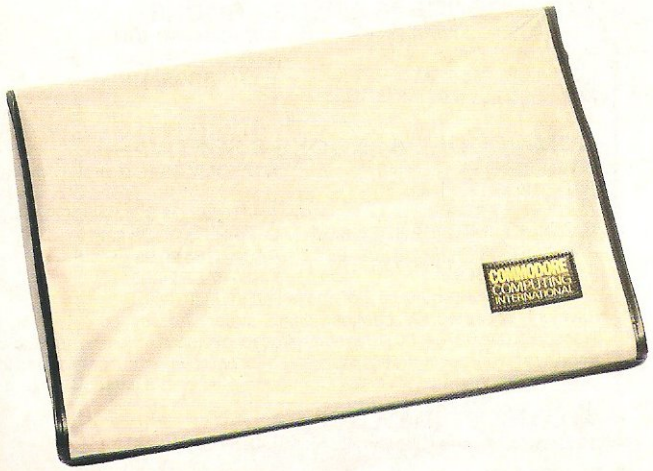
P.S. We gave it an "A" rating.

COVER UP!

A cover for your Commodore computer will protect it from dirt and damage.

CCI is making a special offer of strong, goodlooking covers to fit Commodore computers : C64, C16, Plus/4 and C128. The covers are designed in a cool grey with a neat yellow on black logo. They are of the highest quality and manufactured in smooth plastic to first class standards. CCI covers... Protect your Commodore computer with a touch of style.

Only £5.00 for the C64, and C16 and Plus/4. £5.50 for C128 (all + 75p P+P)



Please send me .... covers for my
C64 ☐ C16 ☐ Plus/4 ☐ C128 ☐
I enclose cheque/P.O. payable to Croftward Ltd
for £.....
Please charge my
Access Acc No ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
Name .....
Address .....
.....
Postcode .....
Send to: CCI Cover Offer 010
Commodore Computing International
40 Bowling Green Lane
London EC1R ONE
Allow 28 days for delivery

● CBM 64 AND 128 ● TRANSFER ALL MAJOR TURBOS ● AUTOMATIC ● NO USER KNOWLEDGE ●

● DISK TO DISK ● DISK TO TAPE ● TAPE TO TAPE ● TAPE TO DISK ●

● NO HARDWARE ● TURBO IDENTIFIER ● AUTO LOAD OPTIONS ●

COMPARE THE REST WITH THE BEST NOW DOSOFT OFFERS YOU EVEN MORE!

MegaTransfer Disk V.4.0

Before you decide which tape-to-disk utility to buy, consider if it gives you:
● **Full conversions of MultiStage Programs** to load from Disk ● Fifteen top titles including the latest sports, flight and fight simulations. No more tape winding! No other utility *of any description* can offer this ● **General purpose transfer routines for the major turboload systems Nova, Burner, Visiload, Flash** and **Pav** (including the *very latest* Pavloader as used on current chart toppers) and more. These routines will transfer programs which **won't normally load with the Disk Drive present.** ● **A huge collection of specific routines** for *individually protected programs*, all accessed via an easy Menu System. ● **A program identifier,** and the classic **Diskus 1.2** to transfer your vintage slowload collection.

MegaTransfer V.4.0. is economical of Disk Space, transferring only the actual program material. Transferred programs will reload at **over four times the normal rate** with the incorporated **Disk TurboLoader,** which also allows your *existing* disk programs to be fastloaded from disk.

MegaTransfer V.4.0 is *vastly extended* from previous editions. Despite claims to the contrary, **it will transfer programs which no other utility will handle. Beware of similar sounding utilities,** which consist almost entirely of disguised versions of *our old material.* If you want to be up to date, you need MegaTransfer, the **real 'Turbo Smasher'.**

At press time, all advertised **Turbo-to-Disk software** originates from DoSoft. **£17**

MegaUtility Disk V.4.0

WITH TEN FREE DISKS

● **NEW AlphaLoad disk TurboLoader** for games etc. Add this five block program to each disk and your programs will load at over four times the normal rate. No menu is required and you *don't* have to load Alphaload separately. Much improved over previous versions. ● **Programmer's TurboDisk Utility.** Fast load, save, and verify. Works with all device numbers. Displays program start and end addresses. Includes easy DOS commands. **Compatible** with most expansion cartridges. ● **Whole Disk Copier** backs up an entire disk in **under three minutes.** ● **Turbo File Copy** selected files from Disk-to-Disk. Reads and writes at **five times normal speed.** ● **Nibble Disk Copy** backs up most protected disks in just **five minutes.** Reads and writes all errors *automatically.* ● **Fast Format.** Format your disks in a fraction of the normal time. ● **Disk-to-Tape Plus.** Transfer a wide variety of **single and multipart disk programs** to tape with visible screen/stripe border turboload. Includes professional mastering scheduler. An interesting program (not for protected disks). ● **MegaUtility Disk** is supplied **complete with 10 FREE 3M Blank Disks** (with plastic box, as specified in this ad.), for just £17.00. How's that for value! **£17**

MegaTape Super Value

● Our famous tape utility for **One Datassette** (or equivalent). **No additional hardware is required. MegaTape comprises:** ● **Tape-to-Tape transfer routines:** A vast collection for the major turboload games ● **Simple to operate,** MegaTape handles a vast range of *different* fastload systems, and even *increases* loading speed in many cases. ● Features our **Visi-Screen, Stripe TurboLoader** ● **The most powerful Tape-to-Tape** software ever devised. ● **RBS Plus.** Our classic **turbo conversion utility** gives a new lease of life to your vintage slowload tape collection. Converted programs load independently at **SEVEN times the normal rate,** with **Visi-Screen Stripe TurboLoad.** Also handles old RBS and Fastback. **£9.50**

AND SAVE MONEY

● Buy **MegaTransfer and MegaUtility** together (price **£34.00** *including* **10 FREE Disks (& Box)** and receive MegaTape (on disk) and our praised sprite library/editor (Pro-Sprite) absolutely **FREE!**
● Purchasers will receive details of future updates and can buy new DoSoft Programs at advantageous prices.

Existing customers: send *any DoSoft Instruction Sheet* (disk or tape) and **Twelve pounds only** for Megatransfer Disk V.4.0.

3M Disks at Low, Low Prices

Why buy unlabelled, unbranded disks of uncertain origin and specification?
● We offer top class, 3M Disks bearing the manufacturer's label, at an unprecedentedly **low, low price** ● Specification SS/DD 744D-0, suitable for all 5¼" drives ● Complete with labels, write protect tabs, Tyvac spun acrylic sleeves and a **FREE Flip/File High Impact Plastic Storage Box worth £2.75** Our **Inclusive Price** is just **£12.50 per box of ten.**
No extras. No catches.
This is the price you pay.
UK POST FREE. **£12.50**

We take a bite out of Disk Prices!

How to get your DoSoftware
Please send cash/cheque/P.O. with order for fast despatch (SAE only for full details). Send off now to:
DoSoft (Dept Y), 2 Oakmoor Ave, Blackpool, FY2 0EE
UK Postage included. Europe add £0.75, or £2 if order includes Blank Disks. Overseas add £1.50 for Airmail, or £3.50 if order includes Blank Disks.

DoSoft

You'll Do it Better with DoSoft

● FAST DISK UTILITIES ● LOADERS ● 3-MIN DISK COPY ● FAST DISK FILE COPY ● FAST FORMAT ●

turbo-rom

A MAJOR ADVANCE FOR THE COMMODORE 64 AND 1541 DISK DRIVE

Totally unobtrusive in use the Cockroach TURBO-ROM plugs in in place of the normal 8K kernal ROM to immediately provide

FAST LOAD - will load virtually ALL commercial software with speed improvements up to 600%

FAST FORMAT in 30 seconds

SCREEN DUMP even while program is running

FAST SAVE - save 3 times faster (with verify)

TURBO-ROM works with 1 or 2 drives with the printer connected (some fast loaders don't) and does not tie up the cartridge socket

The TURBO-ROM can be fitted in minutes and left permanently installed and has an externally accessible switch to select between normal and turbo operation

ONLY £19.99 INCLUSIVE — SEND CHEQUE OR P.O. TO —

SOFTWARE **Cockroach**

20, THE CRESCENT, MACHEN, NEWPORT, GWENT, NP1 8ND (0633) 440434

COMMODORE 128 BOOKS AND SOFTWARE

ANATOMY OF THE C128 BOOK 12.95
TRICKS & TIPS 128 BOOK **12.95**
ANATOMY OF 1571 DISK DRIVE BOOK **12.95**
SUPER C (also for C64) **64.95**
SUPER PASCAL (also for C64) **64.95**
BASIC COMPILER (64 & 128 modes) **49.95**

SPECIAL OFFER :- buy two or more of the above products and deduct 10%.

COMMODORE 64 AND PLUS 4 ADVENTURES ON DISK

ZORK I **9.95**
ZORK II **9.95**
ZORK III **9.95**
SUSPENDED **9.95**
STARCROSS **9.95**
DEADLINE (C64 only) **9.95**
SPECIAL OFFER:- buy 3 and deduct 10% - buy 5 and pay for 4

COMMODORE 64 UTILITIES ON DISK

CHARTPAK 64 **24.95**
VIDEOBASIC 64 **34.95**
CADPAK (enhanced version) **34.95**
ULTRABASIC **19.95**
SPECIAL OFFER:- free Assembler/Monitor or Super Disk Utility with any of above

COMMODORE 16 & PLUS 4 BOOKS

C16/PLUS 4 COMPANION **5.95**
PLUS 4 MAGIC **9.95**
COMPLETE C16 ROM DISASSEMBLY **6.95**
WORKING C16 **6.95**
USING THE C16 **9.95**
EASY PROGRAMMING **C16 5.95**

COMMODORE 64 BOOKS 6 SOFTWARE

SCIENCE & ENGINEERING BOOK **12.95**
TRICKS & TIPS **8.95**
MACHINE LANGUAGE BOOK **6.95**
BASIC 64 COMPILER (disk) **24.95**
FIRSTWORD **24.95**
ANATOMY OF 1541 DISK DRIVE **8.95**
ANATOMY OF COMMODORE 64 **8.95**
GRAPHICS BOOK **8.95**
PASCAL 64 **29.95**
FIRSTBASE **24.95**
SPECIAL OFFER:- buy any 2 of above and deduct 10%

Payment accepted by cheque. postal order. Access card (not Visa) or Transcash (a/c 687944007). No surcharge for overseas orders by surface mail. Send stamp or sae for details of any product or for any of our catalogues for the Commodore-16, Plus-4, Vic-20, Commodore-64 or 128 (state which).

ADAMSOFT (Dept CCI),
18 Norwich Avenue, Rochdale, Lancs. OL11 5JZ.

Tel: 0706 524 304 (inc evenings)

CD ROMS MOVE CLOSER.

Japan and the Netherlands have joined force in the guise of Sony and Phillips (Phirrips?) to announce that they hope to become the industry standard for read only memory compact disk applications.

Called the Compact Disk-Interactive medium, it will be able to store sound and images – as well as computer data.

LOOK OUT FOR....

If you think the 3.5" drives on the Amiga are neat, but just a little too big, Maxell have the answer. They have recently announced a 2.5" drive that can hold up to 500K of unformatted data – the equivalent of an average 5.25" drive.

Although, as yet, there are no drives that can run these mini-disks, Maxell are confident that more and more portable and laptop computers will see this as THE medium.

LASER DROP.

Japanese printer and camera manufacturer, Ricoh, recently announced that it expects the price of laser printers to drop to below £1000 before the end of the year.

This would help add strength to the rumours that Epson have produced a laser printer that could retail at undre £600.

Currently, Ricoh are releasing their first laser printer, the LP-4080, which is expected to sell at around £2400.

SMALLER PC'S?

Perdix MicroTronix has begun to offer people the chance to get all the advantages of having a Pc, without the bulk. They are selling an IBM compatible PC on a single board that can then be mounted on disk dirves.

Developed in Canada by Megatel, it is expected to retail in the UK for around £500.

MACK THE HACK?

With the increasing paranoia of organisations who have secure computer systems, more and more companies are coming up with ideas to make a hacker's life difficult.

Oxford based Modular Technology have devised a hardware solution to this problem. Named the Interminder, it operates on a ring back service; if the caller enters the correct password, the computer will call back the number associated with the passwords.

The Interminder can store up to 160 passwords which are programmed onto Eprom at Modular's factory, and cannot be changed, expert by swopping the Eprom.

Interminder costs £495 and is approved by British Telecom for use with V21 and V23 standards. Contact Modular Technology on 0869 253361 for more details.

MORE COLOUR.

Facit Data Products, have recently announced two very high quality colour printers. Both are very fast, at between 250 and 400 cps, and offer a wide variety of fonts as well as NLQ.

With serial and parallel ports as standard, the printers have JX-80 software emulation, meaning compatability with a wide variety of software packages.

The 400cps printer costs £1995, whereas the 250cps version, with only seven colors, costs £1295.

It's easy to complain about advertisements. But which ones?

Every week millions of advertisements appear in print, on posters or in the cinema.

Most of them comply with the rules contained in the British Code of Advertising Practice.

But some of them break the rules and warrant your complaints.

If you're not sure about which ones they are, however, drop us a line and we'll send you an abridged copy of the Advertising Code.

Then, if an advertisement bothers you, you'll be justified in bothering us.

The Advertising Standards Authority.
If an advertisement is wrong, we're here to put it right.

ASA Ltd, Dept 2 Brook House, Torrington Place, London WC1E 7HN

cascade CASSETTE 50

PLUS SPECIAL FREE WATCH OFFER...

50 COMPUTER GAMES ON ONE CASSETTE

YOURS FOR £9.95

including FREE Watch and Postage

CASSETTE 50 IS AVAILABLE ON

BBC A/B ATARI DRAGON ELECTRON

VIC 20 ORIC-1 ZX81 apple Atmos

Spectrum commodore 64 AMSTRAD

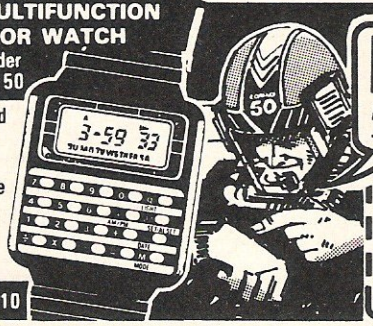
Commodore 64

Only you can save Europe from destruction! It's ROCKET LAUNCH, the thrilling war game that reproduces a European map. More ambitious? Try rescuing your crew under an ultrafast GALACTIC ATTACK and escaping back to your spaceship! Just two of the great games on your Cassette-50, featuring high resolution and user-defined graphics, sprites, sound and music.

1. Maze Eater
2. Galactic Attack
3. Space Mission
4. Lunar Landing
5. Plasma Bolt
6. Startrek
7. Radar Landing
8. Attacker
9. Galactic Dog Fight
10. Psion Attack
11. Ivasive Action
12. Noughts & Crosses
13. Boggles
14. Pontoon
15. Ski Jump
16. Hangman
17. Old Bones
18. Thin Ice
19. Orbitter
20. Motorway
21. Force Field
22. Nim
23. Tunnel Escape
24. Barrel Jump
25. Cannonball Battle
26. Overtake
27. Sitting Target
28. Smash the Window
29. Space Ship
30. Jet Flight
31. Phaser
32. Intruder
33. Inferno
34. Ghosts
35. Submarines
36. Rocket Launch
37. Planets
38. Black Hole
39. Dynamite
40. Do Your Sums
41. Derby Dash
42. Space Search
43. Universe
44. Rats
45. Tanker
46. Parachute
47. Jet Mobile
48. High Rise
49. The Force
50. Exchange

FREE 20 KEY, MULTIFUNCTION CALCULATOR WATCH with every order for a Cassette 50

- Normal 12 and 24 hour time mode
- Calendar mode
- Alarm mode
- Calculator mode



WORTH OVER £10

FREE calculator watch with every Cassette 50

EXPRESS DELIVERY-ORDER NOW!

ONLY £9.95

Name M W DURRELL

Address 18 Beech Close Bugbrooke.

Post Code NN7 3RB

Country Northamptonshire CCI 6

Postage FREE in U.K. Add £1.00 for overseas orders. Free watch and tape will be despatched within 28 days.

I enclose a cheque/ postal order for £ made payable to Cascade Games Ltd.

or through any Post Office by TRANSCASH (Giro No. 655 6655) For even faster ordering when charging to Access, Barclaycard and Trustcard Visa use our 24 hour service. (0423) 504663.

VISA No

AMSTRAD ☐	ATARI ☐	ORIC 1 ☐	BBC A/B ☐
SPECTRUM ☐	VIC 20 ☑	ZX 81 ☐	APPLE ☐
COMMODORE 64 ☐	ATMOS ☐	DRAGON ☐	ELECTRON ☐

Cascade Games Ltd., 1-3 Haywra Crescent, Harrogate, North Yorkshire, HG1 5BG, England. Telephone: (0423) 504663. *Registered Number 1755554* ☑

TURBO NIBBLER 4.0® *NEW*

Turbo Nibbler 4.0	A big surprise! Now you can copy different speeds on a single track.
Turbo Nibbler 4.0	The most well known program in Europe.
Turbo Nibbler 4.0	Copies a whole disk in approximately four minutes.
Turbo Nibbler 4.0	By far, one of the best copy programs, without using any hardware. With a complete new copy concept, copies errors 20,21,22,23,24,27,29 also killertracks, error blocks, wrong ID and gaps behind the data blocks.
Turbo Nibbler 4.0	Completely sync orientated.
Turbo Nibbler 4.0	Can be used with one or two disk drives.
Turbo Nibbler 4.0	Copies also non 1541 formats.
Turbo Nibbler 4.0	Copies up to 41 tracks.
Turbo Nibbler 4.0	Copies single tracks.
Turbo Nibbler 4.0	Has an integrated disk scan, for half tracks, speed and sync check. This is why Turbo Nibbler 4.0 can be used by anyone!
Turbo Nibbler 4.0	Is operable by following a simple menu.
Turbo Nibbler 4.0	Is indispensable for making your security copy.
Turbo Nibbler 4.0	Has an update service at a cost of five pounds, with the return of your disk.
Turbo Nibbler 4.0	Reviewed in the German magazines RUN October 1985 and 64'er.
Turbo Nibbler 4.0	Turbo Nibbler can be used with a Commodore 64 and a 1541 disk drive.

£15

FILE MASTER® *NEW*

* File Master is a new developed file copy program
*Feeding files seven times faster
*Saving files eight times faster
*Without the use of any hardware
*Can be used with one or two 1541 Disk Drives
*Easy to use menu operation
*Disk command easy file choice option
*For Commodore 64 With 1541 Disk drive only £13.00

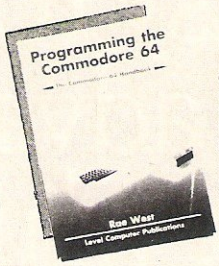
Complete set Turbo Nibbler and File Master only £23.00

All orders payable by cheque, international postal order; or International Money Order and should be sent to:

EUROSYSTEMS
For Data Security
Verlengde Parkweg 6,
6717GN Ede, Holland
Telephone 0031-8380-32146

Please add £2 for handling and postage. We send to all countries in Europe.

COMMODORE 64 OWNERS
The Ultimate Reference Book



Programming The Commodore 64 by Rae West

Comprehensive and readable teaching and reference book on the 64. Takes over where Commodore's manual leaves off. Much larger than most computer books. Programs available separately on disk or as pack of 2 tapes – saves keying time.
Topics covered include course in BASIC programming. how BASIC works, extending BASIC, machine-language course, ROM guide and memory-maps etc, thorough coverage of graphics and sound, tape and disk handling hardware.

"Best of all the books . . . . required reading for all those who wish to make full use of their 64s" – Jack Cohen.

Programming The Commodore 64 (R. West) £14.90 in UK/Europe. 624 page paperback. 17 chapters & appendices. ISBN 0 9507650 2 3. Published by Level Ltd. (Computer Publications), P.O. Box 438, Hampstead, London NW3 1BH.

Programming The Commodore 64 Disk £8.90 (incs. VAT) ISBN 0 9507650 3 1.

Programming The Commodore 64 Tapes £9.90 (incs. VAT) ISBN 0 9507650 1 X.

Programming The VIC (R. West) £10.90. Large paperback. ISBN 0 950 7650 1 5. "Packed with virtually all the information you are likely to read" – J. Goldsmith.

Programming The PET/CBM (R. West) £18.90. Large paperback. ISBN 0 9507650 0 7. "Undoubtedly the most comprehensive reference I have seen" – Jim Butterfield. Available by mail order and from Boots Software Centre and selected computer bookshops

MAIL ORDER FORM

From booksellers/retailers/dealers or by direct mail. Send orders and make cheques payable to Level Ltd (Computer Publications), c/o Biblios Distribution Ltd, Star Road, Partridge Green, Nr Horsham, W. Sussex RH13 8LD.

Quantity	Title	Price	Total
	Programming The Commodore 64 (West)	£14.90*	
	Programming The Commodore 64 Disk	£ 8.90**	
	Programming The Commodore 64 Tapes	£ 9.90**	
	Programming The VIC (West)	£10.90*	
	Programming The PET/CBM (West)	£18.90*	
		*Add £1 each postage	
		**Add 50 each postage	
		TOTAL PAYMENT	

NAME/ORGANISATION: _____

ADDRESS: _____

CCI 10586

CLASSIFIED

CBM 64 poke sheet issue 2. Pokes on Commando, Wizards Lair, Rambo and much, much more. Send 30p + S.A.E to: S.C. Moore, 68 Lightridge Rd, Fixby, Huddersfield HD2 2HS.

CBM 8032 with 8050 disk drives and 8032 printer. £850 o.n.o. Tel: 0248 88786.

Commodore 3040 dual disk drive with CBM 64 interface + cable £175. Also Commodore Sound Sampler cartridge with disk software £55. Tel. Durham (0385) 770593.

Miracle Technology WS2000 Multistandard modem with autodial board £85. Zero centronics Interface with inbuild 16k buffer £30. Bourne End (06285) 26576

M.P.S. 801 printer £75 o.n.o. Ring 01-868 4577. Evenings.

CBM 64 C2N. New 1541 CBM Modem MPS 801 Psion organiser + Comms Pack. Superbase, Easyscript, Busicalc 3, many discs + tapes. Books etc. £600. Phone: 0908 582300.

Complete C128 system for sale CBM 128/1570 disk drive/1902 monitor/monochrome monitor. Best offers. Tel: 01-203 4850.

Wanted CBM 64 owner for penpal to swap ideas, solutions, information, tips & views. Write to: Jerzy Marciniak, Miedziana St, 1/16 Warsaw, Poland 00-809.

Australian C64 user wants penfriend from U.K to exchange tips, ideas etc. Write to Peter James, 6 Pillapai Court, Kingsley, Perth, Western Australia 6026.

Exceptional offer! MPS 803 printer, 60 CPS, friction feed + ribbon and leads. Only 5 weeks old! – only £110 or near offer! Tel: (0584) 4291 evenings.

C16 games for sale. 12 original titles. Includes Thai boxing and the Boss. Worth £60, sell for £30. Will consider splitting. Phone (0629) 4465 and ask for Tim (after 4pm).

Communications modem for use with the Commodore 64. Free 12 months subscription to Compunet. Unused £65 o.n.o. Also hundreds of top original '64 games. £2 – £4 each. Phone 021 550 2666 for details.

Commodore Plus/4 + joystick and 13 cassettes for sale. Month old £70 o.n.o. ring Nottingham 296600 after 6pm. Mon-Fri any time Sat-Sun.

Vic 20. Virtually new, few months old, C2N cassette, joystick, 3K-8K Rampacks, programmers reference guide, over £100 software £95 o.n.o. Write Mark Sorrell, 14 Squires Walk, Kempsey, Worcester WR5 3JB or tel 826 343.

Commodore SX-64 portable; integral disc drive, colour screen, plus software (Easy Script, Future Finance, Easy File, High Flyer game, 6 – game disc). Approx £800 new; will sell for £475. Telephone Bridgewater (0278) 423791.

Wanted. Any CBM printer for 64/128. Send letter with price to Michael Tang, 560 Rayleigh Rd, Eastwood, Southend-on-Sea SS9 5HX.

Plus/4 1541 disk drive,Brother HR-5C printer, 1531 datasette, joystick, £110's worth of software, mags, books. £300 the lot. Phone 0895 37843. Ask for Stuart, Flat 9.

C64 Character editor, easy to use, pure machine code, fast £2.50. after 6pm. Phone Paul, Chelmsford (0245) 81531 for more details.

Dallas Quest Disk R.R.P. £14.95. Only £7! Unused. Won in a competition. Call Glen on (0775) 820547 or write to 25 Northorpe Rd, Donington Spalding, Lincs PE22 4XU.

CBM MPS 801 printer for sale. Perfect condition £125 o.n.o. 01 735-3085.

Flash load for the CBM 64, will load most games 5 times faster than normal and does not obstruct the cartridge port. Price only £19.95 + P+P. Tel: 08206 24506.

CBM 64, 1541, plus MPS801, MP8803 Primers, Simon's Basic, Easyscript, Practifile, Doodle Graphics prog. Spreadsheet, Games, books, mags. Cost £980, will take £450 o.n.o. ring Dulverton (0398) 23012.

CBM 64, C2N recorder, joystick and games only 12 months old, hardly used excell. condition. Sell for £140. Ring Ludlow (0584) 3042 after 5pm.

Local and American CBM-64 programmer/games player wanted. Any sex, basic + m/c, aged around 20. Write to Andy Kyle, 1 Newbiggin Path, Watford, Herts WD1 6JR.

For Sale CBM-64 top quality original software (newest games, utilities) at lowest prices. Write to: P. Lippe, PLK 014308C, D-2000 Hamburg 1, W.Germany.

CBM 64 Easy Calc spreadsheet package + Simons Basic. As new £15 each. Modem wanted 300/300 and 75/1200. Phone 0580-291291

Telephone Call Timer C64/128 . Shows time/cost as you chat. Menu driven with full instructions to update with price rises-£3. A. Ianson, 22 Mayville Avenue, Scarborough, N. Yorks YO12 7NP.

Wanted disabled pensioner requires cheap C16 program cassettes. Brownhill, Bertha Park Farm, Perth PH1 3EQ. Phone Perth 0738 34442.

Poke sheet for the CBM 64 includes pokes and tips on zaxxon, Who Dares Wins 2, Monty on the Run + many more. 5Op + S.A.E. to M Smyth, Edenderry Lodge, Banbridge, Co Down, N. Ireland BT32 3BS

C64-128 owner wants pen-pals. Write to Costas Courtaras, 9 Apomahon, St Careas, 16233 Athens, Greece. All letters answered.

CBM64 + 1541 + C2N + £4OO original software plus 8O disks, books, mags etc. Excellent for programmer. Will deliver. £4OO. Phone Alan on Sheffield (O742) 662OO5.

COMMODORE

Don't miss out!

With the growing popularity of Commodore Computing International Magazine, newsagents and bookstalls sell out quickly. More and more frustrated readers wanting the one magazine every Commodore owner needs are finding they are missing out and some months having to do without the latest news, reviews and vital feature articles and programs.

The popular solution is to place an order for your Commodore Computing International Magazine with your newsagent or by direct subscription to us.

A subscription means you get the magazine delivered to your door. It saves you time and makes sure you don't lose out on what's happening in the Commodore world.

Send in the subscription coupon below and get the best Commodore magazine the easy way — through your letterbox. Don't miss out on the best, mail the coupon **now**.

(If you don't want to cut up the magazine, we're happy to have a photocopy of the coupon or a request on plain paper.)

Commodore — Subscription Order Form

To Subscriptions Manager, Commodore Computing International, 40 Bowling Green Lane, London EC1R 0NE. Tel: 01-278 0333 Telex: 267247 FINSEC

Please send me 12 issues of *Commodore Computing International*

☐ Cheque enclosed ☐ Please debit my Access

Card No. | | | | | | | | | | | | | | | | |

☐ Subscription rate U.K. £15.00
☐ Europe £20.00
☐ Outside Europe £28.50

Expiry date: _____

Cheques should be made payable to: CROFTWARD LIMITED

Name _____

Address _____

_____

County _____ Post Code _____

Telephone (home) _____ (business) _____

Signed _____ Date (Subscription to commence) _____

Money Off Vouchers for CCI Readers

CCI has obtained special money-saving offers on games and other interesting products for the Commodore 128/64, Plus/4 and C16 computers. All you have to do is send the appropriate voucher plus the correct amount *direct* to the supplier and you will get the value of the voucher deducted from the usual price.

Don't send photocopies and don't send vouchers to CCI as that will delay your order, which will be sent to you direct from the supplier.

Look for more *free* special money-off vouchers in forthcoming issues of Commodore Computing International Magazine.

C64 £2 SAVING C128

Rupert and the Toymakers

To: High-Tech-Units 1 and 2 Conlon Development, Watery Lane, Darwin, Lancashire BBC 2ET
Please send me 'Rupert and the Toymakers' at £5.95/*usual price £7.95*

Name

Address

C64 £2 SAVING C128

The Bulge

To: High-Tech-Units 1 and 2 Conlon Development, Watery Lane, Darwin, Lancashire BBC 2ET
Please send me 'The Bulge' at £5.95/*usual price £7.95*

Name

Address

C64 £2·50 C128

Off The Force

To: High-Tech-Units 1 and 2 Conlon Development, Watery Lane, Darwin, Lancashire BBC 2ET
Please send me 'The Force' at £7.45/*usual price £9.95*

Name

Address

C16 50p OFF Plus/4

Panik
Computer Game

To: Atlantis Software Ltd
19 Prebend Street London N1 8PF
Tel:01-226 6703
Please send me 'Panik' at £2.49/*usual price £2.99*

Name

Address

C64 £2·50 Off: C128

Nick Faldo Plays the Open

To: High-Tech-Units 1 and 2 Conlon Development, Watery Lane, Darwin, Lancashire BBC 2ET
Please send me 'Nick Faldo Plays the Open' at £7.45/*usual price £9.95*

Name

Address

C16 50p OFF Plus/4

Twin Kingdom Valley

To: Bugbyte, C/o A1 Distribution
Unit 3&4 Baily Gate, Industrial Estate, Pontefract, W. Yorkshire
Please send me 'Twin Kingdom Valley' at £2.45/*usual price £2.95*

Name

Address

C64 £5 VOUCHER C128

Activity Centre
Musical Word Processor and Animator

To: High-Tech-Units 1 and 2 Conlon Development, Watery Lane, Darwin, Lancashire BBC 2ET
Please send me 'Activity Centre' at £14.95/*usual price £19.95*

Name

Address

CLASSIFIED

Plus 4/C16 Software. Brand new. All at half price. Jack Attack (cartridge) £7.50. Space Sweep/Invaders (2 games) £3. Harbour Attack £3. Number Builder £3. Number Chaser £3. Phone: S. Benfleet (03745) 3544.

C2N cassette unit £20. Ditto with digital counter £25. Pet calculator key board. 8K pet old Rom CPU board and other spares. Tel: Wirksworth 062982 3207.

C64 user needs linear programming and critical path analysis programs: Gordon Hesketh, 38 Narrow Lane, Aughton C39 59W. Tel: 0695 422227.

Pen-pals wanted. I have CBM 128 and PC10 computer. I write also programs in Basic logo and C language. Write George. P.O. Box 18197 Athens 11610, Greece.

Desperately Seeking September '85 CCI to complete my collection. Also need May & Jan/Feb 85. Write to S.J.G.39B Ossian Rd, London N4

Wanted VIC 20 16K or 32K memory at reasonable price. Also selling TRS80 computer or swap for 32K memory. Write to Robert, 18 Thimblemill Road, Bearwood, Warley, W. Midlands.

Do you want your program printed, but can't afford a printer? Send program (disc or tape) = £1 to
R.I. Gric
18 St Michaels Ave
Yeovil
Somerset BA21 4LB

Wanted Word Craft 20 cartridge for VIC. Please help. John Warriner, 4 Langdale Drive, Keyingham, N Humberside 09644 2274.

Mon 64 cartridge assembler M/C monitor (never used). Allows all 64K Ram to be used. Cost £50, sell £30 o.n.o. Tel: 0706 43519 after 6pm. Ask for David.

Swap "Way Of The Exploding Fist" for Parker Bros. "Star Wars" for 64. 179 Bushbury Rd, Fallings Park, Wolverhampton. Ask for David after 4 pm.

Would like to meet machine code programmers in E. London. Please phone Ken Smith on 01-470-4427. Let's write a winner together. K. Smith, 73 Wakefield St., E. Ham, London E6 1NR.

Commodore 3032, plus 3022 printer, 800K computhink disk drives and cassette deck. £495. Robin Merritt on 045 15274 (near Cheltenham).

CBM 64 Prism 1000 modem. Includes comms pack. Full instruction manual. Full/half Duplex 1200/75 user/user B.T. approved. FRBST EL compatible £120. 1341 disk drive £135. Write David 1 Windle Royd Lane, Burnley Road, Halifax HX2 7L8 or telephone 0422 62976.

Microsound 64 keyboard wanted. Will purchase or swap CBM 64 goodies in exchange. Also for sale : Heswriter (ROM) £18. Light rifle £10. Tel: Stevenage (0438) 811634. After 7pm.

PET 20001 new Rom 16K fitted with Toolkit Manuals some garnes software £159. CN-2 old-type £19, 3022 printer with Pet/IEEE cable £169, C64 software Interdictor Pilot £9, ACOS + £4. Telephone 0536-712068.

Cheap Printers, expandor 123P upper case only. Parallel interface, manual, needs adjustment. Creed teletype plus manual, interfacing data and transformer. Offers. Schofield, Cheltenham (0242) 580789.

CBM 8032 with 4040 disk drive complete with cables manuals and large quantity of business games and utility software £450. Contact Danny Doyle 0280 813346 evenings.

CBM modem plus software £50. CBM assembler package as new £10. Gemini mailist on disk £5. Easy Script £10. Various books on C64. Tel: 051 423 5493 Cheshire.

Wanted – CBM 64 "Fall of Rode", "Test Match Cricket", "Macbeth", Lio Barst 01-69 4259.

CBM 3032 (basic 4 & rom pager & toolkit), CBM 4040 dual d/drive, CBM 3022 printer, software & disks & lots of documentation. Offers around £500. Tel 037284/3748 (Oxshott, Surrey).

Commodore 64 plus cassette, joystick games £175 Commodore MPS 801 printer with leads as new £100. Handic diary 64, cartridge £10, dialog DMF database cassette £10. Practicale 64 cassette £15. Crediton 03632 4415.

CBM 16 with joystick data recorder £70 of software and "Learn How To Program" cassettes, magazines worth £210. Want £120 o.n.o. Tel: Reading 27140 after 6pm.

CBM 8096 and 8050 disk drive with approx £500 software. Includes Visicalc and Eprom Burner £800. Phone 0924 405552.

CBM 64 with C2N recorder plus Quickshot, joystick and £100 worth of software. Also a large collection of mags & manuals. All worth £450. Bargain at £170. Phone Yagnesh 01-903 4916 after 5pm.

HERE'S MY CLASSIFIED AD...

		(Private Readers – Free-Max 32 words) Trade Advertisements – 40p per word			

I make this_____words at____p per word, so I enclose £_____

Please continue on a separate sheet of paper for trade advertisements

Name _____

Address _____

Tel: _____

Send your classified entries to:

Classified Department,
Commodore Computing International Magazine,
40 Bowling Green Lane, London EC1R ONE
Tel: 01-278 0333 Ext.280

Add Pitman Power...

SEE US ON STAND 84 AT THE COMMODORE SHOW with Special Discounts

From the Pitman range...

Official Book for the Commodorre 128 -	£11.50
Commodore 64/128 Assembly Language Programming -	£13.50
C64 Programmers Reference Guide -	£12.95
C64 Troubleshooting and Repair Guide -	£12.95
C1541 Troubleshooting and Repair Guide -	£17.95
C 64 for kids from 8 to 80 -	£9.95
C 64 Graphics and Sounds -	£7.95
COMPUTERFACTS (for service and repair) Available for: C64,C1541 & VIC 1541 disk drives, C1525 printer C16,VIC 20,C1701 monitor,Plus/4 - all	£14.95

Special offers available at Commodore Show (Stand 84)
Computer Diary... Commodore Plus/4 Book and much more...

Forthcoming - Commodore Programmers Reference Guide Approx £12.95

... to your Commodore Computer

Knowledge is power... Pitman's outstanding range of Sams Commodore specific books will give you the power to squeeze the very best out of your Commodore computer. With Pitman power you will achieve more, with less effort... you will avoid problems, save cost and above all enjoy yourself...

To Peter Marshall
Pitman Publishing Ltd, 128 Long Acre, London WC2E 9AN

Please send me Pitman's power-packed catalogue which lists books for Commodore owners.

Name _____

Address _____

_____

Choosing the right computer is a good start — but can you find the right software?

At SUPERSOFT we're very conscious of the fact that people who spend several hundred pounds on computer equipment are looking to do rather more than play Space Invaders.

Financial planning is a rather grand name for something you've been doing all your life – making ends meet! Perhaps if Mr Micawber had used **BUSICALC** he would have been able to balance the books a little better.

For home, club or small business use BUSICALC 1 should pay for itself in no time at all; for larger companies we recommend BUSICALC 3, one of the few really valuable programs that you can learn to use in a day.

Although your Commodore 64 is a powerful musical instrument you need to be a pretty good programmer to understand how it all works. Unless, of course, you buy **MUSIC MASTER!**

To use MUSIC MASTER requires no prior musical knowledge, though in the hands of an experienced musician it will prove an invaluable tool. You don't need to know the first thing about programming either! MUSIC MASTER is the musical equivalent of a word processor, remembering the notes you play and allowing you to replay and edit them as you wish.

INTERDICTOR PILOT is a space flight simulator. Nowadays simulators are widely used to train pilots and astronauts because – to be frank – it's a lot cheaper (and safer) than the real thing!

Imagine, if you will, life in the 22nd century: space travel is commonplace, and on the outskirts of the galaxy the first war between civilizations is being fought. A shortage of trained pilots has prompted the Federation to develop a computer simulation that allows raw recruits to gain experience without paying for their mistakes with their lives. With the aid of your Commodore 64 you too can learn to pilot the Interdictor Mk 3 craft. But be warned – this is no game!

Other SUPERSOFT products include the **MIKRO ASSEMBLER** cartridge, the only assembler that's ideal for beginners yet powerful enough for the professional (most of our competitors use it!). The **VICTREE** cartridge adds dozens of commands to Basic including toolkit aids and disk commands; or on disk there's **MASTER 64,** a really comprehensive package for the keen programmer.

Of course, we do also publish games programs, and with classics like **STIX, QUINX** and **KAMI-KAZE** in our range we are one of the market leaders. But we most enjoy coming up with the sort of programs that are going to be in use for months and years, not hours and days – the sort of programs that make you glad that you bought a computer – and glad that you bought SUPERSOFT!

You won't find SUPERSOFT products on the shelves of your local supermarket. But most specialist shops stock titles from our extensive range (and are prepared to obtain other programs to order). However you can also buy direct by sending a cheque (pre-paid orders are post free!), by calling at our offices, or over the telephone using your ACCESS card.

SUPERSOFT

SUPERSOFT, Winchester House, Canning Road, Wealdstone, Harrow, Middlesex HA3 7SJ
Telephone: 01-861 1166