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Editorial

Next Month

WITH NEW users at the helm and new products coming into the shops, Commodore's fortunes seem to be improving. Advertisements at the June show were heavily down on last year, although many companies such as Rabbit and Benali are no longer with us, so the number of exhibitors was significantly lower. More importantly, reaction to the C128 was good — at least from the point of view of journalists and the public. The Commodore engineers seem to have listened to criticisms of the 64 and C16-Plus/4, and come up with a machine which nearly sidesteps the possible pitfalls of succeeding the 64 while offering many unanticipated bonuses. At the same time, the focus of the 64 seems to have been reorganised by some interesting marketing ideas.

All that remains is for a final price for the 128 to be set. We would guess at £349, which makes the machine, monitor and disk drive a fairly expensive proposition. Commodore's greatest challenge — and one on which Henry and Witek will have been putting in a lot of work — is the job of convincing the retailers that the system will sell to the public, who are reluctant to invest a large investment in a single computer system unless they are convinced of the quality of the machine and its backup service.

64 Programming

Extracts from Bruno Wolf's book

Inside the C128

An exclusive photograph

Plus

Utilities, games and reviews

EDITOR Christopher Jenkins **PRODUCTION EDITOR** Barbara Hajek **EDITORIAL SECRETARY** Caroline Smith **GROUP ADVERTISEMENT MANAGER** David Lutz **ADVERTISING MANAGER** Simon Langston **MANAGING EDITOR** Brandon Gray **PUBLISHING DIRECTOR** Duncan Scott **TELEPHONE** (ALL DIALS) 01-437 4161 **UK ADDRESS** Commodore Horizons, 12/13 Little Newport Street, London WC2H 7PP **US ADDRESS** Commodore Horizons, c/o Business Press Int'l, 287 East 42nd Street, New York, NY 10017 **SUBSCRIPTIONS** US: \$8.00 for 12 issues, overseas surface (including US and Canada) \$8.00 for 12 issues, US and Canada airmail \$20.95 for 12 issues.

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ICPUG southeast

I should like to take the opportunity to introduce our user group, the South East Regional group of ICPUG. Our membership covers 84, Vic and PET users in London and the Home Counties. We meet at the Charles Darwin School, Riggs Hill, every Thursday, and produce a bi-monthly newsletter.

If you would like more information about the group, I can be contacted on Provet, Squad No. 86881581, or Computer, ID 04396. David Pears
59 Chatterbox Road
Oxtoppton
Kent

THANKS FOR the information, David — we're always pleased to hear from our groups with news of their activities.

Name and address

SOME OF your more loyal readers may remember a program I submitted called "Address Book", published in

the August 1988 edition, when Commodore Horizons had a different cover (and price, but who's complaining?). Anyway, I seem to have overlooked one aspect. When you have finished typing in the program, RETURN, entered all your addresses and saved them to tape, they want to load them back and add some more, you find that you can't because there's no

CONTINUE option on the menu. I have written a routine to overcome this problem — just add these lines to the original program.

```

44: PRINT " ICDH @CONT
ADDRESS:
ITS BPS:="0" THEN N=0:
GOTO 200
80: N = VAL (S$: IF N < 1
OR N > 4 THEN 100
200: CN = GOTO 20, 310,
520, 560, 620, 680
800: A = A + 1: GOTO 220
CHR: CHR$
3: A:CHR
MERR
    
```

WE'RE PLEASED to publish this correction to celebrate the anniversary of the original listing. Thanks, Chris — don't make us wait another year to hear from you again!

The Vic in business

I ENJOYED reading the Business Special in your May issue, but, as usual, it is taken for granted that all the material is for the 64.

There must be thousands of people using Vic 20s, and a fair few with PETS. There is some good business software for the Vic, although it is starting to dwindle from our market.

Your issue is a very useful workreference. Simplifac is a good imitation of Visicalc, and there is also Vic Stock Control, Vicfile, Vicac, Visic and Vic Money Manager. I have not seen any of these mentioned in magazines. I have bought Commodore

Horizons from the first issue — please don't forget us people who bought our computers before the 64 was here, and have no wish to put them in the dustbin.

John Alexander
Bishopscote
Aston

GOOD POINT, Mr Alexander — of course, we would like to support the Vic, but with a dearth of new products it's a difficult business.

If any Vic owners have articles they would like to write, programs to submit or software they think ought to be reviewed — write and let us know.

The Staff naff?

HAVING JUST completed Ultimate's Staff at Kewstich, I was appalled at the way the game ended. It took me about four months of stress, strain and agony, and all I got was a border flash and a small message displayed at the bottom of the screen saying "Congratulations — you have destroyed the Staff!"

I don't think that this is a just reward for all the agony it has caused me. The other previous day I bought Entombed, but after completing Staff it isn't giving me much determination to try to complete it. If anyone wants to swap some information on Staff for some on Entombed, I will be more than happy to do so. Am I the first to complete Staff? David Booth
25 Oak Avenue
Aston
Birmingham

YOU'VE MET the final, but neither are you the only reader to complete about the staff conclusion of Staff. Come one, Ultimate — if you can write such brilliant programs, can't you figure out a satisfying end to these?



Show-stopping C128

WHILE THE 6th Commodore Computer Show was being delivered open by scantly-clad Bond girls, the uncharacteristically nerdy Nick Boney and Paul Welch were holding their most vital guests at the pre-show press conference. The question on everyone's lips, the price of the forthcoming C128, was left unanswered as the Commodore duo announced plans to revitalize sales of the 64 through value added packages.

Paul Welch, market-related packages to boost the sale.



Interest from the public was certainly good — at 15,000, attendees were only as speculators on how many companies would still be around to support the 128 when it reaches the shops in August. Many visitors from last year's show had disappeared — Rabbit, Black, Romtek to name those — and major names such as Activision, US Gold, Ocean, Virgin and others declined to attend, despite fairly detailed rumors that the exhibitors were offering free stand space to big names.



The result was that the show, half the size of last year's with only one floor of the Harbourside National taken up, was dominated by the previous — not "nearby", as stated in some of the show's promotional — of the C128 and related peripherals.



feature three operational modes: 64 mode, in which it is 100% compatible with all 64 software and hardware; 128 mode, in



Nick Boney, Commodore C128 price clearly painted over.

which it operates in Basic 7.0, with a large or eighty column display and CP/M mode, in which fully-fledged professional business software can be used. Current speculation is that the C128 will cost around £180, with the 571 disk drive and 50K monitor at around £300 each. The C128D, with built-in disk drive, will probably be released after the 128, at around £300.

To boost sales of the 64 and related peripherals, four "value-added" packages are to be

released.

"The CEM 64, data recorder, joystick and International Soccer cartridge will sell for £70.

"The 124 disk drive, Commodore modem, year's subscription to Commodore, and EasyScript word processor will sell for £225.

"The 124L, 124, MP's-80 printer and EasyScript word processor will sell for £300.

"The Plus/4, 124, MP's-80 and Imps 3.2.1 software suite will sell for £445.

The C16 starter pack will continue to be sold, and purchasers of this or the 64 starter pack will be eligible to claim a three-night holiday for two at any one of a range of 200 hotels in Europe.

The various models of PC

were also on show, together with new peripherals for the 64-128 including the 1541, a 3.5" inch standard disk drive with 134



compatibility and 170K capacity. The 1541 base's yet been allocated a release date — Commodore plans to wait and see whether the 15" inch standard sales will before deciding on the 1541's future.

Licensed to thrill

THERE WAS plenty to see at the show apart from sports games and music — Demtek launched the Bond game *A Time To A Kill*, with the help of Leonard Liveright, alias "Q", and stars, Mike Clarke and Maggie DeWitt.

"Micro Classics showed *The Chess Game*, an on-board effect set on a chess board.

"Lanscott demonstrated the many variants of *Popularity* and the popular "hair" games, though there was no sign of the original *Barley*.

"Microtron's *Land of Naves*, a multi-screen arcade adventure, is the latest 64 game from this company, also well-known for C16 products.

"C. Tech showed the C+ and other Commodore compatible printers.

"CompuPeripherals showed the Print-Technik video display, which transmits video signals onto disk and prints out in colour or mono.

"Data Electronics displayed the Quick Data Drive and the Alphacom 80 thermal printer.



"Harbourside showed *The Box* home robotics interface and previewed the Enhancer 2000 disk drive. This US import operates 80% faster than the 124, is fully compatible, and features solid construction based around a Chicony drive. The device number can be changed by removing a jumper, and the drives can be disassembled easily. The major advantage, as Harbourside's Roger Jones

pointed out, is that "It isn't the size-and-shape of a loose brick" — the Enhancer 2000 is around half the weight of a 1241. The product should retail here for around £195. Also going well on the Harbourside stand was the revolutionary Hudsonsoft Air-Card, a miniature joystick with two fire buttons, but no handle — the eight-position controller is set directly onto the base and it fits practically unobtrusively.

"RAM Electronics showed the Data Mouse, an optical driver for the 64-128 featuring impressive icon-driven graphics software.

"We'll be looking at many of the more impressive new products from the Commodore Show in this issue, with more to follow next month.



Commodores play music and sports

SOFTWARE at the Commodore show was dominated by the themes of music and sports.

"Commodore's **International Tennis**, a follow-up to *Tecmo* and *Basketball*, was launched with the help of Makino-lookalikes, improvisers Roger Kins. The game, which features perspective graphics and realistic sound effects, sells for £3.99 on cassette.

England's top opera *Giuliano* Canch was present to promote *Richard's Red Cricket*. He signed autographs before slanking off to his first show. The game sells for £9.99 on floppy-tape cassette, and release is planned to coincide with the start of the first Test.

"Having prepared the forthcoming soccer game *Flora-Kick*,



A follow-up to the highly praised hockey game *Map Shot*, once completed, *Flora-Kick* will feature soft-way speech and, for the first time, songs. It's also the first soccer game which allows you to take penalties.

"Multimedia *Harri's Map of the Exploding Mind* was making lots of noise, as the combination of quieter business software exhibitors — it's a multimedia simulation which is reviewed in depth elsewhere in this issue.



"Nights showed the boxing game *Knockout*, and *Jack Charlton's Match Flicking*.

"Eddie has shown the C16 conversion of the panel game *Whodunnit*, as well as *Vig, C-B* and *80 Cities* including *Cave Fighter* and *Apes Run*.

On the music front, the show revolved to the sounds of SID chips, synths and sound samples as several exhibitors banded for the ears of the public.

"Harboursoft Distribution showed the Autographic **Micro-sound** sampler, which operates with a special music keyboard and an analogue-to-digital interface to "sample" real sounds through a microphone, and play them back at any pitch with a



wide range of editing options. "Supraph demonstrated the **Micro-sound** digital sampler, which features sound sampling and editing facilities, with the added bonus of a MIDI interface, the audio £200, and the music program **Music Master**.

"Lord's **Music Computer System** linked easily to the Supraph device, along with a number of Casio and Roland MIDI-equipped musical instruments, for a spectacular rendering of a Bach piece. The **Music Computer System**, reviewed in our June issue, is a hardware and software system for controlling MIDI synths from the C16, featuring accurate musical notation and print-out facilities.

"Autolog's **Voice Master** is primarily a speech sampling and reproducing device, but in its *Voice Harp* mode it can be used to compose and play 64 music by humming or whistling into the built-in microphone.

"Island Logic's **Music System** was on show too — exclusively reviewed in our June issue. The **Music System** is a synthesis, composition and MIDI control package for the 16 using unique Macintosh-like control items.

"Commodore itself showed off the new packages from *Music Sales*, including the **Music Maker** keyboard overlay, the **Playalong** albums (yet to be launched), the **Sound Studio** score-basis and composition package, which comes complete with a booklet written by synthesist Dave Christie, and the **Sampler**, which when released will sell for around £50.95, and include echo and harmoniser routines as well as sampling and MIDI compatibility.

Amiga news

refusing to specify technical details, Commodore UK general manager Nick Boney said he was prepared to "lay a lot of money" on the Amiga machine being available in the UK in January. Speaking at the pre-show press conference at the 16th Commodore Computer Show, Boney would not speculate on the price of the machine. However, following the Chicago Consumer Electronics Show, some details of the specifications have emerged.

The Amiga will be a 1600K-based machine with 256K RAM expandable to 1512K. The 101K ROM includes a WIMP — window, icons, mouse operating system — called *Intuition*. There's also a unique disk operating system, *AmigaDOS*. The machine includes a built-in monitor and single disk drive.

The Amiga will be notably better than its graphics and sound. Three special chips, Agnus, Denise and Paula handle graphics, animation and sound production. The display

offers 60 or 80 columns, hardware sprites, 4096 colours, and 15K screen memory with resolution up to 640x480 pixels. The sound chip gives four sound channels over nine octaves.

The disk drive operates with 1/2 inch disks with 800K formatted capacity. The Amiga also has a detachable keyboard, two-button mouse, joystick ports, RS-232 and Centronics interfaces, RGB, TV and stereo audio outputs, and RAM expansion socket.

A range of printers, floppy disk units, a hard disk unit starting up to 528K, a video controller and "frame grabber", and a MIDI music interface are also in the planning stages.

Aimed at a broad spectrum of users in the home, business and creative areas, the Amiga will be a significant launch for Commodore worldwide. The most important factor will undoubtedly be the price, and at a reported dollar price of 1995, the Amiga may well make it to the UK at around the £1500 mark.



589 589K from Japanese Letters is a revolutionary loading device with a built-in motor. Operating by magnetic rotation, the Stick is an answer from Commodore and a guarantee for a year from £12.95. Contact Commodore on 011-671 5016.

Faster 1541

USERS OF the small-paced 1541 disk drive will be pleased to hear of **FastDisk** Micro's new Quick-Disk cartridge. Requiring no internal modifications or additional software to operate, the cartridge speeds-up load and save by a factor of four or five, allows disks to be formatted in ten seconds, allows unprocessed

disks to be backed up in 30 minutes, and adds DOS commands such as *MOVE*, *ERASE* which loads and displays a directory, and *SHIF7-DELETE* which executes the equivalent of *DDA7777777*.

Continues user program software which will print the CBM graphics set, and a reset switch, are included in the cartridge.

All this for only £29.95. For more details talk to FastDisk on 0385-49642.

Scotch disky



MINI-MATIC MEDIA giant IM has announced a new range of computer products under the Scotch label. Already well-known for video and audio tapes, Scotch has now come up with a new global product design format intended to promote brand awareness.

Aside from a new selection of video and audio tapes, Scotch will be producing computer cassettes and floppy disks, backing them with a major marketing campaign. The products include 3½ inch floppy disks, available in single or double density, single or double sided,

in packs of two, five and ten; a 5¼ inch hard cluster; and 3½ inch diskettes, sold in packs of one and five, single or double sided. These disks would be compatible with the Commodore 1541 disk drive seen at the Commodore Show.

Scotch computer cassettes, in three lengths, C30, C15 and C20, complete the range. The diskettes are covered by a lifetime guarantee, and the whole range should be in the shops by September.

Contact IM UK PLC, IM House, PO Box 1, Backlot, Felix, 0344-416735.

Datapad redesigned

VELMACE'S Datapad has gone through a redesign which aims to make it more commercial. The unit's plastic case has been replaced with a low-profile metal case with non-slip feet, and new moulded keyspace have been fitted.

The 16-way programmable keypad plays into the top's joystick port, and comes complete with software on cassette which enables the user to program the alphanumeric value of the keys. The redesigned keys are still lower case characters, so they

operate as soon as the shift lock key is switched on.



The Datapad retails at £1495. Contact Velmace, Park Drive, Balford, Herts, 0842-99888.

and program transfer, and built-in machine code SAVE routine. The current versions for the 64, Spectrum and BBC, means all use the same few protocols, enabling owners of the various machines to exchange data. Future plans for the service include the development of a simple wordprocessor which will allow messages to be transmitted via electronic mail.

The Disknet software can be downloaded via the phone lines. For more details, phone Colchester 02064 8058.

Rupert's come-back

BY THE END of July, Rupert Bear has everywhere will be able to play the game *Rupert and the Boymaker's Party* on the 64. Priced at £7.99, the Atlas Software game is described as "challenging, addictive and jolly good fun — it meets all the existing standards, laid down by the Daily Express".

The arcade adventure shows Rupert making his way through the night levels of the castle, following the lead to the party left by his friends. Toys both helpful and hindrance, magic sceptres and transformation items are encountered along the way.



The game is being released to coincide with Rupert's 65th birthday celebrations — though the title itself doesn't look a day over 60.

Contact Atlas Software, Liberty House, 212 Rupert Street, London W1, 01-459 0566.

FULLY IDENTIFIED on the Greater Commodore Electronic Show are now available. The Show, on the 26th and 27th October (Monday and Tuesday at the Millennium Point, London, '87) features displays from the first-class software houses, competitors, distributors, user organisations, discover offers and more. For information on low priced prices and booking arrangements, contact Computer Marketplace on 01-262 9432.



Danish goodies

A NEW RANGE of computer accessories from Denmark is about to hit the UK. The AM range is to be marketed by New Way Soft Components Ltd, and is to be available through computer specialists.

The range includes keyboard cleaners, disk-to-head cleaners, protective disk mailing boxes, computer cassettes and a joystick. For details contact The Publishing Department on 020-434 3903.

Here's Max

THIS IS Max, hero of the forthcoming educational program *Rupert Knows from Beyond*. Rupert Knows is being advertised as the first pre-school software, which, with the help of a supervising parent, presents the alphabet and simple words in an entertaining way. *Rupert Knows* costs £19.95 on cassette for the C204 64.



Dennison cleans up

THE PERFECT solution to a grubby compact — Dennison Manufacturing has announced the CEI cleaning kit. The kit includes three special cleaning solutions — a screen cleaner, general surface cleaner and anti-static spray — and comes with spray pumps and a supply of fifty low-flow cleaning cloths. The solutions are also available in separate kits, as part of the Molexant range of computer supplies. Dennison claims that, by regular cleaning, heat build-up, deteriorating print quality, sheet flexure caused by dust, and static discharges leading to data loss can all be avoided. Contact Dennison at Colonial Way, Watford, Herts, 0125-41284.

It's for yoo-hoo!

A COMMUNICATIONS system for 64 owners using the DEL-Print comes pack is now available from British Telecom. Disknet, a service of BT East, offers a range of facilities including memo-chat mode, data



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COMMODORE 64



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Elite – the ultimate, award-winning space challenge.

Once the privilege of BBC and Electron owners, Elite now takes a giant leap forward – onto the COMMODORE 64. (There'll be versions for the 48K Spectrum and Amstrad soon).

OUT IN DEEP SPACE, THESE REVIEWERS FACED THEIR TOUGHEST TEST.

Already tested by the intrepid explorers of the Commodore press, here – breathlessly – are just a few words from their advance battle reports.

"The Final Frontier?"

(Mega Game, Year 64, June 1985).

"My favourite... as absorbing and challenging as the original."

(Commodore Horizons, June 1985).

"To explain every element of Elite would take a book... you'll run out of energy long before Elite runs out of things to show you."

(Commodore Computing International, June 1985).

"A brilliant game of blasting and trading... truly a mega-game... the game of a lifetime."

(Gold Medal Award, Zap! 64, May 1985).



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Top Twenty CBM 64 Games

- | | | | |
|----|---------------------------|------------------|--------|
| 1 | Distributors | Sedney/US Gold | £9.95 |
| 2 | Softard | Softard | £4.99 |
| 3 | Pastap 2 | CRS/Easy | £9.95 |
| 4 | Harbert's Gummy Run | Mira-Gem | £9.95 |
| 5 | Shadwaffen | Second | £9.95 |
| 6 | International Basketball | Cometsoft | £9.99 |
| 7 | Theatre Europe | POG | £9.95 |
| 8 | Impossible Mission | CRS/Easy | £9.95 |
| 9 | Ballfire 4D | Microsoft | £9.95 |
| 10 | Grog's Revenge | US Gold | £9.95 |
| 11 | Strangloop | Virgin | £9.95 |
| 12 | Bounty Bob Strikes Back | Big 5/US Gold | £9.95 |
| 13 | On Court Tennis | Activision | £10.99 |
| 14 | Castles | Palace | £7.95 |
| 15 | Embroided | Ultimate | £9.95 |
| 16 | Jonah Barrington's Squash | New Generation | £7.95 |
| 17 | Telleroga | Comet/Radiogenic | £9.95 |
| 18 | Rock Horror Show | ORL | £9.95 |
| 19 | On Field Football | Activision | £10.99 |
| 20 | Blogger goes to Hollywood | Allgate | £9.95 |



Bubblers

- | | | | |
|---|-----------------------|-------------------|-------------|
| 1 | Brian Jacks Superstar | Mamech | £7.95 |
| 2 | Jump Jet | Arling | £9.95 |
| 3 | Kickstart | Masterton | £1.99 |
| 4 | Jet Set Willy 2 | Software Projects | £9.95 |
| 5 | Murder by the Dozen | CRS | £17.95 disc |

Top Ten CBM 64 'Non-games'



- 1 Mini Office
- 2 "D" Test System
- 3 Simon's Book
- 4 Mr Steps Mr. Man
- 5 Video Typing
- 6 Mr. T Journal
- 7 Mr. "D" Test System
- 8 Arch
- 9 Mathes Code Tutor
- 10 On Sprite

- | | | |
|----------------|--------|-------------|
| Database | £9.95 | Business |
| Commodore | £4.99 | Educational |
| Commodore | £95.00 | Language |
| Mitrac | 9.95 | Educational |
| Crash | £4.99 | Utility |
| Story | £9.95 | Educational |
| HR Notebook | £4.95 | Educational |
| Rank | £4.95 | Utility |
| New Generation | £4.95 | Utility |
| Mitrac | £9.95 | Utility |

Bubblers

- 1 Compressor
- 2 Main State
- 3 Games Creator

- | | | |
|------------|--------|----------|
| Softwell | £19.95 | Business |
| Activision | £14.95 | Utility |
| Mitrac | £12.95 | Utility |



Top Five C16 Games

- | | | | |
|---|-----------------|-------------------------|-------|
| 1 | Geonics | Adventure International | £9.95 |
| 2 | BMX Racers | Masterton | £1.99 |
| 3 | Blogger | Allgate | £9.95 |
| 4 | Zargon Wars | Geonics | £9.95 |
| 5 | Flight Path 737 | Arling | £9.95 |

Bubblers

- | | | | |
|---|-----------------------|-----------|-------|
| 1 | Vegas Jackpot | Masterton | £1.99 |
| 2 | Wizard & the Princess | Melbourne | £5.95 |
| 3 | Classic Adventure | Melbourne | £9.95 |

Top Five Vic 20 Games

- | | | | |
|---|-----------------|-----------|-------|
| 1 | Backstab | Masterton | £1.99 |
| 2 | RIP | Masterton | £1.99 |
| 3 | Flight Path 737 | Arling | £9.95 |
| 4 | Hunchback | Orion | £9.95 |
| 5 | Doodling | Masterton | £1.99 |

Bubblers

- | | | | |
|---|------------------|-----------|-------|
| 1 | Mickey the Brick | Field | £2.95 |
| 2 | Phantom Attack | Masterton | £1.99 |
| 3 | Popolo Shopper | Masterton | £1.99 |

Our recent readers' survey indicated that most of you wanted to see a games chart — but we've gone one better than that. RAM/C's charts, compiled from 300 independent retailers, are the most accurate and unbiased available, and cover CBM 64 games, non-games 64 software, and the top five C16 and Vic 20 games, plus those titles "bubbling under" the charts.

Compiled by RAM/C from a panel of specialist dealers.
Sales period — 4 weeks prior to June 15th 1985.

A jump to the left...

An odd choice of subject after a computer game, you might think — Internet (name) comes from outer space. Fans of the Rocky Horror Picture Show, mostly re-shown on the box, would think differently.

Faithful to the film, CRJ splits effort: allow you to play either Franco Zeffirelli or Francis Ford Coppola in their encounter with Frank N. Furter, RAY Raft and the other refugees from the Transylvanian

galaxy. In your journey around the ghastly mansion, you will see your clothes, be incinerated by anti-matter lasers and subjected to all sorts of indignities. What you're trying to achieve is left fashionably vague; somewhere in the house are the dismantled parts of the Madusa machine which you need to activate your beloved, but it's left to you to work out which characters are hostile, how to assemble the bits, and so on.

The graphics are fair, though the sprites aren't that detailed — perhaps a good point in view of the fact that you spend most of

your time naked. The music is excellent, and the characters come out with the odd touch of song lyric in speech bubbles.



Whether "Let's do the Time-Warp again" adds anything to the meaning of the game remains to be seen.

Overall, an interesting effort,

but an odd subject to choose since the film isn't that popular with younger audiences and a fairly run-of-the-mill game style in itself, saved only by a few scintillating moments and a few decent graphics. Whether the kiddies will develop an unhealthy interest in transvestition remains to be seen.

Program: Rocky Horror Show, 64

Supplier: CRJ

Price: £9.95

Graphics: ★★★★★

Sound: ★★★★★

Gameplay: ★★★★★

Planet building

A great concept with a disappointing execution, M.U.L.E. is a planetary development simulation in which up to four players can take part.

The Multiple User Labour Element is a mobile robot

worker which is a vital part of your development plan.

After selecting a character type, each player is given a certain amount of money and goods with which to trade and build up a settlement. Players select a plot of land from a map, and the list of the land suggests the kind of industry each should develop: mining, farming, and so on.

Each player visits the central township to trade and equip his

settlement. While there you can also gamble and auction your stock.



The graphics on each screen are unimpressive, and the action can be rather slow. However, the

game itself can be good fun, probably best played with at least two players. It's in this situation that the subtleties of trading and the effect of random events such as earthquakes and meteors, become most interesting.

Program: M.U.L.E., 64

Supplier: Aristonsoft

Price: Tape £9.95, disk £9.95

Graphics: ★★★★★

Sound: ★★★★★

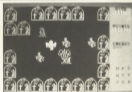
Gameplay: ★★★★★

Picture postcards

Clearly designed to look as much as possible like an Ultimate game, with the same sort of packaging and the same sort of instruction sheet, Lands of Illinoi also captures some of the plotting points of titles such as Nether World.

There's one excellent gimmick which gives it a touch of originality. The package comes with nine postcard-sized maps, and each time you play the program tells you in advance how to lay them out. Since the patterns are generated randomly, this leads to the game being slightly different every time.

Unfortunately, the graphics on the screen aren't as beautifully detailed as those on the cards.



The hero, in the form of a reptilian humanoid, scurries around the maze in search of magical objects which will help him to defeat the evil tyrants who have conquered the land. To gain extra magical power you have to

open a wizard's chest, but to do that you have to find a book of mystery. This is guarded by all sorts of vampires, zombies, harpies, wolves, and so on... you get the idea.

The sprites are single colour,

which isn't very ambitious, though the animations and special effects are reasonable. Once you've got through a certain number of stages, you can progress into new areas which are unimagined and totally mysterious. You'll need a lot of patience to get that far, though. Lands of Illinoi is a competent but unoriginal program, which follows the same sort of line of reasoning as many others: "lots of screens, lots of pseudo-mythical background, vague instructions and a pretty face" That isn't to say that the game isn't perfectly playable — it just doesn't stand out from the crowd.

Program: Lands of Illinoi, 64

Supplier: Microcal

Price: £9.95

Graphics: ★★★★★

Sound: ★★★★★

Gameplay: ★★★★★

Sparkling epic

Another cheapie that's meant to pile that now £9.99 US import, Taskmaster is a semi-serious zapper with a touch of magic.

Playing a heroic prince, you



must complete seven tasks in order to win the hand of a

beautiful princess.

The graphics are nicely designed and animated — quite similar to those in International Soccer and the like, except in this case the characters are comets, barbarians, and vampires... perhaps not that much different.

Certainly the best of the offerings from Creative Sparks' budget Sparklers label, Taskmaster also features nice sound

effects and an excellent intro screen. Excellent fun for budding heroes everywhere, and a recommended purchase for those entertainment values.

Program: Taskmaster, 64

Supplier: Creative Sparks

Price: £9.99

Graphics: ★★★★★

Sound: ★★★★★

Gameplay: ★★★★★

Kerboom!

This is a development of the old sliding block puzzle, in which a series of squares have to be rearranged in a frame to spell out a message or complete a picture. Incentive's twist is to add an arcade element to the game, so that the patterns you are required to form are constantly changing.

The game is set in a bomb factory, and your job is to go

through all 16 levels destroying all the bombs. Each sliding square is a puff of covered in



flaming paths, and your aim is to rearrange them so that the spark on the fusewire is able to

reach the bombs on the edge of the screen and detonate them.

The movement of the spark can be speeded up by pressing the space bar or fire button, and as you progress through the levels the layouts become more complicated and the bombs greater in number. There's also a time limit, and penalties for running into dead ends. As later levels you're threatened by water droplets from an extinguisher system which will put out your spark. The completed version of

the game will apparently feature music on the screen at the top, though I doubt whether it's the "Confusion" made famous by those ratty soap-heads New Order.

Critical marks for originality and subtle irony.

Program: Confusion, 64

Supplier: Incentive

Price: £5.95

Graphics: ★★★★★

Sound: ★★★★★

Gameplay: ★★★★★

Swarf Squad

The multi-screen arcade adventure is a format which is beginning to look increasingly tired, especially for those who don't have the patience to spend hours trying repeatedly to find missing objects or get through locked doors.

Swarf Squad doesn't avoid these drawbacks altogether, but it does have several elements which set it above the top-of-the-mill.

There are around 250 chambers, representing a robot factory which has gone out of control. Your little operator can move them around, using travel



rails and airlocks to get from one chamber to another. A 3d map gives your current position, and a compass shows the way to the central control room.

Weapons include flying roars and longer robots. Fetches from your supplies can repair tears in your suit, but both these and your oxygen tanks will have to be

replenished along the way. Your laser gun also has a limited amount of ammunition.

The game only really takes off, literally as well as metaphorically, when you find the hidden orb which makes it easier to get around.

The graphics aren't as awesome as all that, since they tend to become dulled by repetition, but there's a useful game save facility. Overall, great for players who demand plenty to occupy their time and trigger-fingers.

Program: Swarf Squad, 64

Supplier: Virgin

Price: £8.95

Graphics: ★★★★★

Sound: ★★★★★

Gameplay: ★★★★★

Batty biker

How do they do it, exactly?

Maschinen's latest effort is not only magnificent for £3.99, it wouldn't be bad at £7.93. Based on the KP Skips cartoon character Chummy Cola, Action Biker is an absolute gem.

Maschinen and KP have put a lot of effort into promoting this game, and it reflects very well on both companies. Chummy Cola is a motorcycle who must

complete a series of tasks at the highest speed possible. The detailed 3-D scrolling landscape is seen through a window, and the panel at the bottom of the screen gives your speed and gear setting.

You're not told what tasks you have to accomplish, though wandered around the screen are ramps, overhauled cars, obstacles, petrol stations, and so on. The aim seems to be to get around all these in the shortest possible time, by building up a good speed and mastering each trick in turn. Hidden objects can

help you to overcome the problems posed by the lake, fair-ground and building sites. Somewhere there's also a turbocharger



which will allow you to speed up your bike.

The whole feel of the game is excellent, and it's so well

designed that it gives a feeling of space and detail without necessarily being very complex or difficult to start playing. Not much to say.

Excellent — and, oddly enough, streets ahead of the Spectrum version, which seems to be a different game altogether and much inferior.

Program: Action Biker, 64

Supplier: Maschinen

Price: £3.99

Graphics: ★★★★★

Sound: ★★★★★

Gameplay: ★★★★★

Tut, tut

Another Maschinen effort. A nice one for the Vic 20, this, considering the limitations of the unexpanded machine. Your task is to guide Archa, an intrepid explorer, through the corridors of an Egyptian tomb in search of the sacred golden death mask. The tomb is heavily protected with poisonous snakes, scorpions, and the fast-moving

slidy Guardians.

You have a lamp, but it has a limited life, and since it gives out so fast you're given few tries to navigate around the maze with only a few squares around you visible, but inevitably you'll be squashed by a Guardian sooner or later. If you can find the mask and take it to the exit you'll be able to escape. Slowing you down will be the temptation to amuse extra points by stopping on the way to collect gold.

However, one fall along the way and you'll never leave the tomb.



It's interesting to compare this with something like Entombed on the 64, which has a similar plot though it's an infinitely

more sophisticated program. King Tut is fast and colorful, and makes the most of the Vic's abilities, and it makes arguments against those who claim that budget software must inevitably be poor quality.

Program: King Tut, Vic 20

Supplier: Maschinen

Price: £1.99

Graphics: ★★★★★

Sound: ★★★★★

Gameplay: ★★★★★

Scramble, egg

This is a 27-screen arcade effort which is probably the best thing of its kind seen so far on the C16. This, of course, isn't saying a great deal, since there's not a great deal of competition. Still, it's all per-foe good fun, so you, playing the accused Prince Harry, attempt to get through the Dark Tower. Things

aren't made easier by the fact that you have been turned into



a hole-in-a-egg shaped mutant by the evil Guardian of the Tower. So your little egg has to

collect all the magic jewels hidden around the tower, in order to regain his rightful form. It's all pretty routine stuff, with ladders to climb, platforms to leap onto, and various gongles to avoid. The animation is very smooth but the screen design is a little minimal.

At the end of each game, you have the option of restarting completely, or starting from the last score of the previous game (though you will still lose all your jewels).

The game becomes progressively more difficult as you get further into it, so it should bring some satisfaction into the lives of C16 owners in search of a challenge. Hardly the most exciting prog on the market, however.

Program: Dark Tower, C16
Supplier: Microverse House
Price: Tape \$8.95
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

Plantlife

Parts of Doom is one of the simplest games yet for the C16, a combination of Defender and Gardeners' Question Time.

There isn't much logic to the game, but who cares. You are a spaceship, armed with the obligatory joystick and laser gun, trapped in a series of underground caverns. Each cavern is bounded by a flower field, and

your only hope of escape is to help the alien plants reach their full growth, at which time the football-collapse (don't ask me why). Of course, there are all sorts of fun-moving obstacles out to stump on the flowers and blight your chances of escape.

The graphics are excellent, beating in mind the limits of the C16, and the sound effects good too. Both joystick and keyboard control are fast and positive. You'll lose a life if someone of

your team and joystick, or repeated collisions with aliens, depletes your power supply, the



score of which is given to a bar graph.

A good, fast shoot-'em-up, worthy of inclusion in any C16 owner's software library. Gardeners' best-looking 84 game. **Thing on A Spring** should also be worth looking out for, if it maintains this high quality.

Program: Parts of Doom, C16
Supplier: Genesis Graphics
Price: £7.95
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

Bouncing bombs

This may well be US Gold's biggest game yet. They certainly seem to think so themselves, since the amount of publicity put into this title by far outweighs any other game.

Based on the famous Dan-Bowers mission, US Gold's title is a combined arcade game, strategy and simulation. You have to play many roles as you pilot your Lancaster bomber towards its destiny; navigator, responsible for checking the map screen and plotting a course which will best avoid enemy installations; front and rear gunner, waddling off attacks



from enemy fighters and bombing barrage balloons; engineer, supervising the bomb mechanism and plane systems; bomb aimer, pilot and so on.

The enemy fighters and barrage balloons are not particularly detailed, though they do disappear in a satisfying explosion once you've brought

your gun to bear on them. The great thing about Bouncing Bombs, though, is that it isn't just a shoot-'em-up, and it really should have a great deal more appeal than many of the American imports which are fast and colourful, but don't have any real depth.

The manual contains plenty of historical details and strategic advice which adds to the atmosphere of the game, and there are several options related to difficulty levels and so on.

DanBrowsers should all very well, and deservedly so.

Program: DanBrowsers, 84
Supplier: US Gold
Price: £8.95
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

Checkmate

Barely named, since its title suggests it to be a straight-forward chess simulation rather than a very original arcade game. The Chess Game is the first independent effort from Micro Classic, and deserves to do well.

The brilliantly designed opening screen shows you innocently asleep, surrounded by ornaments and with your feet bound by your side. Press the fire button, though, and you're



both on and off the board.

The perspective animation and the sprite designs are excellent, though I would have appreciated

more detailed instructions. Your little man, complete with night-cap, has to make his way across the chessboard to score points. Handle chess pieces, and misdeeds thrown from the audience, bar the way.

You can freeze the action if you get into trouble, though this will cost you a points penalty. You'll get a bonus if you can capture the entire board without losing a life.

It's a pity that such a great-looking game comes without more explicit instructions. Some players may have the patience to

work out the significance of the differently-coloured board squares, the bonus for "snoozing" and so on, but it's not something which is immediately obvious. This is a pity, because together with the title of the game it could put many people off what is a very clever and original program.

Program: The Chess Game, 84
Supplier: Micro Classic
Price: £7.95
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

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AS SOMEONE who's always been more interested in park chops than karate chops, I read this new Melbourne House title warily, but as a disinterested player it didn't take me long to come to the conclusion that *The Way of the Exploding Fist* is right up there among my Top Five Commodore games. The graphics can truly claim to be cartoon-like — though maybe even that is a little unfair and we should be almost calling them life-like.

Because the graphics are so good it means you can enjoy playing the game straight away without too much about the controls — just sit back and watch yourself keep hitting the deck with great regularity and an almost painful thump. If you're anything like me you probably will want to play immediately when faced with the lengthy instructions, though you'll have to go back to them eventually as you'll just continue to eat mountains of that oriental stuff.

There are one- and two-player modes, with keyboard and joystick options, though if playing on keyboard only you will have to be pretty nimble with the digits. I'd like to have seen an option to choose your own taps, but it is quite possible to play well on the keyboard

and most people will be able to go for the joystick option anyway.

For this you need a good eight-directional joystick, with each of those eight directions covering 45 possible movements according to whether the fire button is pressed at the time or not. For example, if you press the joystick up then you leap to the air, but if you have the fire-button pressed then you execute instead a flying kick to your opponent's head — provided it's still there by the time you arrive, although all the movements are carried out very quickly, so you'll discover when playing against the computer.

One difficult-to-define feature that a game like this must have is playability, the feeling that you're getting to grips with it and making progress, even if only slowly. That does apply to *The Way of the Exploding Fist*, as you begin your first encounter on novice level and hope to progress upwards through the various clans. You have thirty seconds in each bout, and instead of two falls, two submissions or a knockout, the winner is the first to reach two full points, which are indicated by yin-yang symbols at the top of the screen. Obviously you have to bring your opponent



THE WAY OF THE EXPLODING

In search of universal harmony and one-ness with the cosmic all, Mike Gerard sets out to learn the secrets of karate from Melbourne House. What is the sound of one hand clapping, anyway?



● An above average one-fist move that does



● A quick kick to the shin — low scoring, but a killer move

to the ground, but whether you gain a full point or half-point for this depends on the move and how well it is executed.

The movements available range from low-kicks and punches to flying kicks and high punches, and it's also possible to block, do backward sweeps, back kicks, and a roundhouse (aboma-fact) movement, though this is tricky to master and inevitably left me facing the wrong way, vulnerable to a kick in the rear from my unscrupulous opponent.

Perhaps the most spectacular movements are the backwards and forward somersaults, very useful for getting out of tight corners. Also useful to get used to is the fact that if

you do an about-face and are then looking left instead of right, all your joystick movements do an about-face too. This is confusing, though not half as confusing as I imagine it would be if they didn't change round.

Playing against the novice is reasonably straightforward, as he only tends to execute one move at a time, rather than quick combinations that come up later. I found the easiest way to floor him was to move right in and give a short jab kick to the grille, sending him stumbling backwards. Either that or a kick to the midriff, neither of these being very elegant, and both only worth a half-point, but effective nonetheless.



● The jump — your quest for perfection starts here

● The somersault — a slight somersault gets you out of trouble



In Das opponents react more quickly, and come in with one-two and occasional counter-strikes, but after a careless start I found that a very quick kick to the chest was the way to get up to 2nd Das level. At 4th Das level a rampaging bull enters the scene — though I won't give away the secret behind surviving its charge!

Each level's encounter takes place against a different background, and very elegant they look in mainly pastel colours. The 300-plus sprites are brilliantly designed and animated, and there's a perfectly convincing 3-D look about the scenes as the men stare in front of and behind each other, with punches and kicks connecting very believably. The sound and brilliant music adds to the realism in most cases, with pre-recorded grunts and screams as you hit the ground, although some of the effects have all the attraction of wallpaper scraping down a blackboard. I tended to play the game with them off rather than on.

But play the game I did, again and again, and I'll be carrying on until I come face to face with that bull. I might not be able to make pink clops of him, but he'll be mince-meat by the time I've finished. ■

MICRO: CBM 64
PRICE: £9.95
SUPPLIER:
Melbourne House

EXPLODING FIST



● Make a mistake and you'll suffer the consequences



● The low punch can be a powerful surprise move



● The price of desperation — a fighter lies dead



● A low swing allows you to knock an opponent sideways



● The angle — how you will meet the strongest bull

● The fighting laser — beware of back kicks



● Ward off your opponent's punches if you're fast enough



Nick's exploring Virgin territory

It's one of the brightest and most imaginative software houses around, and Nick Alexander has big plans for its future. Chris Jenkins talks to Virgin Software's MD

NICK ALEXANDER would be the first to agree that Virgin Software entered the market with some dodgy products, and took some time to mature into the quality software house it has become today.

"People have now stopped buying products that isn't any good — part of the benefit of the industry becoming more professional is that the sharks who moved into it just to make a quick profit haven't survived."

Virgin Software is part of Richard Branson's music-based empire, and like the other wings of the company has followed its up and down. Nick Alexander, though, feels that like the famous transatlantic airline project, which is one the verge of buying its second jet after an uncertain start, Virgin Software can see the light at the end of the tunnel.

Part of the problem has been communicating with a market where the phrase seems to be "reactions".

"The situation now is that we don't go to many computer shows, because the software market is no longer composed solely of enthusiasts who are willing to travel to buy

their software. We found at one show last year that we did more business by our going, because we were on hand to do business with distributors while our competitors were tied up at the show. Also, with less money about the advertising, and a decline in the specialist computer press, we're having to look at mainstream media for publicity. This is of course expensive, and I think the software industry is about eighteen months away from being able to afford it properly."

GOSH!

So with a contracting market and less publicity, how can games houses like Virgin survive? "The situation is still quite good, with around 150 companies operating, but I expect only around fifty will survive. Those that do remain will be stronger. There's a sort of parallel with the record industry; they didn't really make much money, and most ended up closing or selling out to bigger companies. You can't take the parallel too far, because with games software all you need is a computer and some programming skill, not thousands of pounds worth of recording equipment. Our in-house team use BBC machines and disk drives for development work, then transport the code to the different machines. So the kinds of costs you're looking at don't compare with the music business. Talented programmers can get by without enormous companies behind them."

"The companies that will survive are those who maintain a high level of creativity. *Wilson Pinard*, written by Steven Lee, was our first major success, and set us through a fairly lean period afterwards. We're also doing well with *Samurai*, because the 64 version has been boosted by the success of the Amstrad conversion. *Strangleloop* and *Chatterblaster* are the latest products I like. *Strangleloop*, though it's a little unreasonable since it takes so long to get into *Chatterblaster*, by Tom Gibson (*Chatterblaster*) has also been well received."

Nick's work with the *Castle of Software* Boxes (COSB) helped to ease the transition



of the software market from cottage industry to big business.

"Virgin was one of the eight founders of COSB, which was a spinoff of the Computer Trade Association. It was very valuable in bringing software houses together, raising awareness of the problems of piracy through the Federation Against Software Theft, and dealing with boring problems like standards for bit coding and controlling where data. We've almost got a Bill through parliament setting copyright penalties for commercial piracy, and COSB is also going to look at things like establishing systems networks. I'm no longer on the executive, but I do attend the meetings — COSB is a very useful channel of communication."

Like many software houses, Virgin seems to have had its fair share of problems with distributors. "Retailers don't want to have to deal directly with software companies — they want to be able to buy everything from one source. That's where the distribution comes in. Unfortunately, because they want their percentage of the profit, it cuts our margins and forces up software prices. It's just an unfortunate function of the marketplace. Distributors also make it difficult to market



much educational software, because they're reluctant to take it in quantity. That's why when we developed an in-house graphics utility, we sold it through a magazine at 99p rather than trying to get it into the shops. We've looked at things like music software, but our market research led us to the conclusion that we just couldn't make money on it. So we're really only interested in entertainment programs.

"If distributors continue to demand bigger profits, many software houses will go out of business. When that happens, though, the software houses remaining will have the upper hand, because they'll be able to dictate terms to the distributors rather than the other way around."

Teamwork

This may sound a pessimistic view of the future, but Nick thinks the overall prospects are bright. "Changes in hardware technology will advance the development of software. In the next five or ten years we'll see computers and programs that can be interfaced with compact disk players, laser disks and other devices, such that creative people in other fields will be able to do something worth looking at. At the moment, with the limited memory of the machines available you have to be both a good programmer and economical with memory to get good results."

Virgin's in-house development team, along with outside programmers like Steve Lee and Tony Gibsons, will presumably be the first to really take advantage of such developments. "The in-house team are fantastically dedicated — they're the first in in the mornings and the last to leave at night. It's not just that they know that the bonuses of Virgin Software are directly dependent on their work — they're also games fans, who play everything in the Top Ten. In fact, when it comes to the marketing aspect of the job, they're often able to advise me. It's not like Thorn-EMI, where I worked before I joined Virgin — there, the programmers were very much shut off from the rest of the world, and as a result their productivity went down and down. Now there just act as publishers for bought-in software."

The team aspect of Virgin Software is an element Nick is keen on since, "Initially, the team idea was against my philosophy, but in this small operation it works well. I can talk to the programmers, show I did a little programming on mainframes, though you won't be seeing Nick Alexander's first game on the shelves! I tend to like things like *Psychoblast*, *Zero*, and *Caves of Maye* — mostly non-violent. We have meetings every fortnight to kick ideas around, and they're good opportunities to exchange thoughts."

Future ventures from Virgin include the setting up of a budget software label using the Rabbit name. "Rabbit was one of the first companies to do home computer software, and despite their demise the name still carries some reputation. We bought the name for a fairly small amount — somewhere near, say, what AMP paid for Quiklinks — and we'll be putting out budget software from September. Most of the games will be new, although some will be back-catalogue products which we feel didn't get a fair deal first time around. Budget software is of surprisingly good quality,



though you have to shift chunky numbers to make a profit on it."

Other plans include to-ups with well-known books and comic characters, though Nick isn't too hopeful about using Virgin's pop personalities. "I'll be very interested to see how Ocean's *Blasphemous To Hollywood* game turns out. They're certainly too good to bring out a poor game, although in the past the scope for licensing deals has led to some pretty bad software. People signed up files and TV ideas without really thinking of whether there was a good potential for a game."

"The Spaceman game *The File* is now doing quite well, after a quiet start. That's by Chris Newey, who is more of a musician than a programmer. We also did the board game *Here*, which was a nightmare because, having no experience of that sort of thing, we got the coatings wrong, and had to sell it at £17.99 to make money. As a result sales weren't too good, although with overseas versions it should pay for itself. It wouldn't have been

profitable to make a computer game, though. "With Virgin's files of 1984, there was potential for a game, but the first three maine was very reluctant to agree to any licensing deals. All they would authorize was a text-based adventure which would have been very faithful to the book, but which would require two-disk to operate. We couldn't see any real market for that. Virgin's pop artists such as Stephen Duffy, China Crisis and so on are doing well, but don't suggest much potential for games spin-offs."

Polarization

"At the moment we're still working on two projects, which have taken a year so far. I'm hoping they'll be in the shops for Christmas. One is based on a well-known comic hero, the other on an internationally best-selling book. Both will be interactive graphic adventures, using the same sort of artificial intelligence techniques which Imagine talked about in their *Bandersnatch* game."

"I think we're going to see a polarization in the games software industry. Things move so fast that if you make a mistake you can't go back and repackage a product, or take another go at marketing it. The top twenty games now have a good shelf life because the pressure of new releases is perhaps less, and the quality of the software is good. At the other end of the market, there's the budget stuff which will sell in large quantities because it's cheap. But we're in a strange period that isn't typical of anything at all — the only possible policy for survival is to not to try to stay flexible. If you try to accommodate the future, nine times out of ten you'll be wrong."

"I believe that the industry does have a future, but I believe it rather than there it. Virgin Software has come close to being closed, but with the full backing of the rest of the company we can see the light at the end of the tunnel."

With a dedicated team of programmers, a flexible approach to the market and a range of products covering budget lines, high-quality arcade adventures and big-name licensing deals, Nick Alexander's faith in Virgin seems to be fully justified. ■



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Executive toys

Tony Mills looks two pieces of hardware with style as well as ability — C. Itoh's CBM-compatible C+ printer and Seiko's amazing terminal watch

AS THE market for utility software such as wordprocessors, spreadsheets and databases becomes wider, so Commodore users demand more and more from their systems. One of the most important elements of the home system is the printer, and increasing numbers of manufacturers are catering specifically for the Commodore user.

The C. Itoh Bitstream C+ is the latest entry to the market, and in style, efficiency and simplicity it seems a strong competitor.

Since the C+ is directly compatible with the Commodore serial port, you can use it with your Vic 20, 64, C16, Plus/4 or 128 with no interfacing problems at all. In this sense, the C+ is best compared to Commodore's own MPS-801, for which it is clearly meant to be a rival.

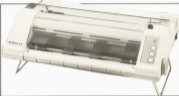
The C+ in fact scores over the 801 on many points. Although it is a dot matrix device, able to reproduce the entire Commodore alphanumeric and graphic set, the design of the hardware itself is much superior to that of the standard CBM printer.

The C+ can take perforated, clean or oil paper, since it has both tractor and friction feed. Width can be 4-10 in for tractor feed paper, 4-9.5 otherwise. One unique feature of the machine is that the paper is fed in from the front, as you'll see from the picture, making it much easier to handle. The C+ also has holding jaws which allow it to sit over its paper supply — a space-saver which many home users will appreciate. This method also allows you to use paper of a wide range of thicknesses — even card.

Print speed is also impressive, at 300 cps, uni- or bi-directional. Also available, and full explained in the comprehensive manual, are a number of special print styles such as double strike (giving near-letter quality), expanded or compressed, italic, super-script, sub-script and reversed. The ink ribbon is fairly easy to fit, although not as easy as the 801's would be. It's also a non-standard shape, so buyers would have to ensure local dealers carried the correct type.

Noise level is kept fairly low by the paper cover. The controls are simple: five foot, four hand, tractor/friction feed select, and on-line/off-line selectors, together with LED status indicators. Switching on while holding down the LF key puts the C+ into self-test mode, where it runs through the complete character set.

Another feature of the C+ is the ability to print horizontal equivalents of the data transmitted to it, by switching an alarm depressing the LF and FF keys. There's also a small print buffer, the size depending on the



character size and column setting. The manual is well laid out and illustrated, though it suffers from the odd translation error

such as "Check the ribbon to be transferred stably by an-direction". Heck?

Continued over

Time on your hands

Seiko's RC-1000 connects to the 64 to give you 2K of data storage

DID YOU FANCY having a computer terminal small enough to attach to your wrist, which will keep a record of your appointments, store useful facts, tell you the time all around the world and make you up in the morning? Well, it's here — Seiko's RC-1000 Wrist Terminal is either the best example yet of useful electronic miniaturisation, or an impressive executive toy, depending on your outlook.

The RC-1000 looks like a conventional digital watch, but does a whole lot more. For a start, it has a 2K memory, which enables it to store 64 displays of characters on its liquid crystal display. More importantly, it can be interfaced to a wide range of home computers, including the CBM64, using an RS-232 cable supplied with the terminal, and a suitable interface.

Normally, the RC-1000 displays the time, date, day, AM/PM and alarm on/off. Clipping on the interface lead and pressing the TERMINAL button changes it into much more than a watch — it can now receive information from your 64, loading times being typically 15 or 20 seconds.

The software, supplied either on tape or disk, is a kind of menu-driven "scrubbed" program allowing you to enter data using the 64's keyboard, then download it into the watch's memory. The "notches" and "pages" of information are then accessed by

pressing the watch's TERMINAL button, and the SET or SELECT buttons to page backwards or forwards.

The review model came with lots of useful information already loaded under several headings; under MEMO there was a list of names of "friends" with phone numbers; under SCHEDULE ALARM, a selection of meetings, birthdays, appointments and so-on, each with a 11-character message and a month, day, hour and minute for the alarm to sound; under WEEKLY ALARM, more of the same, but on a weekly repeating basis; under WORLD TIME a list of overseas capitals with their respective times; and under the basic function WATCH, the daily alarm, calendar paper to 2020, and hourly time signal.

The buttons on the RC-1000 are small, though fairly easy to use unless you have

Continued over



Continued

Engage the size of pork sausages. The unit itself is very smart, in brushed black or grey finish.

The Seltco computer watch series includes units such as the UC-2800 and UC-3800 which can be attached to miniature alphanumeric keyboards, transforming them into complete mini-computer programmable in Basic (one of which even has a built-in printer and cartridge port).

Certainly one for the "whatever will they think of next" department, the RC-1000 is I think more than an eye opener too. Unless you're so much of a jet-setter that you can't spare the time in the morning to plug in the



thing and program it, the unit could be useful to all sorts of people whose memories are so overburdened that a little technological reminder can be invaluable.

Product: RC-1000 Terminal Watch
Supplier: Hutton-Selkie, Berkeley Square House, Berkeley Square, London W1N 3LE, 01-491 0561.
Price: Casio, £109; dial, £119



Continued

Fully explained in the manual are the commands OPEN, CLOSE, PRINT #, CMD, and so on, as well as methods of setting spacing between lines, using alternate character sets, tab-setting the print head, perforation slip, paper feed, back space and so on. For most users this set of information will be of peripheral interest (just) — if using the machine with commercial software, all they'll care about is its speed and efficiency, which seems to be impressive. This review was originally printed out on the machine, and it compared well with both the Epson BX-80 and MPS-80: I normally use

Commodore users looking for the perfect

complement to their micro might well consider the C+, despite Commodore's forthcoming "beginner offers" on their own equipment. The C+ certainly wins out on format and speed, and as for style, it's in a class of its own — so close in appearance that it's better suited to the Commodore than to any of the current Commodore micros. ■

Hardware: C. Job Kansen C+ 64-series printer
Supplier: C. Job Electronics Co, Basco House, 38-39 Weyle Road, Wimbledon, London SW19 4EP, 01-498 4900
Price: £40 + VAT.

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MATCH OF THE DAY



AS THE SUMMER heats up, the software houses try to lure you away from healthy outdoor activities with more and more programs based on sports. But are they as good as the real thing? Sporting superstars Brian O'Parrot and John McEnormous study the field . . .

STAR LEAGUE BASEBALL

Activision

Brian: "That, well, it's a grid program. You Activision buddies surely know their base, though I'm doubtful if I know what you instructions are about, an' me



head's so full of statistics. What's an' "knuckle", or "you 'dicker", or 'st 'base'?"

Given graphics an' sound, but you manual needs translate base English!"



SUPERSTAR CHALLENGE

Midway

John: "Gee, I never expected to much from this game. It ain't just a Daley Thompson rip-off — there's some clips, equal the auto, cycling, foot ball, swimming, shooting, and more. It's all controlled by the joystick, an' yo

gins learn those rather than just chomping away right to left



and keeping for the best. That's why I like it — it's got style, like me!"

INTERNATIONAL TENNIS

Commodore

Brian: "No, don't get me wrong, just because you state it played by girls, I wouldn't say it's a shy game. This ain't for



real hairy men — y' gotta last the pace long if yo'e a rummy fan. It's gaid an' easy to play, with one or two player options, an' joystick control. You court's viewed from the side, an' the skill's in positioning yo'elf properly, then controlling the direction an' force of hit by pressing the fire button an' moving you joystick the rest way. Mind yo, the way that crowd



clones yo'd think it was John McEnormous on you court, not a collection of plastic."

WORLD CUP FOOTBALL

Atari

John: "Well, maybe your English soccer isn't for girls either, but it sure can't be as exhausting as a rat with Vital Gastroenteric. This World Cup business lets you pick one of sixteen teams to fight it out for the prize, but I notice the players all look mighty strong. Maybe it's the programming, or maybe it's the nice atmosphere in Mexico (Great International Soccer any time, at least here you can see who you're tackling!"



INTERNATIONAL BASKETBALL

Commodore

Brian: "That, it's gaid, it's gaid, but tell me, kiddie, why are there but three players on each side, not the usual five?"

John: "I guess all are they ran out of spirit! Well, the old International Soccer magic is there, with all the sounds of the crowd an' all the shooting, dribbling an' tackling yo'd want. You score"



Continued

scrolls to show the whole pitch, so it's just like watching Match of the Day, except there's no Jimmy Hill, Jimmy!



SLAP SHOT

Arising

John: "Now this here's a real mean game! It's a two player, real-time simulation with three periods of three minutes in each match. You get fast and slow mode, plenty of joystick control over the power of your shots, good modeling, and the sprites are great. Just peaches. There's software speech that's clear and, your son, too. But the thing that makes the real deal — it's a great game, but you can't



play against the computer! Whoa's responsible for that is the PITS of the WORLD!"



THE LIVE'S CRICKET

Postscript

Brian: "Total joystick control in this one, Jimmy, and that's not just for you business bowlers



and fielders are under your control, too, so it's the most realistic cricket simulation yet. One or two player options, with your own bats or an England and World eleven, with skill points shared among the players. Oh, the first screen the bowler and batsman face up, then when

the woe ball's been bowled the program switches to a birds-eye view of the fielders. It's almost a gift as a game of football!"



CRAZY GOLF

Comiconline



John: "I still see you about this one; it's for the C16 though, so maybe you gotta make allowances. The way I see it, you get joystick or keyboard control of the direction and strength of your strokes, then it's up to the ball to find its way through the obstacles in the hole. In the States we ain't got terribly interesting obstacles on our courses, though. Can you guess why life is making things difficult for ourselves, don't you? I guess it's okay for weekend apertures."



ON-FIELD FOOTBALL

Actionline

Brian: "Och, and it's another one where you cannot understand the instructions! I was saying to the Big Yin only the other day, who's all this blather about

"'Tight
real?"
"Boulder?"
as if
"Yumber?"

Och, it sounds like my six men in the showers after the match! Once I got into it, though, I could see why you join Activision anymore



where about. The progressive graphics are verra realistic, an' it'll improve your performance with practice. Like I cannot treat the computer yet, and I don't know if I've the patience with the wee thing to get any better!"



ON COURT TENNIS

Arising

John: "This one's gotta be my favorite! You get a choice of clay, asphalt or turf surfaces, which is more than you get at your crummy Wimbledon, a choice of one or two player options and full request control over serves, smashes, chops and ground



strokes. The clever part is that there's no need to move your player around the court; the program positions him for you, so you can just concentrate on timing your strokes. You can choose to play as any one of four players patterned after real tennis champs — and guess which one I choose! Just for a change, this one's easy to play, so you can get straight into it. Even Tatum could play it!"



THE HORSE

Postscript

Brian: "This one's a bit long in the tooth, but like Malcolm Allowie it just won't go away. It's not just an arcade game, mind it's a realistic simulation, where you get to name your team, make selections, transfer or suspend players, check out league tables, spy on other clubs, and go through the four divisions, the 1st cup, the European Cup and the Cup-Winners' Cup — an' probably the Cup-Winners' Cup-Winners' Cup World Trophy Cup an' all. It can save the game at any stage, an' the great thing is that because you can keep on playing even when you've got to the top, the game never comes to an end — sounds just like watching Wharf second curves on a Wet Sunday, Henry!"



ENCRICHT

Arising

John: "This cannot be reviewed! This is supposed to be a boring game, but you compare it to something like Explaining Flat and it's so much FUNNIER! I just never saw such dull sprites, such logical gameplay when do these guys think they're doing?"



Brian: "Och, dear! What a gaudy chance the lady's got the lady, an' what a dramatic performance! To call this a boring game, Jimmy — I've seen better fighters in Glasgow Derby at Jock Club! Poor design, slow action, bad control — this one's got to be relegated!"



★ WIN ★
Gooch's cricket bat



Graham Gooch's TEST CRICKET

DREAM AND HONEY'S favourite sports game turned out to be AudioGraphic's new release, *Graham Gooch's Test Cricket* by the Commodore 84. It's a realistic simulation in which you can either just sit back and watch the action taking place on your screen, or take the part of the England or Australia test team. The batsman and bowler are controlled by the joystick, with realistic sound effects and music.

You can select a limited over

option, or a full two innings test match, with an authentic scorecard and bowling figures displayed between overs. If you're not happy with your team selection from the Test squads, you can even input your own team names.

Graham Gooch, England's Test opener, was at the Commodore Show in June, and helped us to put together a prize package which should tempt any sports fan. Enter our simple competition and you could win:

- A Graham Gooch autographed cricket bat, plus an autographed copy of *AudioGraphic's Test Cricket* game.
- One of three autographed copies of the game.
- One of twenty runner-up prizes of copies of *Test Cricket*.

All you have to do to enter is to tick, at the two corners, and count the number of differences between them. There's no need to mark the differences.

Just cover up the number you spot, and put that number on a POSTCARD, along with your name and address. Then complete this tie-breaker

sentence in an apt, original and amusing way (in fifteen words or fewer):
"I want to bet on AudioGraphic's team because..."

Send your entry to AudioGraphic, Contact, Commodore Horizons, 12/13 Little Newport Street, London WC2H 9PP, to arrive by the last working day of August. Winners will be announced in the October issue. Normal competition rules apply.





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Exploring new worlds on disk

Bold adventurer Ken Matthews looks at two Activision adventures which combine sophisticated interaction with advanced graphics, and previews adventures and competitions yet to come

THE ABILITY of disk drives to hold and access large amounts of information makes them ideal for handling the complex and memory-consuming arrays and strings of adventure games. Our American cousins have long had the advantage of "cheap" hardware so it is hardly surprising that almost all of the quality disk based adventure programs appearing in Britain have US origins.

The ready availability and success of games like the *Jark* trilogy, at affordable prices, seems to have persuaded other American companies to chance their arm in the UK market.



The extra memory available via disk often allows the programmer to add more "atmosphere" to his creation by the addition of voluminous text (as in *Infocore*) or some shiny graphics and animation. There are many die-hard purists who still won't touch a graphic game but I believe they will become fewer as "realist" and "interactive" graphics in programs such as *Nikkie's IT* and the *William* games get the accolade they deserve. This month, therefore, I'll be giving you a rundown on two new "illustrated text adventures" from Activision.

The first of these, *'The Tracer Sanction'*

casts you as an intergalactic Special Agent charged with tracking down a nefar do-well known as the Wring. You must travel the nine planets of the galaxy and collect the clues to lead you to the final confrontation with the Wring.

To help you accomplish your task, you will need galactic charts and the code to refuel your ship as you close in on your prey. Each of the planets you visit holds the key to the next part of your mission, and a few red herrings as well. Location descriptions are brief but well compensated for by the lavish graphics which both describe and require some study, as they sometimes hold an essential clue. Many of the objects or no screens also bear some animation such as a boggle-eyed harrish and collapsing mine on the planet tables.

Responses

The game understands full sentences although two word commands usually will do. Some of the responses to common commands became a little monotonous, but the clever use of the function keys to save a lot of effort more than compensated for this minor irritation. Of particular note though is the Quicktime facility which saves a current position on the game disk itself in very few seconds, thus saving a lot of time lost swapping disks for each save.

The second title, *'Mindbender'* has a more down to earth setting, in the Robert Ludlum world, with the player lost on a desert island suffering from amnesia and at a total loss as to where to go and what to do. Slowly and

patiently you will piece the globe in search of your identity and the traitor who left you marooned to die.

Both of these games share the same features, and each has a tutorial explaining the basics of adventuring on the back of the disk. There is also an unusual help feature in each

game which allows you to get three hints each time you play, making the games even more suitable for the novice.



I have thoroughly enjoyed playing both of these games and I would cheerfully recommend them to all but the very experienced adventurer.

Finally, I would again like to ask for your letters and suggestions to help us let the Tower reach new heights and warn you to sharpen your wits for next month when I will be announcing details of a new monthly software competition — I promise I'll be easier to decipher than Eureka! ■



Coming soon...

We'll be looking at the Fourth Protocol from Mindbender, based on the Frederick Forsyth novel, and at Towerall's *Spargan* adventure. Plus, the first in a series of adventure software competitions...



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Special effects

As an introduction to this month's feature on **IBM 84** graphics, **Chris Jenkins** talks to the company behind some of the small screen's most spectacular images — **Computer FX**

THE COMMODORE 84's graphics capabilities may be impressive, but with higher resolution and more storage space computers can create amazing video images which appear almost real.

One company at the forefront of computer-generated image technology is London-based Computer FX. The company's computer equipment would make the average graphics

"We can adapt the software to the needs of the client, but usually the routine we've developed cover what's needed. For *James*, I had to write a routine to generate 'top' and 'bottom' images to depict a computer-generated 'fairy-cake'."

The information on which the animation is to be based is entered from a drafting board, using full technical specs for the objects required. Andrew Forrest and Alan Marques find themselves having to digitise objects as diverse as spacings and glass domes — all defined in terms of straight lines. "To get a curve you have to use the digitising plottor to enter a series of 'very short' lines. In the case of an *Autos* car, there were so many curves to digitise that it took two-days to mark up the plans, and another day to enter the information. The software makes it easy to generate simple geometrical shapes though, so some jobs can be done very quickly. We can also do hidden line removal, progressive fading on the 'X' plane to give an illusion of depth, and things like 'flip planes' which define a cut-off point for the graphics, which an regular geometrical object can give you a simple line of hidden line removal."

The completed digital images are projected, as 'frames', on a display screen. The digital is monochrome; colour is added by filtering the images, with a relatively uncomplexated pin-point laser camera, through a series of coloured filters. Each set of images is filmed using the particular filter required, and with the use of various types of diffusers all sorts of flares, glowing effects and halos can be added. The filming is usually done at around one frame per second, which is as fast as the film can expose.

Ian Chisholm explained that Computer FX hoped to add to its impressive array of capabilities by developing a plot-plotting system later this year. "We want to be able to do anything you could possibly want using computer graphics. For instance, one client

wants a raster-ported background with hard-drawn animation over the top. Another might want a single image but drawn in very high resolution. The only major hardware difference with pixel plotting is that we'll use lots of small machines rather than one large one for frame storage, to cut the frame time. You can never get enough speed, even with the biggest computers, but we're working towards



has died — in fact, most of you will have seen Computer FX's fabulous animations on TV in adverts such as those for Ford, the IBM and Zaxxon, and programmes such as *Max Headroom* and *Loose Talk*.

Computer FX's Ian Chisholm explained how the video marvels are performed. "The best pictures are created pixel by pixel, but that's such a complex process that it slows down even the biggest machines. So we use a line plotting technique which is faster and gives a very distinctive result."

The equipment is based on a dedicated CAD (Computer Aided Design) station-called the IMI 300. It includes a 48000-based Unix operating system, with 256K video memory, 16 Mb storage, and several graphics-dedicated processors which altogether operate at a speed of 6 million instructions per second. Software specialist Craig Zaxxon developed routines which allow images stored in the system to be manipulated in space through any form of rotation by use of a simple joystick.



Computer FX's Ian Chisholm explained how the video marvels are performed.

the stage where if it moves, we can use it!"

Computer FX's high-tech systems may soon be removed from the world of the Commodore micro user with his graphics software or graphics table, but the next generation of home micros may well incorporate much of the video hardware capabilities we've seen here. The forthcoming Amiga machine has dedicated video and interlocking chips, and a huge range of colours and resolutions, which may well allow home users to explore the very frontiers of computer graphics. ■



64 Graphics

It takes an artist to pass judgement on graphics software — *Stuart Hughes has his say on the latest 64 packages*

STUART HUGHES is more familiar than most with the world of computer art — his paintings have appeared on the covers of dozens of computer games, books and magazines, including some of the earliest issues of *Commodore Horizons*. So Stuart is well qualified to comment on the many graphics packages available for the Commodore 64. In a month-long session in Sunshine Towers one afternoon, we looked at eight packages and asked for Stuart's critical comments...

Artist

Genie Software, PO Box 183, Manor Park, London E11.

This tape- or disk-based package comes with a 20-page manual, and can be used with a joystick or lightpen. It can be used to define your own multi-colour character sets, or sprites, or as a drawing program.



The command menu has a 16-colour palette, and 24 commands, selected using the F1 key. Commands include circle, fill, curve, speed, reverse, flip, and grid.

"The grid function is particularly good; it divides the screen into 8000 cells which make it much easier to draw accurately scaled pictures."

Doodle

Quickbit, c/o Argus Press Software (see below).

Disk or tape, joystick or trackball, Doodle is one of the most powerful graphics packages. There are ten function modes selected by the function keys. Commands include ZOOM,



which can enlarge any chosen portion of the drawing, various box and circle options, brush shape, fill, grid, mirror, rotate (which reverses all the colours of the drawing), copy, and letter to include text.

Doodle is set up to print out on a GEM 825 printer, though it can be configured for other machines. Saved sketches can be incorporated into your own basic programs.

"There's no stopping me now! The cursor is really fast and smooth, and the circle and ellipse functions are excellent. The fill function is good too. This program is sophisticated, but also easy to use straight away without spending hours on the manual. Good!"

Activity Centre

Argus Press Software, Liberty House, 2 Regent Street, London W1.

This package is a mixed bag, enabling you to draw and animate pictures, convert text, and add music. It's disk based. The drawing

program only lets you use four colours at a time, which are selected from a menu with the joystick; then saved in a form of "word art". Commands include Circle, Line, Fill, Box and Copy.



"I think I could draw better circles than the featured — for some reason they're all squashed. I can't do anything with the arrow; the cursor moves so slowly that you can't really control it, and if you speed it up it skips pixels rather than just drawing faster."

Tony Hart's Art Master



Commodore (see below)

The high-resolution companion to the low-key Rolf Harris program, Art Master comes on tape or disk, and features a command box on



the drawing screen which gives the cursor control menu. Features include lines, circles, fill, and repeating blocks. You can print out your completed pictures using a Commodore printer.

"I found this one

very user-UNfriendly. I just had to give up on it in the end. The demo-pictures are impressive but it's very difficult to achieve similarly professional results."

Gaskit

Amrog, 20 West Hill, Dartford, Kent, 0331-92148.

Another multiple package, which enables you to draw, animate and compose music. The tape-based program adds 21 commands to



Basic which make it much easier to create your own programs. The graphics routine allows you to use a thin "pen" or thicker "brush" which can be controlled by keyboard or joystick. Animation facilities include

circles, line and centering. You can also define a "sequence" of movements which can be repeated any number of times.

"Very easy to use in drawing mode — smooth cursor movements, though the





controls aren't very obvious and take some getting used to!

Rail Morris' Picture Builder

Commodore, 1 Hester's Road, Widdow North Industrial Estate, Corby, Northants, NN16 2DZ.

This tape-based package is for younger artists, and uses the standard Commodore graphics set or a specially defined set as "building blocks" to construct pictures.

There are sixteen colours and seventeen characters available in each set, and some surprisingly detailed pictures can be constructed bearing in mind the limitations of



low-resolution.

"This is a good package for kids, but doesn't offer enough to keep more ambitious artists satisfied."

Designer's Pencil

Activision, 11 Harley House, Marylebone Road, London NW9, 01-426 7188.



The programming screen consists of a prompt window which covers the top and load options, an instruction set, which allows you to set colours and define pencil movements, master commands which affect the overall screen, and a programming area which allows

further control of graphics sequences and master routines.

The programming language (PLOG) is used in conjunction with more conventional graphics techniques and joystick control to produce some of the most complex graphics available on the 64.

"It's not easy to get the best from this program, but once mastered it's very powerful."

SuperSketch Graphics Tablet

Amig (as above).

Reviewed, in full before, SuperSketch is an inexpensive graphics pad which comes with powerful and user-friendly software, with a full range of commands, colours, fill, line, free, circle, mirror, break shape, pattern fill, and so on. SuperSketch can print out to the MPS-801, and because it operates with a tracking stylus it also has existing artwork laid over it for copying and adapting. "I liked this very much — it's very easy to use, with clear menu functions, and it's easy to come up with good designs, either realistic ones or abstract"

Pictures by pixels

BY FAR THE quickest and easiest way to make use of the superior graphics facilities of the 64 is to use a graphics tablet. If you've tried to cope with the complexities of in-res programming in Basic you'll appreciate the simplicity of using such hardware even more.

Most graphics tablets are basically pressure-sensitive surfaces which transmit information to the 64 in-res screen via software. SuperSketch from Amig takes a slightly different approach, which gives equally good results at a lower cost than, say, KodaPad or GrafPad.

The SuperSketch consists of a plastic drawing board and a four-button control panel, connected to a stylus on a moveable arm. The mechanical movements of the arm are transmitted to the 64 in digital form, enabling you to define points on the monitor screen with fair accuracy. The software does the rest.

You can make an easy start with SuperSketch by clipping one of the example drawings supplied to the tablet, loading up the disk or tape software and plugging the pad into the joystick port. On the screen appears a cursor and a menu. To start drawing you merely move the cursor to DRAW, press the SELECT button on the pad and start moving the stylus around — it will leave a line on the screen wherever it goes. At the bottom of the screen appears a zoom window showing in close-up the area around the cursor, enabling you to start fine control over each pixel if your hand is steady enough!

Pressing a button on the pad makes the MENU return, and you can then opt to erase some unwanted points simply by going over them again with the cursor, fill areas with colour, change colours around, swap from "page one" to "page two" (one different drawings can be held in memory simultaneously), or choose the shape of the "brush" with which you are "painting"

from a range of eight.

It's also possible to paint in "designs", for instance a brick wall pattern, making it easy to fill large areas quickly.

The "expert" menu, a subsection of the main menu, contains a range of powerful functions designed to make both abstract and realistic designs easier. Lines, rays, boxes, circles, adding text, and various copy and reflect functions are included.



You can also define a window which will limit the area of operation of these functions.

One of the best functions of SuperSketch is a 100% size-to-size printer output routine. It's designed to work with IBM MPS-801 or 8125 printers, though Epson using the Compact interface from Micro Control Systems will work perfectly. The manual also includes instructions on incorporating graphics, and the print-out utility, in your own programs. ■

Product: SuperSketch graphics tablet for the 64.

Supplier: Amig, Unit 10, Victoria Industrial Park, Victoria Road, Dartford, Kent.

Price: £49.95.

Adding a little flash to your 64

Adding commands to 64 Basic can be painless even if it involves machine code. John Sykes explains how to create a FLASH routine

MANY POPULAR home micro have a FLASH command 'built in', which allows the user to type FLASH, or FLASHIN, or so on, and specify a line number, and all the text on this line (or just part of it), will be flashed. This sort of thing can be simulated in CBM Basic, of course, using a simple FOR/NEXT loop, printing the line, and then a line of spaces over it alternately. The problem with this method, though, is that it ties up the machine while the flashing is going on, only giving you time to check for an input or keypress before you have to loop back, in order to keep the flashing going at a reasonable speed.

Interrupts

This routine, being written in machine code, does not suffer from this problem — you just set the flashing going, and forget it — it carries on by itself, leaving the program to get on with the important stuff at its own speed (well, very slowly).

In fact this 'routine' consists of three separate subroutines: the first modifies the IRQ interrupt vector to point to the start of the second routine, which is responsible for the actual 'hard work' — i.e. the flashing. The third 'routine' simply restores the IRQ interrupt, to turn the flashing off.

Now many novice (and some very experienced) machine code programmers are afraid of these things called 'interrupts', usually because they have been told that they interrupt the CPU chip itself. This is, of course, quite true — but what many people fail to realize is that this will not STOP the chip, just divert its attention elsewhere.

What actually happens is that while the 64 is operating with no program running, an interrupt occurs every 50th of a second (in Europe). At this point the keyboard is scanned, any input is stored in the keyboard buffer, and the machine returns to whatever it was doing before (usually normal tasks, such as keeping things displayed on the screen).

What the programmer can do, however, is to have this 'interrupt handler' routine to go and perform some task for him or her BEFORE reading the keyboard and so on — 80 times a second. This is what this Flash routine does, in essence.

To actually use the routine, of course, you do not really need to know anything

about machine code, interrupts, assembly language, or any of the other things I've been going on about above. All you really need to know is that the command is in the form:

```
FLASH[17]row,column number,colour 1,colour 2,duration
```

This looks a bit daunting at first, but is not too bad, when you get used to it:

ROW (Screen row (0-24), where the first line to be flashed is located)

COLUMN (Screen column (0-40), of first character to be flashed)

NUMBER (Number of characters (1-255) to be flashed (after the first))

COLOR1 (Colour (0-15) that the text will be on cycle 1 (see below))

COLOR2 (Colour (0-15) that the text will be on cycle 2 (see below))

DURATION (Number of cycles (50th of a second) to display each colour.)

Now, if the business of COLOR1 and COLOR2 has you confused, I will try and explain — although the best way to find out is to try the routine, and keep changing the numbers.

In many FLASH routines built into BASIC dialects, the user only specifies one colour, and the text is flashed between this

colour, and that of the background (whatever that may be), making the text appear and disappear alternately. This routine will do this if you set colour 2 to the background colour, or set it to 16. If it is set to 16, then the background colour may be changed, but the text will still appear and disappear, as before (see the demonstration program — lines 240,250 — for an example of this.)

Duration

That, then, is what you might call a 'normal' flash, where text is alternately visible, and invisible. What this routine does in addition to this is allow you to give TWO colours — both all intent to the background colour, and flash between those two. This can produce some very interesting effects; using 1 for COLOR1 and 7 for COLOR2 for instance can give the impression of a line going dark and then bright again — especially on a black background.

Finally, a word on DURATION: What you are actually doing when you give a number for DURATION is specifying how many 50th's of a second you want the text to be each colour for (colour and background). 50 seems a reasonable figure for this parameter, but you may prefer some other speed.

All in all then, the easiest way to find out



about the routine is to use it, and I think you will find it a lot simpler to use than I have made out. One word of warning though: giving parameters above the maximum range will result in an "ILLEGAL QUANTITY ERROR", but

using negative values may crash the machine, so I wouldn't try it — they don't mean anything to the routine, anyway! Also, it is advisable to turn the routine off during BASIC or TAPE operations, as these may not work if the routine is operating.

To switch off the routine, use: `55549123: (with NO parameters)`

Most of all, experiment — some quite nice effects can be achieved with a bit of judicious flashing (but not in public — you'll get arrested)■

FLASH ROUTINE — CBM 64

```

1000 I
110 REM *****
120 REM ** DEMONSTRATION OF FLASH **
130 REM ** ROUTINE **
140 REM *****
150 I
160 POKE 50000,0:POKE50001,0:PRINTCHR$(147):CHR$(100)
170 PRINTCHR$(147):TAB(124)"PLEASE WAIT" :GOSUB 1000:PRINTCHR$(147)
180 FLASH=0:IT=1:DOFLASH=0:GOTO
190 FORP=1:TO50:PRINT"TEST TEST TEST TEST TEST TEST TEST TEST TEST" :NEXTP
200 SYS(FLASH):0,00,40,7,1,00
210 FORP=1:TO5000:NEXT
220 SYS(0:FLASH)
230 PRINTCHR$(147):IFORP=1:TO5:PRINT:PRINT:PRINT"FLASHING LINE"
240 SYS(FLASH):0,00,40,7,1,00
250 FORP=0:TO100:POKE50001,P:IFORP=1:TO1000:NEXT0,P
260 SYS(FLASH):0,00,240,1,0,00
270 POKE50001,0:PRINTCHR$(147):CHR$(100):LIST-800
1000 I
1010 REM *****
1020 REM ** ROUTINE TO LOAD THE DATA **
1030 REM ** INTO RAM **
1040 REM *****
1050 I
1100 FOR N=0:TO15:READ D(N)
1110 IF D(N)=0:THENRETURN
1120 POKE40000+N,ON D(N)
1001 FLASH=0:GOTO
10000 I
10010 REM *****
10020 REM ** THIS IS THE DATA FOR THE **
10030 REM ** MACHINE CODE **
10040 REM *****
10050 I
11000 DATA 0,0,7,40,0,10,0,255,0,255,17,10,255,24,40,70,70,170,100,0,141
11010 DATA 0,100,00,100,170,00,247,100,100,01,000,000,100,00,170,0,100,217
11020 DATA 0,100,170,200,100,0,100,000,0,100,240,0,00,250,170,70,24,100,100
11030 DATA 254,100,00,70,140,00,0,100,100,141,21,0,00,00,100,210,100,250
11040 DATA 100,0,100,201,100,170,0,100,200,1,000,100,0,100,100,200,170,0
11050 DATA 100,240,10,100,40,24,101,201,1,100,251,170,0,100,000,244,70,117
11060 DATA 100,000,000,000,000,000,170,0,100,24,101,251,100,251,144,0,000,000
11070 DATA 100,201,201,10,200,0,170,00,200,145,201,000,204,4,100,000,240
11080 DATA 0,1,100,240,0,70,40,204,170,0,100,70,1,141,0,100,100,254,141
11090 DATA 1,100,70,40,204,100,100,40,140,00,0,100,204,141,21,0,00,00,200
READY.

```



Remember to SAVE the routine before running it or any errors in the DATA could cause a crash!

The eternal triangle

Trevor Doherty investigates an age-old story of ambition, high finance and integration in the steamy world of Commodore 64 business software

BY THE WORD of business software, there is a move towards integration, particularly the ability to share data between the three essential pieces of software: word-processing, spreadsheet and database.

Triangle gives you all three packages together on one disk, at under £111. The package is under licence from the US software house Software, Inc., selling in the States under the name Tri.

Loading Triangle from disk, following the well presented 10 page manual, a menu allows you to select any of the three programs: word, calc or file. Once in a program you can load one of the others or quit to blank the screen without resetting the computer. Data held must be saved to disk before you change otherwise it will be lost. Each program has Help information called up from the disk, and displayed in a window overlaid on the screen.

The word processor allows a maximum of 400 lines in a single document; a number of documents can be linked "globally" for printing. The text can be split between two working areas, the main area and the "clipboard" which can be used to store paragraphs of text and addresses, to be inserted with the main document. Triangle Word is a post-formatting word processor, the printed format is not shown on the screen but controlled by formatting commands. On the 40-column 64 this is a perfectly acceptable way of working, as the many users of Commodore's EasyScript will testify. Like EasyScript, Triangle Word splits words or line ends on the screen unlike EasyScript there is no way of pre-viewing the text in printed format, you have to wait until you print it. Triangle Word is one of the easiest-to-use word processors I have come across, that is itself a recommendation.

The command structure is wonderfully easy to remember. Most functions use CTRL plus another key, full use is also made of the function keys and other toprow keys such as INSERT, DEL and HOME. Thus to search for a word or phrase you press CTRL then S, to print CTRL then P. You can insert, delete and move or copy blocks of text easily, but when dealing with a section of text you are limited to moving or copying a number of whole lines. You can access the full range of typewriters such as underline, italic etc but Triangle Word only supports printers on the serial interface. The limitations of Triangle Word are easy to live

with and the compromise it makes worth making to many home or small business users. I liked it.

Unfortunately, everything isn't so rosy for Triangle Calc, which has one major drawback in the way cells are referenced. A spreadsheet organizes numbers and text into rows and columns, allowing calculations to be carried out by referencing the 'cells' containing the numbers. Virtually every other spreadsheet uses a variation on a system like the game 'battleship' to reference cells; the top right hand corner is A1, with B, C etc across the page and 2, 3 etc going down. Not so with

the figures in columns across the sheet. From the 'top-arrow' key and the rules appear to remind you what the rows are until the key is released. A clear and sensible feature for a spreadsheet using a narrow 40 column screen. Cells can be edited, column widths individually altered. A full copy function is provided and there is a good range of mathematical functions.

The main functions are accessed in a similar way as in Triangle Word but the way you use the function keys is different; you press CTRL and the letter key simultaneously not just after the other — why wouldn't it be consistent? A helpful reminder of the functions available is displayed on the screen. If you could ever get used to it or even understand the cell referencing, the rest of it is good.

The database function a grand name for this 'variable' filing system is simple, straightforward and extremely easy to use. Up to 17 fields are allowed per record, with the number of individual records only limited by disk capacity.

Data can be entered, edited and searched for as required. The only real drawback appears to be an inability to browse through the records without knowing their contents. You could get round that by adding a record number as one of the fields. Triangle File is one of the easiest file filing systems I have seen on the 64.

The integration between these packages is described as 100% on the cover, actually it falls considerably short of that. In practice data can only be easily moved in one direction; from Calc and File into Word. That is exactly what is needed for most

TRIANGLE

WORD PROCESSOR

100% Integrated

The three software packages on one disk

For Commodore 64 Disk

Triangle Calc; cells are referenced as r1d, r2d etc in one direction and c1d, c2d etc in the other. To add up two cells you need to type in r1c + c2d instead of a1 + b1; worse still if you want to copy the calculation to use in another column you need to use a foolish system of relative addressing. Thus you would say a1-2b + b-1c ... translated that means two cells up in the same row added to one cell up in the same row. It sounds complicated, and it is! Give me A1 + B1 any day.

It is a shame about the cell addressing because the rest of the spreadsheet is a delight to use and includes one feature which I haven't seen before. You can fix a column as a total and then scroll sideways to look at some of

jobs, so that's fine. Despite my reservations about Triangle Calc, this multiple package offers so much for so little money, there is no comparison. We would need to spend £78 on Packardite II to do better. Either as a starter business package or the single piece of software needed to help you run your club or just out your home business, Triangle gets my recommendation. ■

Software: Triangle 64
Supplier: Access Press Software, Liberty House, 220 Knight Street, London W1,
01-839-0599
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Gooks

THIS GAME for the 84 comes from Luke Logan of Derby

GOBLEDEGGOOKS is a chase game featuring a harmless frog called Fred. When his home is invaded by the strange alien Gobledeggooks, peace-loving Fred tries to avoid them rather than fighting. Using a joystick in port 1, move Fred around the screen, keeping him out of reach of the

gobledeggooks for as long as you can. If you allow them to touch you you'll die, but if you stay out of reach long enough you can enter your name on the high-score table. There's a limit: the huddles will always move straight towards you, so try to make them move diagonally.

```

1  REM*****
2  REM# GOBLEDEGGOOKS BY L.LOGBH #
3  REM*****
4  HI=200 HI#="CGR-64" :GOBLEGGOOK
45  FOR SP=1 TO 4
50  DATA 20,0,1,85,64,5,95,80,21,95,94,21,215,244,28,215,52,29,255,116
60  DATA 28,255,52,21,255,244,28,255,212,7,127,288,7,255,288,8,235,0,0,235,0
70  DATA 15,235,248,15,255,248,0,195,192,3,0,192,3,0,192,15,0,248,63,0,255
80  DATA 24,68,7,224,255,7,255,255,195,195,128,227,198,68,99,198,68,99
90  DATA 189,128,227,199,128,227,199,255,227,199,255,227,255,255,124,231,94
95  DATA 12,0,48,0,0,94,3,24,192,7,273,224,12,255,48,24,128,24,48,0,12,132,0,14
98  DATA 48,0,15
100  POKE288,193 :PORT=12288 TO 12308 :READ# :POKE1,H :NEXT
110  POKE284,193 :PORT=22848,193 :PORT=12352 TO 12474 :READ# :POKE7,H :NEXT
120  Y=52248 :POKEV=21,7 :POKEV=28,1 :POKEV=32,2 :POKEV=38,5 :POKEV=37,8 :POKEV=48,14
140  REM DISPLAY
150  PRINT#1," PORT=12248 TO 12252 :POKE1,168 :POKE1=54272,0 :NEXT
160  PORT=12248 TO 12254 :STEP48 :POKE1=38,168 :POKE1,168 :POKE1=54272,0 :POKE1=54382,0 :NEXT
170  PORT=12248 TO 12254 :POKE1,168 :POKE1=54272,0 :NEXT
180  X1=32 :Y1=58 :X2=239 :Y2=88 :X=133 :Y=215 :S=54272 :G=0
190  POKEV=88,8
200  POKEV,X :POKEV,Y :POKEV=1,Y :POKEV=2,X1 :POKEV=3,Y1 :POKEV=4,X2 :POKEV=5,Y2
210  REM#MOVE GOBLEDEGGOOKS#
220  IF X<1 THEN X=1
230  IF X>239 THEN X=239
240  IF Y<1 THEN Y=1
250  IF Y>88 THEN Y=88
260  IF X=1 THEN X=1+Y
270  IF X=239 THEN X=239-Y
280  IF Y=1 THEN Y=1+X
290  IF Y=88 THEN Y=88-X
300  IF X=1 THEN X=1+Y
310  IF X=239 THEN X=239-Y
320  IF Y=1 THEN Y=1+X
330  IF Y=88 THEN Y=88-X
340  IF X=1 THEN X=1+Y
350  IF X=239 THEN X=239-Y
360  IF Y=1 THEN Y=1+X
370  IF Y=88 THEN Y=88-X
380  REM#FORGET GOOK ROUTINE#
390  IF X<12272 THEN G=POKEV<12272>+G
400  IF X>239 THEN G=POKEV<23272>+G
410  IF X=1 THEN G=0
420  IF X=239 THEN G=239
430  IF Y=58 THEN G=58
440  IF Y=88 THEN G=88
450  IF X=12272 THEN G=12272
460  IF X=23272 THEN G=23272
470  IF Y=58 THEN G=58
480  IF Y=88 THEN G=88
490  IF X=12272 THEN G=12272
500  IF X=23272 THEN G=23272
510  PRINT#1,"*****GOBLEDEGGOOKS*****"
520  PRINT#1,"*****GOBLEDEGGOOKS*****"
530  GO TO 100
1000  POKE=24,79 :PORT=59701 :STEP=1 :POKE=4,17 :POKE=7 :POKE=1,1 :POKE=5,15
1010  POKE=4,15 :POKE=14,16 :NEXT :POKE=24,0 :POKE=23,0
1020  PRINT#1,"*****GOBLEDEGGOOKS***** GO! FRED! *****"
1030  IF GO=1 THEN G=0
1040  INPUT#1,"ENTER YOUR NAME, PLEASE" :HI#G
1050  PRINT#1," PRESS ANY KEY TO PLAY GOBLEDEGGOOKS *****"
1060  POKE=88,8 :WAIT#150,1 :G=52288 :POKEV=21,7 :G=1000
4999  REM#TITLE#
9999  PRINT#1,"*****" :POKE238,0 :POKE239,0

```


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```

0810 PRINT:GOTO MEETS
0811 PRINT:GOTO MEETS
0812 PRINT:GOTO MEETS
0813 PRINT:GOTO MEETS
0814 PRINT:GOTO MEETS
0815 PRINT:GOTO MEETS
0816 PRINT:GOTO MEETS
0817 PRINT:GOTO MEETS
0818 PRINT:GOTO MEETS
0819 PRINT:GOTO MEETS
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0862 PRINT:GOTO MEETS
0863 PRINT:GOTO MEETS
0864 PRINT:GOTO MEETS
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0891 PRINT:GOTO MEETS
0892 PRINT:GOTO MEETS
0893 PRINT:GOTO MEETS
0894 PRINT:GOTO MEETS
0895 PRINT:GOTO MEETS
0896 PRINT:GOTO MEETS
0897 PRINT:GOTO MEETS
0898 PRINT:GOTO MEETS
0899 PRINT:GOTO MEETS
0900 PRINT:GOTO MEETS

```

Space Grid

TWO PROGRAM for the C64 comes from James Stone of Olympia, New York. SPACE GRID is a two player game. One

player starts at the top of the grid. His task is to reach the exit at the bottom. The other player is the Grid Master, and his job is to trap Player One.

The players take it in turn to move by typing in directions, NE, NW, E, W, S, SE, SW. Player One is shown as a blue dot, the

Grid Master is invisible. The grid master wins by placing himself on the spot Player One will occupy next. If he traps onto a spot already occupied by Player One, he loses. Player One's exit point is marked — if he reaches it, he wins.

Instructions are included in the program.

```

10 REM SPACE GRID BY J.STONE ,1985
20 COLOR0,1:COLOR4,1:PI=3072:CI=2048:WI=23:XI=17:YI=3:YI=21:YOL8
30 REM TITLE PAGE
40 PRINT"*****SPACE GRID*****"
50 PRINT"THE AIM OF THE GAME IS TO CAREFULLY GUIDE"
60 PRINT"YOURSELF FROM THE TOP OF THE GRID TO THE"
70 PRINT"EXIT AVOIDING THE GRID MASTER WHO"
80 PRINT"STARTS AT THE EXIT AND IS OUT TO TRY TO"
90 PRINT"EVAPORATE YOU ."
100 PRINT"BUT BE CAREFUL, THE MASTER IS INVISIBLE !"
110 PRINT"*****"
120 INPUT"PLEASE ENTER YOUR NAME":NI
130 PRINT"PLEASE ENTER NAME OF THE PERSON WHO WILL"
140 INPUT"PLAY AS GRID MASTER ":YI
150 PRINT"PLAYER IS ":NI
160 PRINT"GRID MASTER IS":YI
170 PRINT"DO YOU WANT THE INSTRUCTIONS (Y/N)?"
180 GETKEY$ :IF$=""THEN190
190 IF$="Y"THENGOTO1000
200 IF$="N"THEN220
210 GOTO180
220 GOSUB1200:GOTO330
230 GOSUB300:POKEPI+W+40*YI,81:POKECI+W+40,2:POKEPI+W+40*YI,81
240 POKECI+W+40*YI,14:INPUT"WHAT IS THE GRID MASTER'S MOVE":M
250 POKECI+W+40,2:G=W:W=H:Y=YI:GOSUB300:W=G:Y=YI+H:GOSUB340
260 IFY=9999DY=YYTHEN350
270 POKEPI+W+40*YI,81:POKECI+W+40,2:PRINT"PRESS A KEY"
280 GETKEY$
290 GOSUB40:POKEPI+W+40*YI,81:POKECI+W+40*YI,14:PRINT" ":NI
300 INPUT"WHAT'S YOUR MOVE":M:POKECI+W+40*YI,2:G=W:W=H:Y=YI:GOSUB300:W=G:Y=YI:GOSUB300
310 GOSUB340:POKEPI+W+40*YI,81:POKECI+W+40*YI,14:IFX=9999DY=YYTHEN400
320 IFY=21THEN430
330 GOTO330
340 SOUND1,400,10:RETURN
350 GOSUB480:PRINT"THAT WAS AN ILLEGAL MOVE.":YI
360 PRINT"YOU HAVE BEEN DISQUALIFIED !!!"
370 PRINT"*****HIT ANY KEY"
380 GETHE:IF$=""THEN390
390 GOTO430
400 GOSUB330:PRINT" ":NI:" HAS BEEN EVAPORATED INTO SPACE, KEE"
410 PRINTYI:" IS YOU ARE FREE TO LEAVE. "
420 GOTO340

```

Continued on page 44



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```

430 SOUND1,800,10
440 PRINT"IT'S ALL DONE ";:IN#:PRINT"YOU HAVE DELETED THE MASTER,"
450 PRINT"AND YOU ARE FREE TO LEAVE"
460 GOTO470
470 GOTO940
480 SOUND1,800,20
490 REM BFM GRID
500 PRINT"#####";FOR I=1TO4:PRINTTAB(17)"#####"
510 IF I<4THENPRINT"#####";NEXT I
520 PRINT"#####";FOR I=1TO3:PRINTTAB(16)" \ / \ /"
530 IF I<3THENPRINT"#####";NEXT I
540 PRINT"#####";FOR I=1TO3:PRINTTAB(15)" \ / \ /"
550 IF I<3THENPRINT"#####";NEXT I
560 PRINT"#####";FOR I=1TO3:PRINTTAB(14)"#####"
570 IF I<3THENPRINT"#####";NEXT I
580 PRINT"#####";FOR I=1TO3:PRINTTAB(13)" \ / \ /"
590 IF I<3THENPRINT"#####";NEXT I
600 PRINT"#####";FOR I=1TO3:PRINTTAB(16)" \ / \ /"
610 IF I<3THENPRINT"#####";NEXT I
620 PRINTTAB(19)"#####";
630 PRINT"TTTTTTTT##### NE"
640 PRINT"
650 PRINT" W ----- E"
660 PRINT"
670 PRINT" SW ----- SE"
680 REM MOVEMENT OF PLAYERS
690 IF#="E" THEN#=#+6
700 IF#="W" THEN#=#-6
710 IF#="NE" THEN#=#+3:##=#-3
720 IF#="NW" THEN#=#-3:##=#+3
730 IF#="SE" THEN#=#+3:##=#+3
740 IF#="SW" THEN#=#-3:##=#+3
750 IF#<14 THEN#=#+14
760 IF#>26 THEN#=#-26
770 IF#>21 THEN#=#-21
780 IF#<3 THEN#=#+3
790 IF#>3AND#<17 THEN#=#-17
800 IF#>3AND#>23 THEN#=#-23
810 IF#>3AND#>23 THEN#=#-23
820 IF#>3AND#<17 THEN#=#+17
830 IF#>3AND#>23 THEN#=#-23
840 IF#>15AND#<17 THEN#=#+17
850 IF#>3AND#>23 THEN#=#-23
860 IF#>15AND#<17 THEN#=#+17
870 IF#>15AND#>23 THEN#=#-23
880 IF#<21AND#<17 THEN#=#+17
890 IF#<21AND#>23 THEN#=#-23
900 RETURN
910 IF#>5AND#<#V THEN#400
920 RETURN
930 REM ANOTHER GO?
940 PRINT"DO YOU WANT TO PLAY ANOTHER GAME?"
950 GET#
960 IF#="Y" THEN#10
970 IF#="N" THEN#END
980 GOTO950
990 REM INSTRUCTIONS
1000 PRINT"----- INSTRUCTIONS -----"
1010 PRINT"
1020 PRINT"##### STARTS AT THE TOP OF THE GRID."
1030 PRINT"##### THE GRID MASTER STARTS AT THE BOTTOM."
1040 PRINT"##### THE PLAYER MUST GET TO THE SCOT WITHOUT
1050 PRINT"##### STEPPING ON THE GRID MASTER'S POSITION"
1060 PRINT"##### THE GRID MASTER CANNOT STEP ON PLAYERS."
1070 PRINT"##### THE FIRST TO FORCE THE PLAYER TO STEP ON HIM
1080 PRINT"##### THE PLAYER IS KNOWN BY A BLUE SPAL."
1090 PRINT"##### BUT THE MASTER IS THE SAME COLOR AS THE
1100 PRINT"##### GRID. SO THE PLAYER WILL RUN INTO HIM!"
1110 PRINT"##### YOU CAN MOVE USING THE THREE LETTERS:"
1120 PRINT"##### W E"
1130 PRINT"##### SW SE"
1140 PRINT"##### NW NE"
1150 PRINT"#####"
1160 PRINT"##### H"
1170 PRINT"##### HIT ANY KEY TO PLAY AGAIN READY"

```

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Pressing problem

I WAS interested to read the Answer Back reply to the query about the storing of keyboard matrix values. Here, I thought, is the answer to a little problem puzzling me. I have a game, Football Wizard, which features two "flippers", one operated by the left shift key and one by the right. I used PEELING and PUNCHING 265, but some keys give no result, including the SHIFT keys. How do they decide which one is being pressed to operate a "flipper"?
E J Mansel
Tisbury
Wiltshire

THE SHIFT KEYS are detected by PEELING=1, but this perk will not distinguish between left and right keys. On the Vic 20 it is easy to detect the left shift: IS GET AS

20 IF PEEK(160) < 255

THEN IS

30 PRINT "LEFT SHIFT DETECTED"

This does not work on the 64, so the detection of the left shift key requires a machine code routine. The 64's keys are wired into a matrix of eight rows and eight columns. These are scanned using two bytes, \$4000 and \$4010. The 64 of pressing a key (generating 83 into a zero value which can be detected by the appropriate routines.

Right to left

FOLLOWING the procedure in the Programming Reference Guide I have created a Hebrew character set on the 64, but I've problems here come up. Firstly, since Hebrew is written from right to left, how can I reprogram the cursor so that it moves in the same direction? Secondly, how can I make the programmable characters print out on the MPX-80 printer?
Dr D'Wingo
Oron

THE NECESSARY machine code routines would be much

too complex to print here, but you might like to contact ACI Software, 1 Macfield Road, Southborough, Kentbridge Walk, Kent, who have produced a cartridge which allows the 64 to operate in Arabic/Hebrew. Perhaps they are working on one for Hebrew as well. See the next letter for some more advice.

Dot values

I HAVE A 64 and an MPX-80 printer. It is possible to design a new character set to view on the screen then copy out to the printer?
E Nishan
Pinner
London

YOU CAN use CHR\$(0) to get the MPX-80 into graphic mode. In this mode, the dot pattern of characters to be printed can be defined as a 64's matrix, that is an column of zero data. Add 128 to the value for each column; for example, where a,b,c,d are the dot values required for the first row of the character:

20 OPEN 44

30 PRINT " = 1 TO 1

40 READ A/B/C/D = \$C000

128 TO

50 NEXT

60 PRINT "A/B/C/D = ""

80 PRINT "A/B/C/D = ""

90 PRINT "A/B/C/D = ""

99 END

99 DATA \$4000,\$4010

100 PRINT "A/B/C/D = ""

101 PRINT "A/B/C/D = ""

102 PRINT "A/B/C/D = ""

103 PRINT "A/B/C/D = ""

104 PRINT "A/B/C/D = ""

105 PRINT "A/B/C/D = ""

106 PRINT "A/B/C/D = ""

107 PRINT "A/B/C/D = ""

108 PRINT "A/B/C/D = ""

109 PRINT "A/B/C/D = ""

110 PRINT "A/B/C/D = ""

111 PRINT "A/B/C/D = ""

112 PRINT "A/B/C/D = ""

113 PRINT "A/B/C/D = ""

114 PRINT "A/B/C/D = ""

115 PRINT "A/B/C/D = ""

116 PRINT "A/B/C/D = ""

117 PRINT "A/B/C/D = ""

118 PRINT "A/B/C/D = ""

119 PRINT "A/B/C/D = ""

120 PRINT "A/B/C/D = ""

121 PRINT "A/B/C/D = ""

122 PRINT "A/B/C/D = ""

123 PRINT "A/B/C/D = ""

124 PRINT "A/B/C/D = ""

125 PRINT "A/B/C/D = ""

even after following all the instructions from the EPIC2 manual and the Bank interface manual. When it is all connected, I have tried to use "New Config" but nothing happens. Can you advise me how to make the system operate?
R Carter
Kew
Harrow

YOU WANT to know whether your system works with other software, or even whether the EPIC2 matrix device. Try OPEN 44, CMD 4: LNK, followed by PRINT 4: CLOSE 4. This will list a program in memory directly to the printer. If there is no



reaction to the above, then your equipment is faulty. If this routine does work, but you still cannot get the system to work with the software, then either the software is not designed to work with non-Commodore printers (check the manual) or the cassette is faulty.

Books in print

I HAVE recently purchased a second hand Vic 20 + MK, and would appreciate answers to a couple of questions. To which is lower case within your program you PUNCH \$\$\$\$\$\$242 (instead of 240 for upper case). This if true for a 1.0K memory, but does not work for 1M. How can this be carried out with 1M?
I am also having trouble getting books I want regarding the Vic, so both my local big bookshops say they are unfortunately always being out their distribution lists. Can you suggest a good place to order such books?

I am also having trouble getting books I want regarding the Vic, so both my local big bookshops say they are unfortunately always being out their distribution lists. Can you suggest a good place to order such books?

Dr J Mullins

Box 3

Southampton

YOU SHOULD have been able to parse this one — just PUNCH \$\$\$\$\$\$242. If you have difficulty getting your hand book ship to order books, then it's always possible to get in touch with the publishers directly. You can get addresses from the Directory of Books for Print, which is kept behind the counter at most good bookshops.

Letter perfect

I HAVE A 64, 1M disk unit, Philips monochrome monitor and Shiva CP80 printer, for local word processing with EasyScript and database management with Superbase interface. All has been well up to now, except that the Shiva always prints a 1" skip over the perforation on continuous stationery, regardless of the setting of the DIP switch within the printer. How can I transmit a control code to the printer to make it omit the 1" skip? I have been unable to get the 64 to print on hard copy with my own program listings. Do I need a special lead?
J Pinner
Widford
Berk

THE CONTROL code required to run off the skip is ESCAPE 6, which is sent by CHR\$(26) or CHR\$(9). As you use a Commodore interface with the Silver Reed, then you already have a suitable lead. You can buy the necessary continuous interface software from Management of 7.

Clydesdale Close, Southam Wood, Herts, SG45 8BS, the PrintLink 1 software costs around 18, and you should specify the type of printer you're using. The software does not use any basic memory, and is therefore compatible with any basic program. You do not use which interface you use with the Shiva CP80, if it is COM IEEE compatible then you will also need a lead costing around 18 for this printer.

Baby brother

I HAVE a dot connected to a Brother EPIC2 printer with a Stack 85-212 interface and cable. I have had no luck getting the EPIC2 to print,



BRING YOUR 64

Is your Commodore being used to its fullest extent? Isn't it time you let your Commodore show you what it can do? Hundreds of applications can be achieved with Hamdic's range of C64 products, both in the home and the office.

So when the kids have finished playing BlinkyBloxers, let Hamdic bring your Commodore back to life.



CALC RESULT

Calc Result, the financial spread sheet that's ideal for all those financial domestic headaches, such as loans, mortgages, home budgeting, stock portfolios, tax planning - let alone all those bills!

IN BUSINESS?

For businesses large and small, this program will make your figure work so much easier! For budgets, calculations, simulations, construction, planning - Calc Result is an excellent device for letting you know "where you are" quickly.

Calc Result is easy to learn, with its help screens and pedagogical tutorial, and so simple to follow as it features tutorials built in graphics and onscreen printing.

Calc Result comes in two versions: Calc Result Easy which is cartridge based, and the Advanced which is disk and cartridge based (see illustrations).

TECHNICAL DATA

- Special sheet size 8 1/2 x 11 1/2 in 32 pages
- Consultation: Easy with the 32 pages available in Calc Result Advanced
- Printing: Flexible printing formats out to most popular printers
- Graphs: Histograms with scroll through feature rows and columns for printing
- Colours: Supports full colour down to individual cell level
- Help: Easy help screens available at all times
- Calc Result is also available in eight European languages



Applied Calc Result describes a larger number of applications in the area of...

PERSONAL AND BUSINESS FINANCE - STOCKS AND SHARES - STATISTICS - MATHEMATICS - MECHANICS

The user of Calc Result will find among the applications given many useful examples of how to get the most from Calc Result.

An introduction to Calc Result is given at the beginning of the book for the benefit of those not acquainted with the system. Its purpose is to give the reader a brief lesson on the use and construction of Calc Result.



DATA BASE

Handic Data Base is a brand new software package, available now.

What is a data base? The term data base is a product of the computer age, but the idea of a data base is very old. The broadest definition of a data base is a method of storing information so that it is easy to recall or look up at a later date.

There are data bases in your home and office already. The telephone directory is a good example of a data base example of a data base. An address book, a file box of receipts or the index of a book are all data bases.

For anything that you want to categorize - from your book collection to serial numbers of valuable items, to the names and addresses of your regular customers - Handic Data Base will make the job simpler.

If or those who want to use the package in its entirety, there are a mailing list and four different print programs included.

Here are some of Handic Data Base's unique features which will greatly ease and speed up the way you can utilize information - Handic Data Base allows you to name any category (maximum 27 letters) - each member of each category can have names of up to 27 letters. You can have up to 17 items under one heading, and a total of 5000 headings can be stored on disk. More than one disk can be used to store your information so that an unlimited



number of headings can be used. Handic Data Base is easy to use and understand so the manuals are designed for people who don't have much experience with computers and data bases.

If you want to find out more about Data Base, look and send the coupon or telephone us on the number listed below.



YOU can now buy these and the whole range of "off the shelf" Handic products by post. If you're not near a Handic dealer, all you have to do is tick the boxes and send in your remittance. You can also send in the coupon, for even a professional, for more information, or if you have any queries on any Handic item, just phone us on our "hot line" number below. We also offer a selection of disc and cartridge based software, disc based games, expansion units, an RS232C interface, modems etc. all for the C4, plus hardware accessories for the VIC, ZXI, Commodore, 8000, 4000, 3000 and 500, and software support for IBM+ and compatibles.

Don't forget we offer free postage and packing and a 14 day money-back guarantee, so if you want to give your Commodore a treat the first question you should ask ... and let Handic help you to help yourself.



OUT *of the* CLOSET

COMMODORE 64-SOFTWARE		A	B
CALC RESULT ADVANCED			
CALC RESULT EASY			
CARRY 64	30.00		
BRIDGE 64	45.00		
STAY 64	15.00		
REI 64	15.00		
MOVIE 64	15.00		
SHAP 64	14.00		
POWY 64	30.00		
500 SCORE BASED (CARRY)	20.00		
DRW BASED GAMES	34.00		
SPACE ACTION	12.00		
SPACE TRAD	12.00		
ORAD	0.00		
G-TRIP	0.00		
THE SHIP	0.00		
MULTI-WAY SHOOTING	0.00		
FOURTH SPACE COMRADES	0.00		
STELLAR CONFLICT	0.00		
RAVENSATION	0.00		
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3M CABLE	12.00		
5M CABLE	12.00		
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WORLD WITNESS	3.00		
ROCKET SWITCH	85.00		
APPLIED CALC RESULT	30.00		
NEW HANDIC DATA BASE	14.00		
IBM & COMPATIBLES			
CALC RESULT	82.00		
WORD RESULT			
CALC & WORD RESULT	316.00		
	316.25		
	524.75		

SOFTWARE & HARDWARE FOR THE		A	B
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CALC RESULT PRO			
CALC RESULT 700 SERIES	205.00		
WORD RESULT 700 SERIES	205.75		
HARDWARE			
DET SWITCH BROTHER UNIT	179.00		
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500/8000 3.5 disc	113.75		
500/8000 7.5 disc	113.75		
500 SERIES PCL ADAPTOR	165.75		

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Tick column A for more information and column B for order.



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The latest Box of tricks

The Box, from Prototronics, is a home robotics interface for the 64 which allows you to control any mains powered appliance or DC system — and all you have to do to see one is to enter our simple contest!



- 1) What popular TV series featured the robot shown in picture one?
- 2) Which award-winning science-fiction author invented the Three Laws of Robotics?
- 3) What alternative name is often applied to computer-controlled motor-driven buggies?



How can you make your 64 control the outside world? You need THE BOX! THE BOX is a control device which needs no knowledge of electronics or programming to operate — used with your 64, THE BOX can control lighting, heating, buggies, model railways, coffee makers — anything electrical you can think of.

So how's it done? THE BOX, developed by Prototronics, has eight indicator lights, two sets of four low voltage beam sockets, a mains lead and an edge connector to the 64. Along the back are four IEC mains outlets, which match plugs supplied with THE BOX.

To use a buggy with THE BOX, you first load the tape or disk-based Buggy software, and enter a set of movement commands with a joystick and the function keys. This set of movements can be repeated as often as you like, with the indicator lights on THE BOX showing you which buggy command lines are activated. If you don't have a buggy — don't despair! THE BOX's manual includes instructions on constructing a cheap and containing device based on DC motors.

Appliances

The ROBOT HOME software enables you to control up to eight electrical appliances or lights on a day-to-day basis. The software allows you to program up to fifty on/off actions in any one day, spread over the eight output ports. Up to seven different patterns (days) can be preprogrammed and stored for later use. You could, for instance, use THE

BOX to make it appear that your unoccupied house was, in fact, full of life — lights could go on and off, record players start and stop, any domestic appliance switch half on, all in your absence. The security applications are obvious.

Controls

Given the instructions in the manual, a good Basic programmer could even write his own software for THE BOX — you could control model railway layouts, Scuba's, garden appliances, alarms — whatever you like. The uses are only limited by your imagination.

Prototronics' next project, THE SENSOR, can be used alone or in conjunction with THE BOX to give you total full interaction with the outside world. THE SENSOR can sense heat or light on a digital basis, with user-programmable threshold levels. Sound is sampled by frequency, and may be programmed or imposed on four levels. THE SENSOR can be connected to THE BOX using a full interactive software package.

For more details on THE BOX and THE SENSOR, contact Prototronics at 10 Queen Street, Newcastle, Devon.

If one of you who can't wait to get your hands on THE BOX, we have three to give away courtesy of Harborough Distribution.

All you have to do to win one of these great prizes — each worth 89.95 — is to answer the three simple questions about robotics, above and complete the tie-breaker.

When you've answered the questions, complete this tie-breaker sentence in an original and amusing manner in fifteen words or less: "The Box gives you all the right connections because..."

Put your entry with your name and address on a P100C-A4RD to the back of a sealed envelope, and send it to THE BOX Competition, Commodore Magazine, 17/17 Jubilee Newport Street, London WC2H 7HE to arrive by the last working day of August. Winners will be announced in the October issue. All normal competition rules apply. ■

Previous winners:

The fifty winners of the Shadowflex contest in the July issue have now been selected. Each wins a special Shadowflex team T-shirt from Beyond, which will be bringing it way to the winners soon.

Too lucky prize-winners get Airwolf games, watches and posters courtesy of Elite Software, as a result of our July contest. They are: Don Morris, London; RJ Phillip; Aylsham; T Mills, London; M Buchanan, London; R Bononi, Glasgow; S McCarty, Newport; A Davis, Bexley; K Coombe, Buntingford; C Garbutt, Barking; and R Wilson, Cullinston.

We're running up the game and the poster: J Bell, London; A S Bononi, Leeds; M Leblond, Paisley; S Cox, Leeds; TPW Wild, H-FG Bn, 1 Poyse, Halifax; T Roberts, Southampton; D Cartwright, Plymouth; T Colley, Barking; & Armstrong, Bradford.

Fun and games Summer 85

FIVE-A-SIDE

Cheering-whistling-shouting crowd with their banners aloft set the scene for a lively game of FIVE A SIDE played at a fast and furious pace where the skills of passing and shooting are as essential as speed.

Match your skills against the computer at three skill levels or play against another opponent.

Before the kick off, the crowd give their enthusiastic support by singing "Here We Go".

Penalty shoot outs are one of many star features of this game.

CBM 64 £5.95 (cass) £8.95 (disk)

Available for Amstrad and MSX in early autumn.



OUT ON A LIMB FEE - FIE - FO - FUM

I smell the blood of an Englishman
HA - HA - HA - HA - HA!

Will Jack be warned by the mocking sinister speech of the giant or will he continue his quest to retrieve the family fortune with nothing but his agility of mind and body to help him.

CBM 64 £5.95 (cass) £8.95 (disk)



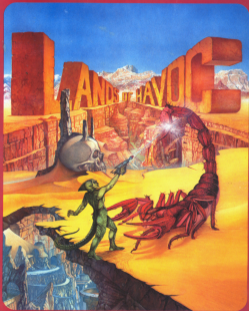
The stunning speech effects in the above programs were generated by **ANIROG/COVOX VOICE MASTER**

Contact Anirog for further information.

ANIROG



COMMODORE 64



MICRODEAL