

Only 85p

DM 4.1

# Commodore

## HORIZONS

**Electronic  
education  
- making learning fun**

- \* Programming the Vic
- \* 64 Bulletin boards
- \* Callisthenes

Digital Integration  
**FIGHTERWAST**  
contest

Las Vegas's  
Hanan Samara  
profiled

**Boost your  
Brainpower**

\* Exclusive Las Vegas report \*



**Commodore C128**

**WIN a Ferguson TV  
from DER**



# COMPUTER WORLD

**Editor**  
Christopher Collins

**Production Editor**  
Barbara Hayes

**Editorial Secretary**  
Cynthia Smith

**Group Advertising Manager**  
David Lutz

**Advertising Manager**  
James Kerr

**Administration**  
Theresa Lutz

**Managing Editor**  
Michael Lutz

**Publishing Director**  
Dorinda Scott

**Telephone Number**  
Call direct from 1  
212 512 2100

**UK address:**  
Compendex House, 12 1/2, East  
Street, London W4 3DF, Britain

**US address:**  
Compendex House, 100, East  
Street, New York, NY 10003

**Subscriptions:**  
In US and 12 issue subscription  
rates: \$14.95 (US, Canada, Mex.)  
\$20.00 for 12 issues  
\$25.00 for 12 issues



**Advertising rates:**  
Compendex House, 100 East Street, New York, NY 10003. Single copies \$2.00. Classified advertising rates: \$100 per line per week. Back issues \$2.00 each. Advertising copy should be sent to: ABC, 100 East Street, New York, NY 10003. Copy should be sent to: ABC, 100 East Street, New York, NY 10003. Copy should be sent to: ABC, 100 East Street, New York, NY 10003.



Compendex House is published by  
Compendex House, Inc., 100 East Street,  
New York, NY 10003. Printed by  
Compendex House, Inc., 100 East Street,  
New York, NY 10003. Copyright ©  
1985 Compendex House, Inc. All rights reserved.

## CONTENTS

<b>Letters</b>	<b>7</b>	<b>C16-Plus/II Companion</b>	<b>34</b>
The rare ground war letter, questions and answers plus Link.		Concluding our special issue from Brian Ebert's introductory book.	
<b>Notes</b>	<b>8</b>	<b>Bulletin Boards</b>	<b>36</b>
Commodore's PC, the end of the desktop. C16 software and more from Curtis and Adams.		Using your boards to tap into those long-pending information sources.	
<b>Soft Hits</b>	<b>11</b>	<b>Profile</b>	<b>38</b>
Autoscan, Inhibit Jones, Inhiber, comms telecopiers, standbys — it's all a game.			
<b>Use Your Brain</b>	<b>17</b>		
Mike Grant looks at applications packages for the 64 from Respower.			
<b>Las Vegas Report</b>	<b>30</b>		
		5, 10K with Human Services. Micrographer and 64 programmer and a handy tool.	
News from the Commodore Electronics Show on Commodore's new merges and add-ons.		<b>Software File</b>	<b>40</b>
		Our first C16 bonus, a flight simulator plus a Vic 20 board game.	
		<b>Classified</b>	<b>52</b>
		New handy marketplace for bargain software and hardware.	
<b>Programming the VIC</b>	<b>55</b>	<b>Answer Book</b>	<b>54</b>
An extract from Boris West's definitive manual to the Vic 20.		More technical questions tackled by Bruce Jack Cohen.	
<b>Education Special</b>	<b>58</b>	<b>Win a TV/monitor</b>	<b>56</b>
Phil Scazer's round-up of teaching software games to some learned professionals.		DEK offers a fabulous Progress M201 in the easy-to-use contest.	
<b>Tower of Adventure</b>	<b>52</b>	<b>Fighter Pilot Contest</b>	<b>58</b>
Markus L. sends us up the collar of his intellectual and verbal skills.		Digital Integration - exciting contest challenge for the 64 is up for grabs.	

## FACTORY

THEY SAH that might is gold in America will be the UK, so needs to know if that can be the story from the Las Vegas Commodore Electronics Show suggests that the C16 and the Plus/II have about the same long-term life.

This issue's show report makes a glowing statement that the two machines have earned no support from independent US software producers, and so their future may be in doubt. Sales of the C16 have been good in the UK, but it's the American market which most determines a manufacturer's fate.

Commodore's mistake has been to introduce its machine which offers no new technology and no extras for the user. As a result Atari's Amstrad has announced a whole series of eight new games for Amstrad's budget price, with a variety of compatible peripherals and a unique user-friendly software coding system.

It seems that for once Commodore has been overpowered and must fight back if the company is to retain its domination of the world market.

The main weapon will be the C16II, which, as our review explains, neatly safeguards the future of the Commodore 64 by offering a few modes of operation, a 64 compatible mode perhaps intended mainly for games, a 128K mode for serious users, and a CP/M operating system made for fully professional use.

If the C16 and Plus/II were regarded as the next generation of Commodore computers, then the idea seems to have failed. If they were intended as stop gaps which will soon be obsolete, then once again they will be disappointed. The C16II though seems to offer a more viable future to Commodore users. Let us hope that this time the independent software producers have more faith in the product.

# Instead of ten aliens, C for his Commodore

## What happened ne



Saturday morning

Walked into my local computer shop.

Picked up usual with masses of kids enjoying the arcade games.

Sawch there must be a better use for my Commodore 64. Helpful assistant suggests a Communications Modem.

Tells me it comes with a year's free subscription to CompuNet, a new network service, saving me a cool three quid.

A bargain not to be missed, so I bought a Modem.

It I knew then, what I know now. I'd have thought that assistant more



Saturday (one week later)

Turned up at my local computer membership centre, through this morning.

Hurriedly plugged the Modem into my 64's cartridge port, and hooked up to the telephone line.

Can't wait.

At last I can communicate with other Commodore 64 Modem owners and giant mainframes.

What's more, I can also access databases

throughout Europe and the U.S.A.

This is what home computing's all about.



Sunday morning

Getting

hopped on my CompuNet ID and personal password.

Wow, what a directory!

Decide to put my wits against other Modem users by entering Multi User Dungeon, an interactive on-line game.

Should stretch the old gears, enter a bit.

Then a quick look in The Jungle. This is an open area where other Modem owners display messages.

See a Commodore user in File wants to sell U-boat for £3.00.

Leave message offering him Mighty Gork, in a straight swap.



Monday evening

More on to the CompuNet software. Pink

What a hoarse! Loads of high quality bargain programs.

Particularly interested in educational software, so I call up The Search.

Download free physics package to help with my exams.

# ...I've bought a Modem before 64.



## ...next changed his life.



### Tuesday evening

Dad's turn  
I don't get a look in as he's  
hasn't stopped.

Actually, it's amazing what happens turn  
up. He even finds a new house.

Mum said she doesn't want to move and  
anyway his dinner's getting cold.



### Wednesday evening

I know I can join BLAISE\*  
the computer service for  
the British Library.

Then catalogue of books dates won  
back to 1950.

Should give me an interesting edge over  
my school chums.



### Thursday evening

She has a go  
She keys into 'Prescol'  
Images, over 400,000 pages of information  
and news.

What does she choose? The lonely hearts  
section.

She's disappointed. Couldn't find Sam in  
the Barts private number.



### Friday evening

I expect. Receive a reply from  
the guy in life.

He launches taking on Gork.  
What's more he's written a program he'd  
like my opinion on.

He transfers it direct, using the free user  
to user software.

I've made my first computer pull  
it has really been a week.

Best one I've had since getting my  
Commodore 64.

Now I'm glad I got the Modem instead of  
all those others.

The Commodore 64 Communications  
Modem comes as a complete package with a  
year's free subscription to Computer 64 just  
\$99.99 inc. VAT.

Find out how a Modem can change your  
life. See it now at Davron's Lurrs & Corns and  
selected Commodore dealers.

 **commodore**

For further information please write to:  
Commodore Communications Modem, 2 Humber Road, The New  
Curbs, Leeds, LS10 1JG. Tel: 0113 291100.  
\*Value added and subscriber charges. There is a separate contract of  
the full terms.



## LETTERS

### PAGE

## Beach boys

I WONDER if fellow Beach-Head players would be interested in the following points:

Ignore the secret passage — go straight for the flag. If the surveillance area all is hot and water, it will continue to add 2000 points to your score as long as you keep hitting it. Five times means, this is level 1 so when maximum temperature:

By opening the number of lights you hit you can judge + hit the next surveillance round will be an escape.

It pays to lose some ships in the traps in order to reach up high scores by shooting down lights.

Allow the ships to be used in defending the facilities. The direction of these ships varies from game to game, but the relative distances from each other remain the same — the message of the aircraft carrier is to 50 degrees clockwise, the other ships from left to right are to 60, 5, 60, 5, 14, 5 and 34, 5 degrees.

Having you might notice to be highlighted, every ship and bunker hit will score you points if hit early enough — 1 pays to get your first tank through to 8400-100 in the other more objectives and have potential points near base.

Having decided on the more profitable screen, such as your rank in the final bridge until you can be sure of destroying the fortress web, say, your last two.

Using their techniques I've achieved a high score of 35,000 — but even that I've dropped several thousand points here and there!

Edward Lister  
SheDink  
York

## 16K Vic ≠ C16, OK?

I OWN A Vic 20 and 16K expansion pack. I notice that the C16 has only 10K of RAM free to the user — does that mean that it might be possible to convert C16 software to run on the Vic — 16K, or vice versa?

G J Thomas  
Aston/Dorset  
Dial

Vic 20 Basic program will



## Copyright fight

I AM THINKING of developing an adventure program for sale. I think it best to sell it to a company rather than to market it myself. I have no experience of dealing with companies which market software, but it would appear very easy for any company receiving software to copy it for sale without paying me. In these days how would this problem?

A E A Stock  
Winton  
Sussex/stock

run on the C16, but it would be difficult to convert C16 programs to run on the Vic since the C16's Basic has several more complex commands. Commercial programs wouldn't be available in a practical way — the security steps of the software are totally different.

## The CP/M business

I HAVE A 4M and wanted to get a disk drive and CP/M cartridge in my C1600C. I was interested in pursuing a career which involves computers, particularly in the accounts field. This job gives me some advice on how to learn more about the subject, and on the status of the Commodore CP/M cartridge and using it with COMBAT. A Zorro Adapter Drive  
T16020's 710 practical way

in both about business systems except to take a course such as an MNC through a technical college. Commodore's CP/M cartridge has been copied to some specialist Linux systems — it contains basically a 200 chip, though no doubt you know if Commodore's implementation of CP/M allows standard versions of LOGOS to be run. The new C128 will include a CP/M facility which may be easier to work with, if you can wait for the machine to become available. For allowing Commodore's technical information service to 800-285251 for more help.

## £10 prize letter

BECAUSE we have you're all been great with plenty to do, we're offering you a chance to spend your valuable time writing to Commodore Magazine. Each month we'll give a £10 prize for the most interesting letter on hardware, software, computing, or life in general. The ball's in your court — get writing!

This is the chance to air your views — send your tips, complaints and compliments to Letters Page, Commodore Magazine, 12-13 Limehouse Street, London WC1E 9PP.

COMPORE

LETTERS

  
MONEY! MONEY! MONEY!  
I'VE WRITTEN ANOTHER  
FAST ACTION GAME!  
IT'S CALLED GALAXIANS!

  
YOU'LL HAVE TO  
SHOOT LITTLE  
ALIENS AS  
THEY COME...

  
THAT'S BEEN  
DONE ALREADY  
TOO?  
THERE MUST BE  
A SPY IN HERE,  
COPYIN' MY GAMES!

AC 800000/000000

# PC — compatible on the way

## DK buys Currah

CURRAM COMPUTERS, distributor of the Speech 84 voice synthesizer, has purchased ownership. After an initial announcement that the Speech 84 and other Currah products would be sold by the assembly, Wilroy Electronics, established peripherals and software manufacturer. DK Systems stepped in to buy Currah Super Network, marketing manager of DK Systems commented "We have bought the rights to the Currah making name, and the exclusive copyright to the Currah range."

DK Systems plans to re-open its US branch to market the Speech 84. Meanwhile Adrian Edmonson, producer of the First Adrian Speech Synthesizer, has announced a new device compatible with Commodore's Magic Voice software. Although programs like 84 and the Bear are already available, the Magic Voice unit may never be done based on large numbers. The Adrian unit is compatible with all software designed for the old Adrian speech synthesizer, which is to be discontinued, and with 90% of the availability of Magic Voice. Adrian's Mike Stretton explained "The commands and syntax are the same as Magic Voice, but words stored using the extended VOC command on the Magic Voice may not work on this new Speech Maker. In those cases the Speech Maker will raise a beep."

"The Speech Maker comes with phonetic word construction and prompt vocabulary, so it gives the best of both worlds. We've simplified the method of operation, and hope to make it available in February at £29.95."

We'll be covering more details of the Speech Maker in our forthcoming speech synthesizer roundup. Meanwhile contact Adrian at Ripon Way, Harrogate, N. Yorks. 0634-749701.

COMMODORE'S IBM PC compatible machine was seen in waiting form for the first time in the UK at the Whet Computer Show in Birmingham. Although the unit was seen in operation running TrueType and Micro Office there were no details available in the operating system, cost, or date of availability. North-south P.E.C. has been appointed as national dis-



tributor of all business systems.

Commodore affirmed its commitment to the business market — specifically the PC and the IBM series machines — which leaves the Plus4 looking as if it will be left in the cold again. See the Last Vegas CES report in this issue for more details of the new Commodore personal computers.

## Business and pleasure from Impex

IMPEX SOFTWARE has announced two products designed for C16 — Plus4 users. Company Fax 1270 is the first business program for the Plus4 to receive official Commodore Approved status. It includes sales ledger, purchase ledger, incoming stock control, outgoing ledger, profit and loss and balance sheet facilities supported on disk.

The program will cost £84.95, or only £30.00 for the first 50 purchasers. There's



also a CEM 61 version planned which will be compiled for greater

operational speed.

For less serious applications the X80 joystick adapter allows you to use standard 10 pin joystick with your Plus4 and C16. Coming £1.21, the X81 has a standard Commodore joystick socket on one end and the new standard 8-pin DIN plug on the other, so you don't have to shove away your beloved joystick. Contact Impex at Glasson House, Second Way, Wombles, Huddersfield, G10 0999.

## Interceptor's latest stunts



GAME SPECIALIST Interceptor's Magic 4 has announced plans for the new batch of Commodore releases

Biggles Barley features a clown who must complete four death-defying acts to win the approval of the crowd. These

include juggling, walking, modelling a scenario and premonitions. The game will cost £7.00. Cavaliers of Saladin is a space adventure in which you must pilot a ship through alien terrain to rescue your stolen agricultural device. Licenses include music, tanks and landscapes. The game also costs £7.00. Villain runs on the 4 or 16K. You and costs £5.00. It's an Israeli extravaganza in which you must ground in your kit of arms while avoiding the nefarious activities of PC Flood. Lady Book Fever allows you to control an energetic dancer with your joystick. The 44 game features hand spins, curls, backflips and "The Shards", and as a bonus the 8K side of the tape features a specially mixed radio version of the game theme tune.

Contact Interceptor at London House, The Green, Tollymore, Belfast BT10 2JG for more details.



## Tandata turns up trumps

COMMUNICATIONS specialist Tandata has announced a new software package which provides extra facilities such as saving incoming data to disk, printing incoming line data in ASCII mode with 40 or 80 columns, long word processing facilities and sending data direct from disk to 300/300 mode.

Serial Modem is available on disk and costs £24 + VAT. The 8K version includes a full manual, and can be obtained from Tandata, Albert Road, Warrick, Malvern, Worcestershire, WR645-6641.

The company has also announced a price cut for its TAD66 main board rate modem. The TAD66, which offers 75/120, 1200/75, 1200/1200 and 300/300 baud rates, will now be £175 including VAT, a drop from £217. Tandata's MD Roy Poulton says: "The price cut has been made possible by the increased volume of production and sales throughout our product range, which enables us to pass on the benefits to our customers."

## "Pack your bags, pachyderm" — CBM jumbo lumbers off

COMMODORE has been criticised for its advertising campaign on two fronts with the BSPCA — after the event. The campaign, which culminated in a television advertisement showing an elephant in boxing gloves, drew several complaints from members of the public. As a result the BSPCA objected, and the IBA, responsible for the control of all TV advertising, suspended the advert to be discontinued. "By that time", commented Bob

Johnson of Commodore's ad agency Oswaldfield Root Collins, "the campaign had finished anyway. In any case, the spots had been cleared with the Independent Television Commission's Advertising Association, and we had contacted the BSPCA before the ad was made. Their press officer told us that so long as the impression on the television of animals was adhered to they had no objection to the ad. Unfortunately the press officer com-

menced left the BSPCA, so they thought that we had not cleared the ad with them when the complaints arose."

"It seems we were caught out by a notification authority — we wouldn't disclose any details of animals, and no mention was made of other campaigns featuring tigers, leopards and gorillas."

"We're now planning next year's campaign, but once we don't yet know what angle it will be based on it's too early to say what form it will take."

## New progs aimed at Plus/4, C16

COMMODORE has announced a range of cassette and disk programs for the C16 and Plus/4, covering the games, education and utilities markets.

Start Programming with Zork and the Kryptobates is a sequel to the popular Zork and the Mershepils. It will be available on disk or cassette. Hildy and Rock, Number Builder and Number Chase

are educational games intended to develop memory, shape recognition and syntactic skills. Jack Attack, Yuletide, Party Adventure, Atomic Modem and Storage Delivery are cartridge based games, most of which are priced at £11.99. Mayhem, Hardwar Attack, Ninja Wars/Blitz, Camp Golf and Fun Aid are cassette games costing £3.99.

There are no software disk-based advertisement games planned for the Plus/4 only, Disk 74/75, Soccer, Baseball and Baseball.

Further to the Future are introductions to Basic Parts 2 and 3, Game Designer, and for the Plus/4 only Magic Disk 2, a cartridge based user-driven productivity program, and Tony Hart's Art Master, an adaptation of the CBM art program.

"We'll be covering all these products as soon as they're available. Meanwhile contact Commodore at 1 Blunell's Road, Wildcat Works Industrial Estate, Corby, Northants.

## CIL lets SX-64 get the information

CIL MICROSYSTEMS has introduced a Commodore SX-64 version of the ADS data supervisor user designed for the PCB.

The ADS interface fits into the slot in the front of the SX-64, and has four analogue inputs, two analogue outputs, plus or minus 10k volts gain with 12 bit accuracy, four TTL inputs, and four relay outputs for control applications. The interface is programmed in CMOS logic.

The entire system, with SX-64, ADS interface and software costs £1495. Alternatively the interface can be bought separately for £308.

For more details contact CIL Microsystems, Dacey Road, Weybridge, Surrey, TW16 9ND, 0961-219476.





# SOFT★HITS

## What an old banger

Oh dear oh dear. Having commented before on how computer games based on film and TV shows tend to be disappointing, my claims are borne out by this extremely disappointing version of *Archie*.

the faded American TV series screened here a few months ago.



Archie Adams is a holographic projection used by a

justice scientist as a target in one fighter. Playing the game inside the first party room, however.

How can I convey the gaming gulf between the logic for this game and the one reality? So, with an extraordinary screen looking like a fourth-rate *Miami, Miami*, this proved into a wasteful of stupid shooting. Don't be misled with a mad bomber on the loose. Add in the final

touch a main game requires which looks like some screen space. It's not even a game and we have the merits of *Archie*. How on earth did Big Boy get loaded with the credits feature?

**Program:** Activision, 64  
**Supplier:** Big Boy  
**Price:** \$9.95  
**Graphics:** ★★ ★★  
**Sound:** ★★  
**Control:** ★★

## A lovely war

*Front Line* is nothing to do with the arcade game of the same name, but is a pretty good wargaming romp all the same. You control a little tank wandering around an oval landscape seen from above. The details are colorful and the scrolling exceptionally good.

As you wander around looking for fuel supplies, you meet head-on attacks from planes, helicopters and enemy



units. Fuel supplies and a score strength are re-

plenished by finding a supply depot.

First is your tank to control, once you start play, the joystick button to shoot and release it in the right instant to detonate the shell when it flies the target.

If there's anything new to the game I haven't found it so it remains a graphically engaging but ultimately pretty average offering. Nice though the scoring, moral music by Chris Cox.

**Program:** Front Line, 64  
**Supplier:** Interphase  
**Price:** £7.00  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Control:** ★★★★★

## Don't rock the boat

Back to the sports theme, based on offerings from the promising New Generation, which *CBT Manager* was covered last month. This is a surprising. What the English is a cunning combination with several scrolling graphics, which demands a good deal of

precision to take in a contemporary performance.

Like *Skater King*, the



object of the game is to pass through a series of gates in a set time. The vessel is con-

trolled by holding on a central left-right steering wheel which is manipulated from that position. You can also, hopefully, change the speed. Around you various items — or the bank — pressing the fire button enables you to paddle backwards.

Penalty zones are added if you miss a gate, and it can be very difficult to steer through them without heading into the bank, in which case you risk without a trace.

Additional features include various water levels, an occasional rock or coral reef, and various features.

An original and convincing offering, which could be more, have been improved with a two-player option.

**Program:** Skater King, 64  
**Supplier:** New Generation  
**Price:** £7.95  
**Graphics:** ★★★★★  
**Sound:** ★★  
**Control:** ★★★★★

## Gaaglies

*Cricket* is especially such a surprisingly serious game that perhaps it can't be compared with other offerings, if only by shortening the time of play.

The Lion's version for the 64 is an excellent attempt to capture the skill of cricket without the accompanying boredom. There's a wide range

of player-defined variables, team names, team members, members' skill levels, play level and so on. All these are selected by the joystick which is necessary to play the game.

The screen is in play in two parts, a large scale animation which shows the bowler's delivery and gives the batsman a chance to respond, then a photographic screen in which the players can control the wicket and the fielders.

The animation is good although I miss the use of the



visual and the sound of the wicket stumps — the sound effects are excellent. Still, it's

not to see a game which can be played by two players against the computer. It is two players using two sticks. Cricket fans will love it and although it may seem to be a bit

**Program:** Cricket, 64  
**Supplier:** Panther  
**Price:** £9.95  
**Graphics:** ★★★★★  
**Sound:** ★★  
**Control:** ★★★★★

# SOFT★HITS



## Whirly-birds

Zzap! Mania looks very much like Duxtron's much-praised *Wings*, having the same angled perspective and somewhat maze-like structure.

You have to pilot a highly maneuverable, but sluggish, through a maze of walls and ceilings, in order to reach an underground power plant to carry out vital repairs. You can choose two types of control system, in which moving the joystick up moves the chopper up, or pilot, as which it moves

it down as if you'd open a real helicopter. Left and right



yourself, tilted, and so. The buttons control the usual speed. Thoughts like this should come

regularly using the helicopter's shadow and a height gauge



into your mind as the game is very hard to judge though. I'm not sure if this is deliberate or not.

There's a real hint of *Contra* as you have to land every so often to pick up Ammo. From that there isn't a great deal of reason, and *Zzap! Mania* is probably more suitable for those game players who enjoy a program just because it's difficult to master, rather than being fun, about the capability or balance of the program.

**Program:** Zzap! Mania, 64  
**Supplier:** Amiga  
**Price:** £7.95 (cover) £5.95 disc  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Control:** ★★★★★

## Last oargh

You've seen the review. You've read the books, you've bought the power expansion and the T-chip, you play the game. It's unclear now that the game will ever fully disappear — a sign of the producers' faith that they've put enough hard work into the game for the game

right, and they shouldn't have to make one effort towards moving the game.

There are no screens with real animated graphics although the space-like color and the wobbly direction doesn't seem very precise. These little Indiana Jones puzzles fill your the screen as words of his resources, shared mostly by a single resource. Some of the logic of these puzzles

will inevitably try and use your resources, when I spent my

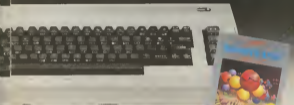


resources to get a power ball, although the big big game.

So, I expect the game will not sell, since the package is a little bit more "game" and a little bit more "puzzle" and a little bit more "strategy" in all one mode.

**Program:** Indiana Jones and the Temple of Doom, 64  
**Supplier:** US Gold  
**Price:** £5.95  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Control:** ★★★★★

# programming problems?



- Each command fully explained with example and explanation.
- Allows control of up to five joysticks or 8 paddles.
- Automatic light gun on-ordinate scaling.
- SPLITTER and OLD GUY may be SAVED or LOADED directly from tape or disc. The same is true of 64 PICS GRAPHICS.
- Makes obsolete the need to calculate RAM addresses for any graphic commands.
- **EXPRESS BASIC** comes with a 180pg easy-to-use manual plus disc and cassette in a presentation box.
- Less than 60 **EXPRESS BASIC** allows plenty of room for program development.

### EXPRESS BASIC OFFERS

Great value for money at £19.95 a higher standard of flexibility and tremendous user friendliness. All in one easy to use package.

**CALL:** Commodore Marketing, Suite 40, Broad Street, Dowd Street East, Bradford, West Yorkshire, TF1 1SD, Telephone: 01274 61411



You...  
my rap...  
I shoot...

NOW  
AVAILABLE

# CLIFF HANGER

AUTHOR - JAMES DAY ORIGINAL MUSIC - BRIAN DOE

Thrill to the cartoon style action of *Cliff Hanger*, a really original, Wild West game. As Cliff the hero, you've got to stop the bandits shooting up the canyon. But with its own brand of wacky cartoon action fun, things simply aren't as they seem in *Cliff Hanger*. For a start, the boulder you throw at the 'ol bandito may just come bouncing back at you.

*Cliff Hanger* incorporates all the elements that have made New Generation games best sellers for the Spectrum, such as original ideas, superb graphics and hilarious happenings - but now it's available first for the Commodore 64.

Featuring 32 screens, three levels of difficulty, one or two players scoring, Hall of fame and joystick compatibility or user defined keys, *Cliff Hanger* is set to be THE Commodore games playing session. Available from any good software store for just £3.95.

shoota  
ards, then  
ota you!

NOW  
AVAILABLE

# Shoot the Rapids

AUTHOR - PAUL BLUM

Ever wondered what it would be like to face the fierce white water in a top class canoe slalom race? Well wonder no more because you can enjoy the fast action thrill of competitive canoeing from the comfort of your own armchair with

*Shoot the Rapids.*

It's a game that involves real skill because you must move your joystick to simulate paddling action. You must get through the gates of the slalom course in the fastest time possible, while avoiding the river banks and rocks. There are also extra hazards like rogue speed boats and interfering leavers to worry about.

The main level game features increasingly difficult river courses with superb graphics and smooth scrolling along the river. Qualifying times have to be reached to move onto the next course.

With Hall of Fame, one or two player scoring and joystick compatibility, *Shoot the Rapids* is probably the best sports action simulation game devised to date. Available from any good software store for just £7.95.

Small  
Spectrum  
Software

Small Spectrum Software  
100, The Arcade  
London W1P 0LP



Small Spectrum products are available on all  
the major brands of computers and game consoles.

# SOFT★HITS

## Diplomatic corpse

Chop-lier was a great success in America which was a good deal about the American. The scenario is quite pleasing; you control a heavily armed helicopter, which takes off from a pre-located outpost and heads out enemy in enemy in enemy land (except diplomats).

The diplomats have broken out of their barracks and are milling around on the ground,

being threatened by enemy tanks. You can bomb the tanks, land quickly, land up with 100 diplomats and take them home, then start on again.

Hazards include missile-launching aircraft, the above-mentioned tanks, and several mines.

Having rescued one lot of diplomats, you have to blow open the next barracks and get the men lot. The tanks will reward more financially and the aerial sweep occasionally. For their's interesting mission from the whole thing — the sound effects are pathetic, for

a 1988, but you can't do an exploding helicopter going "Bloop!"? The vehicles aren't particularly well subtitled through the hole over



swirls around reforming, and wait to see as they approach. The game's shortcomings

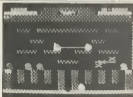
was probably by you slower to its being somewhat long on the back, but overall it's. As a helicopter pilot, it's very playable, and though it's an American visually, unlike for instance Tiger's Palace. Paved 2 (which is a similar game in many ways), Chop-lier will probably please a lot of game players.

**Program:** Chop-lier, 64  
**Supplier:** Amosoft  
**Price:** £9.95 (converts £12.95 disk)  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Gameplay:** ★★★★★

## Not enough thrust

Software Projects has been responsible for a good deal of excellent stuff, usually the seminal *Music Mixer*. It's difficult, then, to know what to make of this one. Since it's simply a particularly adequate little game of the type, you might have expected things to go on just as before: they went up market.

You control a very small round space probe which must never approach a certain obscuring alien egg and the vicious Guardians. Your low-powered beam can't do



enough to zap the alien, then, so, to know them off you must stage battles off projectiles and crash the little ship. Once you've

zapped all the guards and crushed all the aliens, preferably before they hatch out and make your life difficult by flying around the corners, it's

all in the next screen, which is slightly better and involves different aliens and guards, although the basic layout is the same.

The no-ops have many levels there are, since the game doesn't hold the monster long enough to find out, but there are some nice sound effects. I wouldn't object if someone put out a copy, but it's not the kind of thing I'd want to cash out and buy, considering that the world might just as well make and there must be better things to do.

**Program:** Thrust, 64  
**Supplier:** Software Projects  
**Price:** £9.95  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Gameplay:** ★★★★★

## Titanic

This is, in *Big Hero*, Titanic's "Club of the 7", perhaps, since this grand feature means of the creation of Greek myth and legend which crop up in the film. It's an unusual-looking game, reminiscent of some of the Atari video game classics, with large chunky characters and good colours.

Your second Perseus,

encountered on the winged horse Pegasus, is he strange to reach the temple and seek



with the Oracle. As you come through the door over mythic temples, open seas and

mountain-beamed countryside, harpist Gorgona, forest and cyclone try to zap you. Luckily you thought to equip yourself with a handy Cloak. Later, before leaving home.

A great deal of dodging and juggling means with expert sailing landings and some nice effects, especially the lightning Power Orb which can replenish your energy if you recombine with them. Walking monsters require more effort to kill, and cause

you've zapped the lot and got through to the temple you probably won't ever — you have to climb the temple stairs avoiding rolling boulders to get to the Oracle.

Good fun, though nothing as revolutionary.

**Program:** Titanic, 64  
**Supplier:** Kozak  
**Price:** £7.95  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Gameplay:** ★★★★★

## Wheelies

I can't quite follow the logic behind this one. I'd have thought that people are rather interested in anything related to their BMX bikes or in staying at home and playing with their computers. I wouldn't have thought the two

mixed, and so I can't believe that Nigel Baker will have much of an audience.

Well, it's a computer program, a sort of Donkey Kong on wheels, in which one or two players can pump their BMX bikes along, moving against the clock and competing at speed, checks and pump events. You can do stunts by hitting the



ave handle, and I'm told that it's all very real-time —

especially when you fall off! I don't know, I'm over 31. Real BMX warriors, so they say.

**Program:** Super Bike, 64  
**Supplier:** PMS  
**Price:** £7.95  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Gameplay:** ★★★★★



# Learn new skills for home and business

Mike Grace uses his *Brainpower* to find new uses for your micro

I've *THIRD* this doesn't happen to you, but I will find, even today, that my own computer friends give me a quantity of awe and disbelief at my mere writing quickly on my disk, screen flickering with a few paragraphs of text in a few short, or on certain days the latest page "Yes," they ask, "it's all very well — but what does it do?"

For a year or so after buying my first computer, an *Apple II* which still works wonderfully for my children, I described the things that a computer did many wondrous things for me — and I hunted for software that would prove it. Often I came away disappointed, when I had to come to terms with the reality that a periodical paper (and often a calculator) did things much quicker and easier.

Then came the word processor and spreadsheet and the database (I had never moved up to a Commodore 64) and at last a certain day began to prove itself. Accounts could be added and changed quickly, addresses printed out, and so on. The word processor — well, for a while there's no comparison. But I was still haunted by the realization that most people don't want to do these things anyway.

## Learning

I was finally coming to terms with the fact that the computer was just what I had for me — that I didn't have to justify being and using it — what I obtained. *Spice* came out software by a company called Trojans Publishing which has made me think again. At last it seems that someone is producing something that will be of value for people who will *never* see what they can use their computer for. At last I may be able to look at my own computer needs and when they ask me what it's for — I'll be able to show them.

*Trojans* created a series of titles based on business concepts that existed at the home use, the three titles I bought were definitely aimed more for the business user, but other titles like *Write* and *Numbers* at *Work* suggest a more educational line.

The heart of each program is a set of learning guides, individual questions and answer indicators which the computer will correct and record and applications which you can use in your own situation. Then you get the best of both worlds, and in my own case all three programs followed a similar pattern of a teaching section and an application program which I could tailor for my own use.

The three programs I read were *Project Planner*, *Forecast* and *Brainpower*. To be fair to all three I should point out that to

get full value it would be better for me to write the program in a year's time, so they all had themselves to re-visit study (and in such software around), but if you take the report as a preliminary test then you will be able to judge my findings more fairly.

They were all neatly packaged in the familiar large rounded plastic box with space for inserts or disk plus manual. *Brain* box has a distinctive cover showing the outline of a head and an appropriate word (graph for the business user, crystal ball for the forecaster, etc.) which shows that these thoughts about usage and message has been taken. Before each picture is the title "BRAINPOWER — APPLICATION THROUGH LEARNING." As I opened the first one I had no idea how accurate that title would prove to be.



*Forecast* is a system of forecasting the production of the outcome of events such as future sales, share prices, and so on. It is also a method of analyzing the various factors that can cause the difference between success or failure of a project.

Being computer-based the program goes heavily into the quantitative methods of production (the means a new facts, constants and numbers rather than opinions) and very quickly you are learning about things like trend lines, causal models and exponential smoothing. There were all concepts completely new to me, and it was puzzling to realize that I was picking it up fairly easily, which is more a reflection on the standard of teaching than my own ability.

The learning process is similar for each business program. You are provided with a manual containing well-presented examples and explanations, and a program

(on tape or disk) which you load into the computer and which you use at the same time. So, for example, the manual tells about a scatter graph and the computer will draw a sample on the screen. The idea works well, being suited to the medium. As the end of most chapters there is a short exercise to test your understanding, and if you get below a certain percentage of marks a message "PERHAPS YOU SHOULD READ THIS CHAPTER AGAIN" scrolls as a kind reminder.

I found that theories of production forecasting and was soon fairly expert in five-point moving averages. *Brain*'s method of double exponential smoothing and classical decomposition (the latter concept you quite probably know if you didn't know we were talking about forecasting, don't they?) does point that a possibly due to such release was that I found some useful material errors in the section on *Brain*'s "Method" chapter 12.10 in the manual but these should be corrected in later versions of the program.

Having mastered the theory we can move on to produce our own forecast using the application program. Here the computer asks you to complete the data and then it goes into a kind of menu file where you fill in manual even data, you do not have a control panel which is done all the computational work. Finally the result comes up giving you an idea of the problems without having to do all the complex mathematical yourself.

Being a newcomer I didn't have the opportunity to try this out myself properly, but I had a go and was rather disappointed when the program kept telling me to use a MATHEMATICAL method on my example as I have no idea what a matrix singular is and could find no mention in the glossary or index. Perhaps the mystery will solve itself on a further reading, but at the moment I remain frustrated in the depths of the 64 (the *Am* does seem to be the new machine — *ED*.)

## Planner

The next program is *Project Planner* which seems more fun and is definitely easier to learn. *Project Planner* teaches you how to break tasks, problems, any situation into "single meaningful components" (as the manual on the package says) and in reality all about organizing your work. In the ordinary day this might seem to be stating the obvious, but not so.

Take any task (the manual describes someone setting up a shop) and it can be divided into certain jobs that you need to do (such as finding the premises, buying stuff, stocking up, etc.) Now while all

...and an advance notice the best way of simply not doing things in one. Finally, the third of inputs needed in the decision tree, in this case, is that you can understand either the nature of business. For example if a friend of yours who runs a shop, it would give more money if a was done too soon (developing capital and increasing interest in the bank) but would lose sales if done too late.

So it becomes important to know exactly when to start, the time, what is the latest time you can do it, and what processes are required to ensure a smooth ride. And a man's just at the limit of business this applies, for you could be expanding a school fully, planning the education of your children, building an extension on your house, etc.

The manual leads us through the preparation, research planning and logical path analysis towards such strategic concepts as free and reinforcing flows, once again with a simplicity that I found refreshing. Our expert in this package is the actual programming software, the example you can leave the program by pressing a key without having to turn the computer off, and the layout and screen colouring seemed better than in *Fluency*.

## Applications

Moving to the applications package the procedure is the same. Once again you enter the data and the computer does all the work. I found the report printing a little tricky on my Gemini 10X. Possibly an error, because as I couldn't print out the bar chart, but I was able to make a print out of a network which I set up for running a conference. If you haven't worked through the teaching section some screens would be a little hard to understand and it's a shame that on the IBM pc/cm's print can come over graphics but in the manual (as noted in Figure 1), but perhaps I was too much for my money.

Finally for the article we come to



**Fluency** — the ideal program for the person starting up their own business.

This is the most comprehensive package of the three I've seen, and really leads you to a full review. The manual covers items such as VAT, the legality of business, the benefits of a partnership versus a Limited Company, tax advice and many other items of information essential to anyone seriously thinking of setting up any business... however small. Although the information is available elsewhere it is really easy to get to grips and understand all you need to know in the few well presented pages in the manual.

Chapter 3 alone on *Planning a Business* is worth far more than the cost of the whole package. Its three or so 64 pages of questions you have to answer lead that same thinking about concerning starting out. I found the depth of the section surprising for such a small book but I've read a few others on starting a business and after working through it all myself I had accumulated several facts about my own enterprise which I hadn't considered before. It takes time to write it completely put with depth

and understanding.

The manual then moves on to discuss assets and liabilities, equity and profit, and topics such as the importance of correct cash-flow. I found the explanations simple to understand, and as before the job processing reflects the world. As with the other manuals simple case histories are included to clarify the concepts.

Finally there is an applications program into which you load all the information about your proposed business for your training cost and let the details do the work. It's come the assets and liabilities and the balance sheet figures are presented for you to study. But you do need to know all your facts first.

This package is vastly not so spectacular as the other two (especially the computer examples) but it seems to have a much more direct application to the small business. And come to think of it — the large business as well!

So, in conclusion, what do I think of *Fluency*? As I said earlier, you do need to do your brain — quite a bit! The subject matter is substantial and if you're going to get anything from the applications packages you need to have done your homework first. But, in my opinion, that is one of the strengths of this series of software.

*Fluency* isn't boys (change the letters when you try to tell you are) — they're amazingly powerful tools which should be helping us to do daily life in a more power whether casual path analysis and statistical information in the world of everyday life — but then again why not?

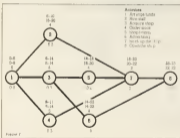
## Capacity

The great strength of these programs is the time and effort that a person who makes quite complex ideas seem easy — and that does take skill. At £19.95 a program for the age ranges and £24.95 for the disk version of *Fluency* seems favourably in value with the high priced software for main business users. But it isn't what it costs that should matter — it's what it's worth.

I've a few niggles, but they are slight. The worst ones I found was the mathematical mistakes I've already mentioned in *Fluency*, though *Triplex* promises to correct those in future editions (other mistakes luckily escape me, some involving very slight errors in the manual such as calling the cosine a sine but when it's clear what it's meant I suspect proof-reading errors in the conversion from one computer to the next). The explanation both on screen and in the manual are excellent for the first time user.

There are well produced screens of software which succeed in being different and fresh, the capacity of the machine — and (more significantly) the user, you and me. That is where the *Fluency* series scores, it treats us as adults who really want to acquire knowledge that we can apply out of our computer.

You won't find these programs a free copy (except for your money). You will find, if you put the time and effort into using them properly, that you have a tool that will thank you a lot and help you control your environment. ■



# THE 64 SOFTWARE CENTRE

## 1 Princeton Street, London WC1

### 01-430 0954

#### software price list — prices include VAT

d = disk    c = cassette    v = cartridge

#### Accounting systems (Office use)

Account Systems — Sales Ledger	d	175.00
Account Systems — Purchase Reversed Ledger	d	175.00
Account Systems — Cashbook	d	175.00
Gensoft — Cashbook (with manual analysis)	d	164.00
Gensoft — Cashbook (with manual analysis)	v	159.00
Gensoft — Bond Accounts	d	156.00
Gensoft — Bond Accounts	v	156.00
Gensoft — Cashbook/VAR/Final Accounts	v	185.00
Gensoft — Accounts Package	d	175.00
Microcomplex — Cashbook	d	1150.00
Trade — Payroll 64	d	126.00
Dell — Invoice generator	d	114.00
<b>Stock Control systems</b>		
Pro-Shop — Inventory 64	d	129.00
Gensoft — Stock Control	d	124.00
Gensoft — Stock Control	v	124.00
Argussoft — Stock Control	d	175.00

#### Accounting (Personalising systems)

Accountsoft — Budgets	v	69.00
<b>Home applications</b>		
Home — Copy	v	121.00
Gensoft — Home Accounts	v	119.00
Gensoft — Home Accounts	d	124.00
Fullmaster — Home Accounts	d/v	118.00
Accountsoft — Checkbook Manager	d	114.00

#### Database Filing Systems

Mean — Papers 64	d	186.00
Mean — Books 64	v	128.00
Proline — Mailpost 64	d	178.00
Autopost — Messages	d/v	144.00
64 — The Calculator	d	120.00
Pro-Shop — Postfile 64	d	164.00
Pro-Shop — Superfiles 64	d	167.00
Simply File	d	167.00
Gensoft — Windows	d	126.00
Gensoft — Windows	v	117.00
Gensoft — Mailbox	d	126.00
Gensoft — Mailbox	v	118.00
Fullmaster — Record Card	d/v	118.00
Fullmaster — Mail Label	d/v	117.00
Dell — Superfile	d	114.00

#### ALL IN STOCK NOW — Orders welcome (Home — open until Saturdays)

Mail Order: Cheque or PO — add £2 for items over £20 others free. Debit Cards (Access/Bank) please or write immediate despatch.

#### The 64 Software Centre 1 Princeton Street, London WC1

Please supply the following items:

1	Qty	£P
2	Qty	£P
3	Qty	£P
4	Qty	£P

TOTAL £

POSTAGE £

TOTAL £

Name \_\_\_\_\_ Address \_\_\_\_\_

Next Access Card No \_\_\_\_\_

Date \_\_\_\_\_ Signature \_\_\_\_\_

#### Applications

Gensoft — Multiple 64	d	104.00
Gensoft — Long Columns	d	104.00
Gensoft — Advanced Calcsoft	d/v	160.00
Pro-Shop — Postfile 64	d	129.00
Pro-Shop — Postfile 64	v	129.00
Supersoft — Aquatic 1	d/v	107.00
Supersoft — Sea Job 2	d	170.00
Fullmaster — Workbook	d/v	179.00
Pro-Shop — Postfile 64	v	104.00

#### Statistics

Mean — Mail 64	v	129.00
----------------	---	--------

#### Word Processors

64 — Paperlog 64	d	198.00
Simple — Simply Write	d	144.00
Pro — Wordfile 64	d	129.00
Gensoft — Reporter	v	129.00
Fullmaster — Reporter	d/v	179.00

#### Utilities

Accountsoft — Ignite Add	v	54.00
Accountsoft — Librarian	d	119.00
Accountsoft — Utilities	v	54.00
Accountsoft — Chartrak 64	d	126.00
Accountsoft — Chartrak 64	v	105.00
Accountsoft — Superfile	d	112.00
Accountsoft — Superfile Designer	d	129.00
Accountsoft — Super File	d	129.00
Autopost — Messages	d	129.00
Autopost — Books 64	d	129.00
Gensoft — Lists 64	d	129.00
Crystal — Data 64	v	114.00
Gensoft — Mean 64	v	128.00
Gensoft — Postfile 64	d	129.00
Gensoft — Postfile 64	v	129.00
Fullmaster — Postfile 64	v	124.00
Compendium — Document Editor	v	147.00
Home — WC Book	v	121.00
Pro-Shop — 64 Gensoft	d	119.00
Supersoft — Messages 64	d	129.00
Supersoft — Utilities	v	104.00
Supersoft — Utility Assembler	v	109.00
Simple — Utilities	d	129.00
Simple — Utilities	v	114.00
Microcomplex — Utilities	d	114.00
Talent — Parameters	d	114.00
Talent — Parameters	v	114.00

#### Miscellaneous

##### Flight simulators

64 — Flight a simulator	d	107.00
Microcomplex — Solo Flight	d	174.00
Fullmaster — Flight Simulator II	d	160.00
Supersoft — Simulator Pilot	d	119.00
Supersoft — Microdrive Pilot	v	107.00
Microcomplex — Software Ace	d	119.00
Microcomplex — Software Ace	v	119.00

##### Wor

Microcomplex — Home Compendium	d	112.00
64 — Curve Editor	d	114.00
64 — Editor	d	124.00
64 — Cryptography	d	109.00
64 — Editor 64	d	147.00
64 — Editor for Windows	v	174.00
Microcomplex — Operations Manual	d	144.00

##### Business

Simple — System Compendium	d	170.00
Simple — System (Final version)	d	150.00
Simple — Mail Manager	d	150.00



# Double or quits — the micro gamble

A report on the Las Vegas Consumer Electronics Show by Chris Jenkins — where the C16 and Plus/4 have bust, can the C128 and LCD turn the trick for Commodore?

EACH YEAR the Winter Consumer Electronics Show is held in Las Vegas, and the Summer show in Chicago. Traditionally, the shows are a chance for the major computer manufacturers to promote their wares, both to retail outlets interested in to assess the coming from software manufacturers and dealers.

## Monopoly

Commodore's enormous Las Vegas stand emphasized once more the company's importance in the small computer field, but, despite the usual confidence press statements, things were not looking good for two of the latest products, the C16 and the Plus/4.

Not one independent software manufacturer was showing programs for the C16 or Plus/4. The Plus/4 has not been marketed at all in the US, perhaps because IBM and Apple have monopolized the "serious applications" market, so much so that the limited Plus/4 market's attraction powers. The C16, touted as a "fun computer", has had a limited degree of success, but apparently has suffered in

comparison with the out-price Atari machines.

The future of the Plus/4 and the C16 now looks bleak, despite the C16's relative success in the UK over Christmas. Commodore's US marketing manager, Frank Leonard, commented that the machines would have to be "repositioned in the market" — perhaps a euphemism for being discontinued.

The Commodore 64, meanwhile, remains the flagship of the Commodore line. A poor cut to around \$249 is on the way — a further indication that the C16 is not thought to be worth supporting — and there was a good deal of software support evident from computer magazines and users.

## Exitting

The big news, however, is the launch of two new and exciting Commodore personal computers, the C128 and the big-brother LCD.

The C128, if it comes into production in the form promised at the show, is currently Commodore's most exciting product yet. It operates in three modes which make it

ideal for games, small business and fully professional applications.

The first mode, C64, is fully compatible with the Commodore 64. All 64 software and hardware can be used, a feature which guarantees that C128 users will have an enormous base of available software as soon as they purchase the machine. It's the first time Commodore has introduced a micro which is "back-compatible" with a previous product, and it's a move which should protect the turnover of the Commodore 64 for some time to come.

In C128 mode, the machine runs a new version of Basic, 7.0, which has over 140 commands, subroutines, and functions, including all those from the CBM64 and the C16 Plus/4. The 128K RAM is expandable to 32K, using an external RAM disk option. The 8002 processor used in C128 mode is a compatible variant of the 8001, which features 44K ROMs.

An exciting extra for word processor users is the addition of variable display modes, 48 columns by 25 lines or 80 columns by 32 lines.

For business users, the third operational mode of the C128 is the most exciting of all, CP/M mode.

CP/M, one of the most popular business operating systems, runs a 280 processor like this, based on the Zenith Spectrum and many other non-Commodore computers. It's not new technology, but it's new to Commodore users. The Commodore CP/M mode supports the personal CP/M file disk drive operating system.

## Inspired

Taken as a whole, the C128 seems an inspired design which can perform in all things to all men. It protects the future of the 64 and its millions of users, offers the possibilities of much more powerful programs and an even better Basic, and has a great deal to offer the software user — much more so than the ill-conceived Plus/4. As a direct competitor to the IBM and Apple personal computers, the C128 could be a winner if it offers value for money — though an eye would be foolish enough to put an estimate on its total price yet. It's due for release in the

spring over the top fold LCD.

The LCD is a portable design for an on-the-go use in a number of applications, word processing, calculations, data storage, memoranda, and communications through the built-in 9600 baud modem. There are eight built-in soft-ware packages and a flip-up 80-84 LCD display. The processor is a 65C162, running basic 3.5 with full compatibility with all Commodore 64 serial peripherals — so you could, for instance, type a report on the train then print it out back at the office. Armed to compete with machines like the Radio Shack (Tandy) 100 Express PN-8 and NEC P-4400A, the LCD will certainly find a market if the software is forthcoming.

The new 1.78 5 1/4 inch disk drive is compatible with both new machines and the 64, and has a storage capacity of 100K. It incorporates CP/M routines and an own 4002 processor with 12K ROM and 1K RAM. Data transfer rates vary between 100K/sec — 300 cps with the 64, 1000 with the 128 and 5000 under CP/M control.

There was no sign at the CES of production models of the 16 for IBMPC compatible computer, but a prototype few feet shows an advanced version of the machine in private. There are still no firm release dates, but Commodore hopes to show a version in the U.S. soon. Again, no further details in the Amiga Lounge excerpted, but Commodore repeated claims that the machine was on schedule.

## NEW COMMODORE PERIPHERALS



**1.78 5 1/4 INCH DRIVE** 5 1/4 inch single disk drive with 100K storage, 4002 processor with 12K ROM, 17K EPROM, transfer rates from 800 to 1500 cps. Compatible with CBMD4, CT32, LCD. **16 BIT 65C162 MICROPROCESSOR CONTROL MONITOR** 8000 words, 80 characters by 23 rows, 200 total characters, 5 x 7 matrix, composite mode, 40 by 10, 1000 characters, 8 x 7 matrix, 10 inch screen, brightness, ital, normal, underline and horizontal position control via 400044 CT32 compatible. **16 BIT 80 PRINTING** Bi-directional 8 x 1/2 dot matrix printer, full PFI graphics, keyboard, terminals and symbols, matrix feed, 40 cps, 40 columns width, four dimensions. **COMMODORE MONITOR** Liquid crystal monitor in that on the Apple Macintosh. Uses a rolling ball on the underside of screen, together with a number of expansion features, in conjunction with store-driven software.

## COMMODORE 64 PORTABLE COMPUTER



**GENERAL FEATURES** ■ Built-in applications software ■ Built-in 9600 baud modem for communications ■ Runs on batteries or external power ■ Automatic power down that saves battery life

**BUILT-IN SOFTWARE** ■ Wordprocessing ■ Scheduler ■ BASIC ■ File Manager ■ Calculator ■ Memo ■ Spread sheet ■ Menu ■ Pad ■ Address books ■ Terminal Emulator

**SYSTEM FEATURES** ■ 65C162 CMOS microprocessor (1MHz) ■ 12K CMOS RAM ■ 16K CMOS ROM ■ Built-in BASIC 1.8 ■ Built-in screen editor

**DISPLAY** ■ 80 x 26 Liquid Crystal Display ■ 800 x 175 resolution (graphics mode) ■ Upper and lower case characters

**KEYBOARD** ■ Typewriter style ■ 77 keys ■ 8 programmable function keys ■ 4 power keys

**INPUTS/OUTPUTS** Serial I/O Port ■ RS-232C ■ Commodore parallel port ■ Modular phone jacks for direct connect modem ■ Expansion port ■ Bar (each needs own software/package compatible)

**COMMODORE PERIPHERALS** ■ 1044 or 1071 single disk drive ■ MPS-81 or MPS-801 printer ■ All Commodore serial peripherals are compatible

**DIMENSIONS** ■ 2 1/2" x 10 1/2" x 11" (H x W x D)

**WEIGHT** ■ 500g (5oz)

**POWER** ■ 4 x AA Alkaline batteries (175 power hours) ■ 900 mAh NiCd battery backup ■ 4 x C adapter included

**OTHERS** ■ Light beige

# VIZASTAR 64

## THE INFORMATION PROCESSOR

■ Spreadsheet

■ Database

■ Graphics

■ One word menu lists 16 easy electronic facilities  
■ High resolution grid pattern  
■ Information worksheet printing as easy as read display

■ Download your information files and include them into the worksheet file lists yourself or automatically and easily re-opening  
■ Update via screen designed your information records

■ 4800 Rows by 16 Columns wide and feature 160 large memory graphics and software aids  
■ Customised Windows allow you to view one part of the file without losing working or another

■ Add or remove data from your records without changing or connecting with existing information files  
■ Record up to 1,000 characters fully with built-in up to 255 characters

■ Advanced spreadsheet features include individually variable column widths, generalisable a page numbering facility and wide range of maths functions

■ Supports virtually any printer COMPTON (JET SETTER), DLT5077 and many others  
■ Parallel printers support COMPTON's dot-matrix printer

■ Includes software to help you use the Worksheet from VisiStar and access any other system  
■ Simultaneous display of work sheet and lower bar graphs

■ Worksheet manipulation you want! Set Copy Move Delete and Insert before initiate a change  
■ Two editing facilities for letters remove, repeat backspace

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

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

The information filing capabilities of VisiStar enable you to store your information onto disk in

an ordered and instantly retrievable form. This means that you can quickly pick out individual or entire groups of related information to create lists, statements, labels or reports.

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

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



SOFTWARE

VIZA SOFTWARE, 9 MANSION ROW,  
BROMPTON, GILLINGHAM, KENT ME7 5SE  
TEL: MEDWAY (0434) 813780

Dealer enquiries welcome

AV. 11.11.84. NOV. TEL. 0754.64  
**£99.95**  
(inc VAT)

## COMMODORE 128 PERSONAL COMPUTER



**GENERAL FEATURES** • Revised styling • 100% compatible with Commodore 64 • Built-in copy to use DOS support • RAM expandable up to 128K RAM using RAM disk option • Upper and lower case characters on • Built-in BASIC • 3 separate modes of operation

**64 MODE** • 6510 microprocessor (1 to 2 MHz) 16000 compatible • 6701 sound interface chip • 64K RAM (expandable to 128K using RAM disk option) • 48K BC01 + 16K B2M for BASIC compiler • BASIC 7.0 • on-line language monitor • 40 x 23 lines (320 x 200 resolution) • 14 colors • 8 sprites

**65 MODE** • 6502 microprocessor (1 to 2 MHz) 16000 compatible • 6501 sound interface chip • 128K RAM (expandable to 512K using RAM disk option) • 48K BC01 + 16K B2M for BASIC compiler • BASIC 7.0 • on-line language monitor • 40 x 23 lines (320 x 200 resolution) • 80 x 23 lines (640 x 200 resolution) • 14 colors • 8 sprites (40 colors only)

**CP/M MODE** • Z80A microprocessor (4MHz) • C-PM/1M Plus version 7.0 • 128K RAM (expandable to 512K using RAM disk option) • 40 x 23 lines (320 x 200 resolution) • 80 x 23 lines (640 x 200 resolution) • 14 colors

**KEYBOARD** • Full size typewriter style • 92 keys • 14 key numeric keypad • 8 programmable function keys • 4 Cursor keys • help key • 40/80 column key • No scroll • low feel • latching • Tab • Cap Lock • Alt

**INPUTS/OUTPUTS** • User port • Serial port • Cassette port • 2 Keyboard ports • RF/TV port • Cartridge port • Audio input • Audio output • Composite Video • Digital RGB video

**RECOMMENDED PERIPHERALS** • MPS 600 or MPS 800 printers • 1771 single disk drive • 1799 microprocessor monitor • 1703 digital BC07 column monitor • 1660 and 1670 modems • Fully compatible with Commodore 64 software and accessories

**DIMENSIONS** • 160mm (H) x 124mm (D) x 191mm (W)

**WEIGHT** • 870g (Net)

**COLORS** • Light Gray

## COMMODORE 1571 DISK DRIVE

**GENERAL FEATURES** • 5.25" floppy disk drive • Supports fast data transfer rates • Two serial ports for adding peripherals • Software disk format selectable • Comes with serial and power cables • Compatible with Commodore 128 64 Plus/4 and LCII computers

**SYSTEM FEATURES** • Built-in 4000 microprocessor • 2K RAM • 11K ROM • Built-in DOS • High data transfer rate • 300 cps under C64 control • 1500 cps under C128 control • 1500 cps under CP/M control • Up to 4000 cps burst rate

**MEDIA CHARACTERISTICS** • Commodore Standard (GC II) • Double sided/Single Density • 150K storage capacity (formatted) • Compatible with 1741 and 2001 disk drives • Supports program, sequential, relative and user files • CP/M compatible (MPS) • Double sided/double density • Up to 410K storage capacity (formatted) • Built-in 16000 16-bit system 64 format (Keyex™ and Osborne™ format compatible) • Supports most CP/M™ files

**INPUTS/OUTPUTS** • Two serial ports • Power connector • DIMENSIONS • 75mm x 120mm x 140mm (H x W x D) • WEIGHT • 870g (Net) • COLOR • Light Gray



# Mirage

SOFTWARE &  
DISTRIBUTION

1 Sandy Road  
Top Floor  
Seasforth  
Liverpool  
L31 3TN  
Tel: 051-620-9713

## PROGRAMMERS

WE ARE LOOKING FOR TOP QUALITY PROGRAMMERS TO MARKET IN THE UK AND ABROAD. THE PROGRAMMES MUST BE EFFICIENT, QUALITY AND IN MACHINE CODE WITH GOOD GRAPHICS ON SCREENS ONLY (ORIGINAL) CONCEPT. WE ARE LOOKING FOR PROGRAMMERS TO CARRY OUT WORK ON NEW MACHINES SUCH AS THE C.I.M. (AMSTRAD) AND M.S.X. WE CAN EMPLOY THESE MACHINES TO COPY OUT WORK FOR MIRAGE. WE ARE ALSO OFFERING EMPLOYMENT TO THE BEST PROGRAMMERS RECEIVING THE MOST EFFICIENTLY THAT WHICH WE WILL BE OPEN TO MARKET. WE OFFER AN OUTRIGHT PAYMENT OR 1% PLUS PAYMENT OR 2% ROYALTIES PLUS A BONUS. PLEASE CONTACT THE SOFTWARE MANAGER HE WILL BE GLAD TO LISTEN TO ANY QUESTIONS YOU MAY HAVE.

## SOFTWARE HOUSES

WE ARE LOOKING FOR THE SELLING OF PROGRAMMES TO DISTRIBUTORS THROUGH THE RANGE OF OUTLETS THROUGHOUT THE UK AND GIVE YOU A VERY FAST SERVICE TO HELP WITH YOUR SALES AND TO MAKE THE MOST OF YOUR PRODUCTS. SEND A SAMPLE COPY OF YOUR PRODUCTS WITH NOTES AND TERMS FOR A FAST ASSESSMENT FROM ME. INFORMATION CONTACT THE SALES MANAGER HE WILL BE GLAD TO HELP AND ASSIST YOU.

## DEALERS AND DISTRIBUTORS

**DEALERS** WE HAVE THE BEST SELLERS FROM THE BEST SUPPLIERS! WE ALSO OFFER VERY GOOD NOTES AND TERMS TO HELP YOU AND US TO ACHIEVE THE BEST SALES AND SERVICE FROM OUR PROGRAMMES. CONTACT THE SALES MANAGER.

**DISTRIBUTORS** WE HAVE TO LIST THE MIRAGE RANGE ON YOUR SHELVES. IF NOT THEN CONTACT THE SALES OFFICE FOR SAMPLES AND RATES.

SALES MANAGER  
T.C. SAPHIER

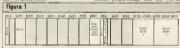
SOFTWARE MANAGER  
C.A. SAPHIER



THE VIC 20's memory map expresses the arrangement of memory as it is seen by — in other words, connected electrically to — the CPU chip which performs most of VIC 20's computing. Generally, this article uses the phrase memory map to refer to the 4000's map. However, note that every chip which can address memory has its own individual memory map. The VIC chip itself has another but complex memory map which is crucial to understanding graphics.

The 4000 can 16-bit addressing and can access 2 K — 40 K RAM memory locations. As already noted, they are conventionally numbered 0 to 65535 (or, in hexadecimal notation, 0 to 0FFFF).

The memory map shown in Figure 1 is divided into 16 equal 4K blocks (4K is 4096 = 4096 bytes, that is 20000 in hex) in a convenient subdivision. Conceptually, each block can be further subdivided into pages of 256 bytes each, with the zero page at 00 0FF (page 1 at 01000 — 01FFF, page 2 at 02000 — 02FFF, and so on). This is important because the 4000 traces page 0 and 1 to special cases.



Here's an explanation of the map: **RAM from 00000 to 001FF (0000)** This 1K block of RAM is necessary to run BASIC and has many functions, described later.

**RAM from 01000 to 01FFF (0004-0004)** BASIC programs have to be stored in a single continuous area of memory, so BASIC is stored here in the unexpanded VIC. The screen is also stored in 312 bytes in this region. The screen memory starts at 01100 in this configuration (unless, of course, in BASIC, has only 4096-012 = 3120 bytes available).

**ROM from 02000 to 040FF (0200-0400)** The VIC character sets are stored here. There are 128 characters in the uppercase — graphics set and 128 characters in lower — uppercase set, moreover, each is duplicated in reverse. Each character definition requires eight bytes (64 bits), so the total amount of memory required for character definitions is 128\*128 = 4096 bytes.

**Input — Output chips occupy a total of 4K bytes.** The VIC chip uses 00000-0000F, VIA 1 uses 01100-0110F, and VIA 2 uses 01200-0120F.

**RAM from 04400 to 047FF (0104-0104)** This is color RAM, determining the color and type of character on the screen. Only the lower four bits of each byte in the area are significant.

**ROM from 0C000 to 0FFFF (0110-0110)** BASIC and the computer's operating system are stored here. The internal ROM holds all the information needed for the computer to interface with the outside world (for instance through the serial and keyboard).

## VIC PROGRAMMING

# The Vic 20's mind at work

An extract from *Reese West's* definitive guide to Programming the Vic, looking at the micro's memory map

One drawback of the unexpanded VIC 20 is its tiny memory. VIC comes with RAM from 0 to 00FF and with 4K of RAM for BASIC from 01000 to 01FFF. Because of this, the unexpanded VIC is sometimes called the 3K VIC. However, when the screen has taken its 312 bytes from BASIC's 4096 bytes, only about 1200 bytes remain.

Memory expansion is essential for serious programming with the VIC 20.

One can use Commodore RAM expansion kits, and generally the area is left unexpanded. It is not uncommon to BASIC and to store (or always an isolated set) separate from BASIC. Some commercial updates have ROM items, installation by 255 40000 is typical. You'll see later how a 3K RAM expansion can be installed to get RAM from, and ML addresses may find this area can extend for storage of programs which they wish to be protected from BASIC.

**RAM-00000-000FF.** This is the most sensitive location for ROM cartridges (about all cartridge games load here). In addition, if the proper bytes are present starting at 00000, programs here will automatically begin to run when the VIC is turned on.

### Reconfigured

As its memory is expanded, the VIC 20 reconfigures itself in several ways. Thus, programs written for the unexpanded VIC may not work when memory is added, even though there is clearly no lack of memory space available. For the moment, attention will focus on the unexpanded VIC, aiming first to examine memory expansion in depth.

It is possible to use BASIC to FREE all locations from 0 to 01000. In a sense, this would provide you with a memory map. It is a useful but relatively meaningless without some further discussion.

However, the VIC cannot be expanded simply by inserting RAM chips into sockets inside the machine. Cartridges have to be used, they are simple to use but do not expose their full capabilities.

There are four primary sections of the memory map, each with particular characteristics.

**0000-00FF.** This 1K space can be occupied by RAM or ROM, RAM is used, and both the 3K RAM expansion and the Super Expander cartridge get RAM here.

```

Program 1

0 0000-000F, 0, 000, 0F, 0, 00, 00, 00, 0, 0, 00, 00, 0, 0
1 0010-001F, 0, 00, 01, 0, 00, 00, 0, 00, 0, 0, 00, 0, 0
2 0020-002F, 0, 00, 02, 0, 00, 00, 0, 00, 0, 0, 00, 0, 0
3 0030-003F, 0, 00, 03, 0, 00, 00, 0, 00, 0, 0, 00, 0, 0
4 0040-004F, 0, 00, 04, 0, 00, 00, 0, 00, 0, 0, 00, 0, 0
IF FOR J=0000-000F:GOTO 0;NEXT

```

BASIC can now occupy its usual 3K. **0000-01FFF.** This large area can be occupied by RAM, ROM, or by a new function of the new Commodore's 3K RAM expansion can be set to occupy any of three blocks. The 3K expansion normally puts RAM from 02000 to 01FFF. BASIC can fill whatever extra RAM follows from 01FFF on. Thus, an 8K expansion set to occupy 0000-01FFF adds 8K for ML or data storage, but doesn't normally add to BASIC's free memory.

**0000-000FF.** This 1K area is the old Program 1, which works with the VIC 20 regardless of memory configuration, shows you the contents of any unexpanded VIC 20's memory up to 128 bytes long. With a job you can select a portion of memory and display its contents in black on top of the screen. See the display to reverse mode by pressing 001FF and the Commodore logo key. This program is a useful investigative tool, worth typing into your VIC and saving for later use. It displays the selected portion of memory 60 times a second, giving you all practical



**Table 1**

Cartridge Only	RAM	BASIC	Bytes Free	Screen Color	RAM Start
Unexpanded VIC-30	\$2000-\$3FFF	\$1000-\$3FFF	2048	None	20480
VIC-30 + 1K	\$2000-\$3FFF	\$0000-\$3FFF	4095	12800	8000
VIC-30 + 16K	\$0000-\$3FFF	\$1000-\$3FFF	11775	81000	20480
VIC-30 + 128K	\$0000-\$3FFF	\$1000-\$3FFF	19647	81000	20480

\*No pack set in \$0000-\$0FFF  
 \*\*No pack set in \$0000-\$0FFF

Note: "Bytes free" = total RAM available by BASIC less BASIC screen bytes less 1 zero byte at the very start of BASIC.

language routines can be stored in the lower portion of the stack, if you do not use a safe starting location is \$0040.

We'll move on now to look at the expanded VIC-30.

The BASIC memory maps for the one-packet VIC and for the VIC with 1K, 16K and 128K expansions, are shown in Figure 3.

It is helpful to look at the programming sets of these expanders before seeing what can be done with simple hardware modifications. RAM expander capabilities are listed in Table 1. They show start and end of RAM, start and end of BASIC program storage bytes free, the start of the screen, and the start of color RAM. Color RAM position is related to screen position.

**Expander**

Note that a 1K expander, if used together with another expander, is not used by BASIC (although it can be used to store machine language or data). This is the fact the VIC-30 can do, since its chip design prevents it from pulling the screen below location \$1000. Thus, the smallest main memory length of the BASIC program storage area is from \$1000 to \$7FFF, about 28,000 bytes. Also note that the Super Expander cartridge includes an additional 1K built-in RAM which extends the low part of memory, so a 1K expander used with the Super Expander adds nothing new.

These are the most useful combinations for BASIC. The last two configurations represent fully expanded VIC-30s. The version which includes the 16K expander can store more machine language routines or other data, but the gain is less of profit as for BASIC except in unusual situations requires a short BASIC program with a large number of variables.

The combination in the table isn't exhaustive, because one or more 1K expanders can be switched to create an area of RAM which is separate from the rest of RAM. Now that 1K and 16K expanders don't have this flexibility unless they're modified (for example an 16K expander set to start at \$1000 with 1K to an expanded VIC-30's BASIC storage area, but the same expander set to start at \$4000 is able resident of BASIC and never occupied by it is therefore susceptible for a RAM expander at \$4000 to be bonded with a program from a ROM cartridge, which it can then run. Alternatively, VIC-30 can

be used to write ML programs direct into RAM at \$4000, although the contents of the area cannot be directly saved to tape.

If you are using BASIC and machine language, it is useful to have reserved RAM unaffected by BASIC, either as a 1K expander with other expansion or as an 16K expander set, tied to when RAM is a disconnected block.

In practice, strange things may occur when you are a fully expanded VIC, because it is easy to forget that a certain RAM or ROM device is on. For example, programs written for the unexpanded VIC often will not run on expanded VICs, as some expansion memory may need to be turned off and the setup must read before those programs can be run.

Generally, any program written in VIC BASIC can run on any VIC-30 with enough memory. But a crisis happens when a VIC user runs a program unless its memory is reconfigured, because some elements such as BASIC's starting address is in the wrong place. Some tape games, for example, are labelled "No RAM Expansion Necessary" when a more accurate description would be

a differently expanded VIC.

There are two distinct problems here. The first is that the VIC-30 may have expansion fitted so that a program won't run, even though the total memory includes, as a subset, what is needed to run the program. The extra memory has caused the difficulty, for example, the screen may be in the wrong place. Utility programs which monitor when the computer is turned on can also check the size of state transition with memory to solve the problem unless the extra RAM must be disabled or the VIC must be deprogrammed by software.

**Downgrading**

In the second case, a program written for a 1K expanded VIC may run on one with 16K or 128K expansion, or vice versa. Again, the memory is exactly one different position from what is stored. In such cases you could acquire a 1K expander also state, software reconfiguration is worth a try.

Program 3.2 reconfigures the VIC in one of five ways. Downgrading is generally successful, but reconfiguring 16K or 128K expansion to run programs written for 1K expansion is problematical, as the program is simply stored at a different area. For example, BASIC FORMS data locations 30 and 31 which sit the top of BASIC, must be removed.

The three most routines are each useful under different conditions.

Normal use is through executing the STS-6600.

Users which preserve unexpanded BASIC STS-644-0.

Users which require RAM at \$4000 (for example, Super Expander), please consult full memory expansion (VIC-30, 128K STS-6601).

Program 3.2 shows state of the features

**Program 2**

```

# PRINT "1. UNEXPANDED VIC"; PRINT "3. VIC+16K"
1 PRINT "3. VIC+16K";PRINT "4. VIC+128K"
2 PRINT "5. TEST 1K OR 16K PAGE";INPUT Y
3 FOR J=3 TO 5:READ B;Y;B:NEXT Y
4 POKE 843,B;POKE 842,B;POKE 843,B;POKE 844,B;REM
  [SPACE]BASIC
5 POKE=48,B;REM START OF SCREEN
7 FOR 84810;REM RESET BASIC WITHOUT TESTING RAM

# DATA 16,16,36,4,36,36;REM DATA BELOW START OF RAM
  30
9 DATA 16,84,18,36,96,18;TOP OF BASIC
10 DATA 33,84,36;REM SCREEN START
  
```

**"Will Not Work With Expansion"**

The problem arises because such programs require that one particular configuration is in use, without allowing for possible differences. Often the programmer has not understood that there could be a problem. Any program which FORMS characters to the screen, changes some of the pointers to BASIC, stores its own graphics characters in some fixed locations, or relies on the use of supposedly fixed locations within BASIC RAM is liable not to run in

of VIC's power an expansion, except the search for its own state variables and for the limits of RAM, which are FORMS is needed. ■

Future West's most Programming the PIC is published by Level 1 Ltd of £20 00, and can be obtained from Wilton, The Guild, Partridge Green, Horsham, Sussex.



# Going to the top of the class?

*Teacher Phil Bauer puts educational software to the test, and finds that some programmers just haven't done their homework.*

THESE DAYS it is doubtful that the majority of home computers are being primarily for games playing. There is rapidly little doubt that to test a computer early for playing games is like using a 26.8 study to check eggs. A home computer is an immensely powerful tool which, particularly in terms of speed, sound and graphics, can perform many functions better than a human being.

## Suspicious

When microcomputers first began to appear in offices, businesses and schools, there were many people, including teachers, who were deeply suspicious of them. Some people still are! They are wrong, but equally wrong are the enthusiasts who see the computer as the be-all and end-all. A computer cannot replace a caring parent or teacher any more than it can do away with the need for office staff. It will not go swimming, it will not dry tears and it will not cook a meal. By the same token it will not, by itself, teach geography or painting, nor depict good standards of behaviour.

So what place does the computer have in education? The teaching of Computer Studies, as an academic subject in its own right, is regarded as dubious, an education value that the skills of programming and logic are not made in themselves. Indeed, computers are being used now in all types of classrooms — with all subjects and all groups — so schools are what means they have available, at a time of education cuts, to accept together the necessary money.

The computer, together with commercial or privately produced software, is a very potent teaching aid. It can be used with a whole class, provided a large enough

classroom is available, but most often it is used with individuals or small groups of children. It is useful in remedying specific difficulties, providing practice or, more effectively, harnessing its graphic and sound capabilities to provide a new perspective on old subject-matter. It is probably at its most valuable when it corrects an element of low age learning tasks, when the pupil learns without realising that he or she is doing so.



The errors can also perform these functions in the home, but it is here that dangers loom. There is a strong temptation to parents to believe that a computer will teach their two-year-old child to read, or will turn their fifteen-year-old into a futurist.

Parents, merely by being set on guard of the screen. In fact, it is often argued that premature damage can be caused by trying to teach a child to read too early, or by using methods which conflict with those used at school.

It is with younger children that these dangers are most apparent. For example, an computer can, by itself, teach a child to read. When it can do it reinforces the numerous amount of background work, which should be provided by parents, in the way of marking shapes, colours and sounds, describing pictures, interacting by with itself, with each hand, and so on. Some software packages provide good alternatives and guidelines for parents, such as the excellent *Words and Pictures* program from Chalksoft, but when others do it really lacking. It is most important for parents to realize that, except in the more costly games type programs, they active participation is essential. The younger the child, the more important this becomes. So with a reading game, like Microsoft's *Course with Oliver*, the child should be provided with keys or words to count and score above, as well as those appearing on the screen. Little will be gained by displaying long letters in front of the keyboard and leaving him to go on with a 'With older children, the adult participation is still essential, but less crucial.

## Pitfalls

The other major pitfall, which hinders parents and teachers alike, is knowing which software is worth buying. There are four main questions which you should ask yourself before investing in what may be a rather expensive program.



It does it teach anything worth knowing?

It does it do anything which could not be done equally well by a book or by a responsible adult?

It does it provide enjoyment, or is it merely staid and unenjoying?

It does it use the computer's powers of graphics, sound and almost infinite recall?

An enormous amount of educational software is available for the BBC Micro, mainly because of its Government support amongst its schools, and it is rapidly being considered for use with the Commodore 64. Much of it is available for sale to schools.

#### Specialists

The problem of choosing suitable programs is made worse by the fact that most of them are not easily available, except by mail-order, so cannot be tested before buying. Although some of the software produced by the private houses is good, it is a pity to waste, in these crucial stages, to seek to the major specialists in educational software, like Childsoft, Mirrosoft and Commodore itself, or to software produced by the large publishers. For example Penguin, Longman and Collins. Such companies have their reputation to consider and, generally, do not collect rubbish.

Childsoft claims that its *Flashcards and Spelling* program is suitable for children from eight-year-old. The program shows printed letters on the screen, then asks them to write words. With some words a picture appears, with

them cleverly associated. No encouragement is included. There is a facility to add extra words and to practice spelling. An infrequent handwriting, when I tried to try the package, was quite startling. The text it could be of some use with early readers, but suffered a few obvious omissions by superfluous letters, for not providing enough pictures and for limiting its words to seven letters.

Childsoft's "Words and Pictures", on the other hand, does much better. It provides a choice of four pictures for each word, and the user has to match the word, or a simple sentence, to the correct picture. A jumping frog rewards correct answers and, after ten questions, performs a well-known children's song, with animations. With the program comes a very helpful guidebook for parents. This is certainly one of the best programs reviewed.



"Count with Oliver", from Mirrosoft consists of two counting games. There is no guidance for parents on the game. The objectives are excellent. The child is required to count various ropes and colours of toys and balloons which appear in a shop window, and, in the more advanced game, to perform simple addition and subtraction. Coloured pictures and clear characters are used throughout, prompts are provided when required, and the difficulty of the answers is carefully graduated. A very good package, but one which calls for considerable back up work from an adult.

Also from Mirrosoft comes "Look Sharp", a package of two sets of memory games written by a teacher, whose experience shows clearly. "Look Sharp" is aimed at 4-5 year olds and uses several pictures in games of snap, of finding the odd-one-out of three pictures and reconstructing a scene which is depicted on the screen. The second program, "B.C.B.Y." contains three games to develop observation and memory in children over seven, using a space travel theme. The games are fascinating and in one I found them surprising and challenging for children and adults alike — an excellent test of concentration. In all it is a first rate package, and one of the few which could be of benefit to young children with little experience.

"Caesar's Travels", again from Mirrosoft, is a fine example of a type of





game, which is being incorporated in game, clearly effective. A translation, or adventure game scenario is used, in which the child tries to make decisions based on the clues of a character cast, from MacFarland's comic game. Clues of scenes are scattered over the business items, for which a clear picture is provided. As various items the game uses shape and colour recognition, left and right, simple counting and word solving, as well as providing an excellent reading exercise. Answered graphics and sound are used to great advantage throughout. It is excellent for children from those to adult ages, but with the younger and of the age range as you would be limited. An interactive game story book is provided with the tape, and the entire product is first class.

In contrast are two packages from Shards Software: *Fun To Learn* and *Musical Maths*. Both are intended for children of junior school age, and each provides a range of simple programs. *Fun To Learn* contains a range of simple games, a counting game, an addition game, an addition exercise, a type of space tangram, and a simple letter code. *Musical Maths* contains the use of graphics in pairs and the games are being. *Musical Maths* uses contains five exercises, the same is needed otherwise. In each case of these are graphics used effectively, and the others are really useful. It is more programmers realized that providing excellent and in multiplications tables is of little value.

### Punctuation

At the other end of the scale, *Punctuation* uses the computer to produce software. Published by Hill Macintosh, it is intended for the 7-13 age range, but could also be of great value to older children who have difficulties with punctuation. The user starts with an animated spirit, along lines of text, and sees him to put him punctuation in the appropriate places. If it is done wrongly, the spirit shows where alternatives are needed, and finally corrects it himself if necessary. There is no real range of passages provided to produce levels of difficulty. The only criticism I could level is that the program is rather costly about using common before punctuation, but otherwise I recommend it highly. As it houses the other side of the tape across a double of

which linked to the three of them, and language and simple games, which use these words. All in all it is a fine first piece of software.

Quite the worst piece of software I have seen is *World Geography* from a company having the money to call itself Superior Software. At first it looks impressive, placing a high resolution map of the world on screen, but all it does is to ask for capital cities and populations of various countries, some of them more obscure. It has a tendency to crash, it allows you to cheat by accepting any non-alphabetic key as a correct solution, and it does not tell you the right answer if you get it wrong. Worst of all, there is little value, educationally, in knowing capitals and populations anyway! Yet the program is being advertised widely, and no doubt many parents will be lured into buying it, and so their program is *W. Geography*, which is in the same vein.

### Vocabulary

*The Grammar Master* and *The French Master*, from Eloquent Software, are examples of well-written programs which, nevertheless, fail to exploit the power of the computer. They are vocabulary testing programs, for use with 11-14 year olds, which are quite good for its marking which could not be done as well without a computer, and there had to store for different shades of meaning. For example, the German word "ausziehen" means "additional" or "extra" yet the program will not accept "additional" as a valid translation. Sound and graphics are not used at all.



The best CD-ROM software I have found in the series of Eloquent's plans from Program Study of Software. These are databases which provide the user with references to themes which occur in the plan, and post questions which ought to be considered. They will also provide cross-references to, for example, it is possible to use the *Julius Caesar* tape to find references linking "Caesar" with "Aurthur" or "Act 1". The program would be used of the writing essays, for examination or revision, and also as a source of ideas for teachers. I asked a specialist English teacher to try *Julius Caesar* and *The Merchant of Venice* and she was most enthusiastic.

Longman's is a highly respected publisher of school textbooks which has released a range of CD-ROM interactive programs for the Commodore 64. It looked at three of them, in *Mathematics*, *Chemistry*, and *Computer Studies*. All of them are quite good although, of course, they are unable to cover the whole syllabus in a single tape. Each provides some useful test topics which pupils find difficult, and the treatment given is sensible and thorough. To my mind, the *Mathematics* tape is the poorest of those I saw, as that the two better presentations is easily, and it sports the most difficult aspects of transcendental geometry. Nevertheless it is quite sound, and carries on parts.



The *Computer Studies* package is particularly good, with *Chemistry* not far behind. All of them would be useful for CD-ROM students, though of less use for CSE. The tapes also include databases, listing topics for revision which are not otherwise covered. These are very comprehensive, but the pupil's own notes would probably be much better.

### Mathsroom

With over two hundred educational packages on the market already, it is impossible to review them all. What I have tried to do is to cover as wide a range as possible, in terms of subjects and the age groups for which they are intended, and I have used the views of other teachers and pupils extensively. With the current rush towards such software, it is inevitable that some of it should be poor or ineffective. I hope it has provided readers with help in making their programs, so they will be able to see their judgment, and spend their money wisely. ■

# UPPER GUMTREE

*You will be!*



*What's all about? Don't ask us! Ask your local gumtree shop!*

## Ride of the

## Valkyrie



*Secret agent Barbara Conway forsakes the lands of magic for the seamy world of conspiracy and kippers*

ORIGINAL adventure plots are at a premium and the team at Random's *Valkyrie II*, although fairly reminiscent of some of "B" movie storylines, has more originality than most plus the magic ingredients of a sense of the unknown. Let's face it, top adventure packages based on the cryptic message "the Red Kipper lies at midnight" has to have at least some sense of humor.

#### Background

The plot, or least the part you're allowed to know at the start, is based on events at the end of World War II when you, the player, were at Alford near April Wood, years later, it seems that the top secret "Valkyrie II" project has been revived by Nazi sympathizer's agent Sir world domination. One agent has already been killed plus media leaks on the tape thoughtfully gave you his last telephone message plus the sheet which strongly hints at said side of's up to you to take up the trail from the Glass Hotel overlooking beautiful Lake Nyssen and save the world from the mysterious upper world.

I warn you, James Bond would probably drop over this one. Your first problem is to get OUT of the Hotel where the staff, with the exception of a friendly maid, would make Don Peabody's establishment look like a haven of peace and welcome

Before starting, however, there are a number of items you must pick up whilst dodging the manager and his minions demands for the bill to be paid. You can't do that (don't try fighting with him, though he's a deadly toxic blue-bell) since you have no money and an eccentric one transaction doesn't lend him for a second. Except it's possible, however, and once you've crossed that problem your trouble really begins. In my first few trips to the town and surrounding area I was killed three times some of the reasons are really terrible and the same bit isn't a lot better at my desperate search for the elusive Drakenmaler who I think is the key to the problem.

The Valkyrie scenario spreads a green deal water than the somewhat cloudy of Lake Nyssen and you may find yourself covering frequently to the class on the same tape as well as as the highly confusing dossier (complete with special "Valkyrie II" badge) with the program. There are sound effects (lowering the plot at the hotel at 8:00 in the class can get you different messages) and many locations have graphics which may change according to your actions. A general early reluctance to get some equipment, yields the appropriately altered picture.

The authors seem solving the mystery yet but I'm having a bit of fun trying. The team

to Lundmann has been a bit of a disappointment (only he Helsinki fooled me after all) but I have high hopes of the series Red Kipper or red kippers, Valkyrie's good value.

The latest offering from Melbourne House is *Castle of Terror*, a variation on the well worn "escape" theme. As it usual from this source the program will accept complex multiple instructions as well as the standard observations and much evidence has been paid on the graphics which are described in publicity sheets as being "animated characters".

#### Mysterious

There are first, detailed graphics for all locations, some of them containing an element of animation such as the fieldworkers or the doctors in the village pub which is where you leave the purport of your quest. During a gloomy old man's post first you're got to earn the money first you learn that his daughter has vanished mysteriously and then the police of the and other, local evils is believed to be the nearby spooky castle.

With accompanying music, which switches between two themes, you approach the castle after a thorough exploration of the neighborhood (including a quest, and a minor, investigation of the local graveyard



Everything about the castle, including its entrance, is generally lethal to don't per your tapes (I've just given you a cheat on getting in easily).

It's a good professional effort, as you'd expect from Melbourne House, but although some of the graphics are superb, it definitely falls a bit on the graphics side. It's not as exciting as *Kingstool* and, at least in my review copy, there were some unfortunate bugs such as the omission of any text, an graphics or text, that the final screens was present at our location.

#### Gothic

Despite a superficial similarity of name, *Tower of Goth* from Games Workshop is a very different proposition. This is a Tolkien-esque fantasy adventure in which the player is the only hope of the world against an evil, magical character known as Malcor or the Screaming Shadow. This is not only a game with a relatively simple instruction manual, but a great deal of thought has obviously gone into preparing responses for all likely commonly encountered in game situations. There is talk to everyone he they drop or choose not to travel. One need to talk to Malcor's winged druids, though, and keep a sharp eye out for helpful items. It's not an all time gem, but it does have some rather appealing, and the screen lay-out, with a serif type script, is really nice.

**Final Word:** From Games Workshop, is a game to find a baby which has been caught trapped your spirit, windows! As suggested by the title, you need an intense



temperament, some of whom are potentially dangerous, as you go in search of the missing child. None of the puzzles should stump experienced adventurers (the wild bull demon is a bit of a pain on that — and we all know what to look for, don't we!) but it's a serviceable package with some graphics for the adventur. A bit slow for my taste.

I've been trying my hand at some of the other strategy games from Addison Wesley, but I can't repeat my brilliant success with that company's campaign game (see monthly). My attempts at *Intervention* in Military Camp have been crushed with consequences due to my naive, playing

the tactical General Xerox, and my performance as Admiral of the Fleet in *Starbuckler* (only 30th century naval tactics) was fairly well. For the more complex strategical there are good detailed manuals with well-planned graphics. ■

If you are having problems with a Commodore adventure program, write to: Software Company c/o Commodore Electronics, 12/13 Little Newport Street, London, WC2E 9PP, and she will look at the most common problems in *Three of Adventures*.

## For work or play Voltmace has the answer!



**for play:** The Delta 3sc (perfect for children) is the most sophisticated user. A lightweight unit designed to be hand held and operated by the fingertips of the other hand. The rotary slide switches control are designed to resist pressure on the opposite end of the buttons (choice of three), have been tested for millions of operations.

**for work:** The Datapad 16c — a sixteen-key full-hold keypad for the Commodore 64 — simply slots into the two control ports. Complete with a cassette program to define five-key characters. In operation jump on the shift lock to access keypad.

DATAPAD 16c £29.95  
DELTA 3sc ADVANCE £8.95  
Prices include VAT and P&P

Send cheques or PO to:  
**Voltmace Limited**  
Park Drive  
Bathwick  
Bristol  
BA2 7BN

## Voltmace datapad 16c & delta 3sc

Collect your order from the factory—Monday to Friday

Dealer terms available

Telephone (0452) 894410

# Sounds and strings on the C16

Continuing last month's extract from the Commodore 16-Plus/4 Companion by Brian Lloyd — this month, music and more command routines

It is time we explored your computer's sound capabilities. Your computer has three different "voices", and you can use any two of these together. This means that you could have one voice playing a tune and another voice playing the rhythm. Two of the voices produce tones and the other produces white noise (this is useful for explosions and gun shots).

However, before we can produce any sound we have to set up the volume level. To do this we use the VOL command, together with a number from 0 to 8 (8 is maximum volume, 0 is minimum, as off). It is best to set the volume to maximum, as type in VOL8.

Now all we have to do is to choose a voice and a note and decide how long to play it for. For instance, if we wanted to play the note C on voice one for three seconds then we would type the command SOUND 1,100,180.

The number 1 tells the computer that we want to use voice one, the number 100 tells it that we want to play the note C in the third octave, and the number 180 tells the computer that we want the note to last 3 seconds (the length of the note is in units of a second).

Try changing the 1 of the SOUND command to a 2 and then a 3 to see what the different voices sound like.

As I said before, it is possible to have two voices playing at once. You can either have voices 1 and 2 playing together, or voices 1 and 3. If you type this line you will hear a note being played over the top of "white noise".

SOUND 1,100,180 SOUND 2,100,180

The SOUND command can be used to play notes and to create effects.

The computer can continue to carry out other tasks while making a sound, so you may have a game playing in the background while something else is happening.

The note table shows four octaves, but always read this as two octaves. The frequency of the note is given for reference only. The values shown for each note are the ones which you should use as the second number after the SOUND command. For example, to play the note C (third note down) for half a second you would use the command SOUND 1,175,60.

NOTE	FREQUENCY (Hz)	VALUE
A	440	11
B	494	12
C	523	13
D	588	14
E	659	15
F	734	16
G	793	17
A	880	18
B	970	19
C	1047	20
D	1136	21
E	1235	22
F	1345	23
G	1468	24
A	1600	25
B	1748	26
C	1911	27
D	2090	28
E	2285	29
F	2497	30
G	2728	31
A	2978	32
B	3248	33
C	3539	34
D	3852	35
E	4188	36
F	4548	37
G	4933	38
A	5345	39
B	5785	40
C	6254	41
D	6754	42
E	7286	43
F	7851	44
G	8450	45
A	9084	46
B	9754	47
C	10461	48
D	11206	49
E	12000	50
F	12843	51
G	13736	52
A	14680	53
B	15675	54
C	16722	55
D	17832	56
E	19005	57
F	20242	58
G	21544	59
A	22912	60
B	24347	61
C	25850	62
D	27422	63
E	29064	64
F	30777	65
G	32562	66
A	34420	67
B	36352	68
C	38360	69
D	40444	70
E	42606	71
F	44847	72
G	47168	73
A	49570	74
B	52054	75
C	54622	76
D	57275	77
E	60014	78
F	62840	79
G	65754	80
A	68757	81
B	71850	82
C	75034	83
D	78309	84
E	81676	85
F	85136	86
G	88689	87
A	92336	88
B	96078	89
C	100016	90
D	104151	91
E	108484	92
F	113016	93
G	117748	94
A	122682	95
B	127818	96
C	133157	97
D	138700	98
E	144458	99
F	150432	100
G	156633	101
A	163062	102
B	169720	103
C	176608	104
D	183727	105
E	191078	106
F	198662	107
G	206480	108
A	214533	109
B	222822	110
C	231348	111
D	240112	112
E	249115	113
F	258358	114
G	267842	115
A	277567	116
B	287535	117
C	297747	118
D	308204	119
E	318907	120
F	329857	121
G	341055	122
A	352502	123
B	364200	124
C	376149	125
D	388350	126
E	400804	127
F	413512	128
G	426476	129
A	439697	130
B	453176	131
C	466914	132
D	480912	133
E	495171	134
F	509692	135
G	524475	136
A	539520	137
B	554838	138
C	570430	139
D	586297	140
E	602440	141
F	618860	142
G	635558	143
A	652535	144
B	669792	145
C	687330	146
D	705149	147
E	723250	148
F	741643	149
G	760328	150
A	779306	151
B	798578	152
C	818145	153
D	838008	154
E	858168	155
F	878625	156
G	899380	157
A	920443	158
B	941815	159
C	963497	160
D	985490	161
E	1007795	162
F	1030412	163
G	1053342	164
A	1076585	165
B	1100142	166
C	1124014	167
D	1148201	168
E	1172704	169
F	1197523	170
G	1222658	171
A	1248109	172
B	1273876	173
C	1300059	174
D	1326558	175
E	1353373	176
F	1380504	177
G	1407951	178
A	1435714	179
B	1463793	180
C	1492188	181
D	1520899	182
E	1549926	183
F	1579269	184
G	1608928	185
A	1638903	186
B	1669194	187
C	1700001	188
D	1731224	189
E	1762863	190
F	1794918	191
G	1827389	192
A	1860276	193
B	1893579	194
C	1927298	195
D	1961433	196
E	1995984	197
F	2030951	198
G	2066334	199
A	2102133	200
B	2138348	201
C	2174979	202
D	2212026	203
E	2249489	204
F	2287368	205
G	2325663	206
A	2364374	207
B	2403501	208
C	2443044	209
D	2483003	210
E	2523378	211
F	2564169	212
G	2605376	213
A	2646999	214
B	2689038	215
C	2731493	216
D	2774364	217
E	2817651	218
F	2861354	219
G	2905473	220
A	2950008	221
B	2994959	222
C	3040326	223
D	3086109	224
E	3132308	225
F	3178923	226
G	3225954	227
A	3273391	228
B	3321244	229
C	3369513	230
D	3418198	231
E	3467299	232
F	3516816	233
G	3566749	234
A	3617098	235
B	3667763	236
C	3718844	237
D	3770341	238
E	3822254	239
F	3874583	240
G	3927328	241
A	3980489	242
B	4034066	243
C	4088059	244
D	4142468	245
E	4197293	246
F	4252534	247
G	4308191	248
A	4364264	249
B	4420753	250
C	4477658	251
D	4534979	252
E	4592716	253
F	4650869	254
G	4709438	255
A	4768423	256
B	4827824	257
C	4887641	258
D	4947874	259
E	5008523	260
F	5069588	261
G	5131069	262
A	5192966	263
B	5255279	264
C	5318008	265
D	5381153	266
E	5444714	267
F	5508691	268
G	5573084	269
A	5637893	270
B	5703118	271
C	5768759	272
D	5834816	273
E	5901289	274
F	5968178	275
G	6035483	276
A	6103204	277
B	6171341	278
C	6240094	279
D	6309363	280
E	6379148	281
F	6449449	282
G	6520266	283
A	6591599	284
B	6663448	285
C	6735813	286
D	6808694	287
E	6882091	288
F	6956004	289
G	7030433	290
A	7105378	291
B	7180839	292
C	7256816	293
D	7333309	294
E	7410318	295
F	7487843	296
G	7565884	297
A	7644441	298
B	7723514	299
C	7803103	300

You may play a note of nearly any frequency. If you know the frequency of the note which you require then you can calculate the value to be used in the SOUND statement using the formula VALUE = 1024 \* (11000/40 \* FREQUENCY).

In using GOTO and GOSUB you cannot use a variable instead of a list number with these commands. To make up for this, your computer has been supplied with the commands IFR, GATF and IFR GOSUB. These commands will GOTO or GOSUB a list depending on the value of a variable. For instance if the computer executed this line:

```
IFR 22 (M 22 GOTO) 2000, 5000, 4000
```

then it would look at the value number the variable 22 represents and then GOTO one of the following line numbers depending on that value. If the value of 22 is 1 then the computer will GOTO line 2000. If the value is 2 then the computer will GOTO line 5000 and so on.

The IFR GOSUB command works in a

## Doctor Foster

```

10 S=CLER VOL 8 PRINT DOCTOR FOSTER
20 FOR N = 1 TO 36 READ NOTE,LENGTH
30 SOUND I,NOTE,LENGTH
40 NEXT N
50 FOR M = 1 TO 1000 NEXT M
60 RUN
70 DATA 779,60,738,30,834,60,834,30,810,30,834,30,810,30,798,60,
778,30
80 DATA 739,60,738,30,798,30,778,30,738,30,770,60,770,60,770,30,
138,30
90 DATA 779,10,738,30,834,30,880,30,798,30,810,30,834,30,810,30,
134,30
100 DATA 834,30,810,30,798,30,798,30,798,30,880,60,770,30,811,30,
811,60

```

## Telephone

```

10 S=CLER
20 VOL 8
30 FOR M = 1 TO 10
40 FOR N = 1 TO 10 SOUND I,150,1 SOUND I,700,1 NEXT N
50 FOR M = 1 TO 50 NEXT M FOR N = 1 TO 10 SOUND I,150,1
SOUND I,700,1 NEXT N
60 FOR M = 1 TO 1000 NEXT M
70 FOR N = 1 TO 8 SOUND I 80,1 SOUND I,700,1 NEXT N
80 SOUND I,1000,20
90 FOR N = 8 TO STEP - 1 VOL N FOR M = 1 TO 5 NEXT M,N

```

```
10 SCALE
```

```
20 FOR N = 9 TO 13:CHAR 1,7,N,"CONTROL 3 CONTROL 8"  
  * NEXT
```

```
30 DICE = (INT(RND*(20)) + 1) * DICE = 7 THEN GOTO 40
```

```
40 ON DICE GOSUB 60,70,80,90,110,130,150
```

```
50 FOR N = 1 TO 1000: NEXT N
```

```
60 CHAR 1,9,11,"*" CHAR 1,7,14,"* END" RETURN
```

```
70 CHAR 1,8,18,"*" CHAR 1,20,12,"**"
```

```
80 CHAR 1,17,14,"** TWO" RETURN
```

```
90 CHAR 1,8,18,"*" CHAR 1,9,11,"*" CHAR 1,20,12,"**"
```

```
100 CHAR 1,17,14,"THREE" RETURN
```

```
110 CHAR 1,18,18,"***" CHAR 1,15,12,"***"
```

```
120 CHAR 1,17,14,"FOUR" RETURN
```

```
130 CHAR 1,18,18,"***" CHAR 1,19,11,"*" CHAR 1,18,12,"***"
```

```
140 CHAR 1,17,14,"FIVE" RETURN
```

```
150 CHAR 1,18,18,"***" CHAR 1,19,11,"***" CHAR 1,18,12,"***"
```

```
160 CHAR 1,17,14,"SIX" RETURN
```

steadily the same way as the GOTO command, except that it GOSUB to a SUB routine which should end with a RETURN statement as with a normal GOSUB command.

Program Four simulates a die and uses the GOTO command.

When you see the square brackets in Line 20, the character that was should change the row colour to purple and send it (over) to be processed CONTROL 3 then CONTROL 8.

The program works in this way:

**Line 10** Clear the screen.

**Line 20** Change the text colour to purple and print a solid block 3 bars deep and 4 characters wide, with the first block in the character square 17 across and 9 characters down.

**Line 30** Choose a random number between 0 and 6, multiply it by six and round it up before adding one to the result. Assign the final number to the variable DICE. If the value of the variable DICE is one then start at the line again, increasing a counter number between 1 and 6 then adding 1 and counting down makes a possible that a six will come up. The computer very rarely achieves the highest number possible when choosing a random number and therefore DICE=6 is almost always less than seven.

**Line 40** If the value of the variable DICE = 1 THEN GOTO the sub-routine starting at line 60. If the value of DICE = 2 THEN GOTO the sub-routine starting at line 70. If the value of DICE = 3 THEN GOTO the sub-routine starting at line 80 and so on.

**Line 60** Empty FOR...NEXT loop—creates a delay, before re-starting the program.

**Line 60** Display a single star at the character square 19 across, and 10 down then display the average CPU% with the 0 on the 17th column across, and the 100% row down before returning to the command immediately after the GOSUB command which jumped to this routine.

**Line 70** Display a single star at the character square 18 across and 18 down, then display together star at the character

square which is 20 across and 12 down.

**Line 80** Display the message TWO with the T on the 17th column across and 14th row down.

All bars after line 80 are similar to 60 — they just display various numbers of stars.

If you are typing in a program from a book, or a magazine then it can become very boring having to type long numbers, especially if the lines are numbered every 10 or 20 lines and so on. In order to speed

up the entry of the code of the program (a device known as a **LINE** key without typing anything), for instance, if you have finished your program at line 150 and the computer displays the next line number 150 and waits for you to type in some more of your program you should just press RETURN without typing anything else.

In some circumstances you may need to reset all the variables in the middle of a program. The easiest way to do this is to use the CLR command. The program won't stop stopped or altered in any way.

The CLR command is started just automatically when you enter a program key, in BASIC programs.

It is often useful to be able to find out the CHR\$ code for a character. Fortunately for us, your computer has a command which allows us to find out the CHR\$ code for any character we have to go to look it up in a table. The command is ASC.

If you type

```
PRINT ASC("A")
```

You will see the number 65 appear on the screen. 65 is the CHR\$ code for the A symbol. You can find the CHR\$ code for any character like this, all you have to do is enclose the character in quotation marks, and enclose them in brackets, as in the short example.

The VAL command is a function which returns the value of a string variable. For instance, if the string variable PFE had previously been set to 911 then the command

```
V = VAL(PFE)
```

would change the number 911 to the variable V.

If there is a combination of letters and numbers in the string variable then one of two things will happen. If the string starts with a number then the value returned by the VAL command will be the value of that number. For example VAL ("A17") would return the value 17.

STR\$ is the opposite to VAL, for the function converts a number to a string. For instance, if you had a line such as this

```
100 AS = STR$(666)
```

then the string variable AS would be assigned the characters 666.

The STR\$ command will always add a space before the number at the start of the string variable in which the characters are to be stored. For instance if you entered the program

```
10 %VAL%LE AS = STR$(1004)
```

```
20 PRINT AS: PRINT LEN(AS)
```

```
30 AS = RIGHT$(AS,2)
```

```
40 PRINT AS: PRINT LEN(AS)
```

You will see that a space has been added before the number when it was stored in the string variable AS. Line 30 effectively removes this space, and when the string is displayed a second one along with the number of characters in that string, you will see that the space has been removed. ■

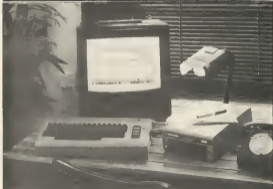


up the entry of such programs, a lot can be made if you, before, your computer has been equipped with an ALTCharacter line number command. If you type in

AUTO 20  
and then start typing in a short program you will see that as soon as you have entered RETURN at the end of the first line, the next line number will appear for you automatically.

The number after the AUTO command tells the computer how much each line number is increased by, so if you type AUTO 50 the computer will number the lines 50, 100, 150 and so on.

**The Comprehensive M-Plex'n Companion** by Brian Lloyd is published by Southon Books at 10-11, from Bookshops or by mail order.



## A two-way affair — micro to micro

*Brien Lloyd introduces another form of micro communications — the privately operated bulletin boards which are growing in popularity*

If you ARE the sort of person who believes that there must be more to life than simply playing games, then the world of public communications may be of interest to you. When you enter the field of public communications, you are trying to do more than just talk your mind to someone else with other devices.

### Bulletins

One of the best ways to start is to connect one of the many bulletin board services that are springing up around the country. However, before we look at what we need to access the bulletin board services, a few words of advice would not go amiss. Nearly all bulletin boards are run by private individuals who give up a tremendous amount of their free time and, I suspect, a lot of money to provide a free service for you and I. So please do not abuse the system: whenever the next time you call in, up you may not get an answer. Always log on with good people intent and if you are

asked for other details about yourself, always tell the truth.

Before we can discuss a bulletin board, we need to have (1) a telephone modem, (2) a suitable MS-DOS interface, (3) software so that the micro can communicate with another through the MS-DOS ports. I use a Teledisk II modem together with the Xmodem software that is available free on most bulletin boards.

This program allows you to upload as well as download software from the bulletin boards. The upload part of the program is quite important, as all bulletin boards are essentially a one-way affair with you hopefully contributing your bit to the service. Most bulletin boards run at 300/300 baud but despite a little growing number are using the Protocol board rate of 1200/75. If you read last month's article on modems for the Commodore 64, you should have a fair idea on what modems to buy. However, if you are hand-

ling a soldering iron you do not have to buy an expensive modem and interface. Modems and a modem and MS-DOS interface can be had for about sixty pounds, and with a couple of programs (including I) you are on your way.

Having purchased all the above, what do you get for the money? As I mentioned earlier, exploring the various bulletin boards is like going on an adventure with every new board you discover offering something new. I will not go any further as to what each bulletin board offers as that would spoil some of the fun, so I will confine myself to what they all provide.

### Mailbox

Nearly all bulletin boards offer a type of mailbox service where you can read and receive messages from other users. There is something that is always freely available should you find yourself with a minor problem. Many boards allow you to place ads or sell their bus and parts. There is

usually software to be downloaded free of charge so that it seems the Zenoderm program will come in handy, but please make a two-way, don't just download software, upload some of these useful programs and routines you have written so well, so that other people can benefit from them.

The one thing you will always find on our bulletin board services is a very friendly, helpful bunch of people. The system operators (except for about six) are always willing to offer free advice to request.

Now you know something of what to expect, let's try one of the boards from List 1 looking at the details they operate.

First check that your computer, modem, data device and so on are connected properly and your modem is set on the correct baud rate (ask the station maintenance booklet) Load the Gamma message program and run a Net across the station by Dialing your chosen number, if you are lucky, and the number is now engaged you should get a shouting sound. Switch your modem on, instead, if all is well, you should be greeted with the board's opening page and perhaps some other items about the system. You will eventually be asked to identify yourself. Answer the prompts with your proper name, as that will be logged on the system will allow you send notes and can be used for leaving messages for you. Having logged-on you will be presented with a screen of what the system offers and how much time you will be allowed on the system.

### Operation

There is actually a date when setting up and you would be well advised to go through the articles and make notes so you go. It would be a good idea to do this on each new board you log, as it could cut down your telephone bill by quite a bit. Please make sure before you telephone, that the board is in operation, all boards do not operate 24 hours a day. You may find that some bulletin boards operate a ring-back system. This means you telephone the board, let

## Listing 1

```

8 REM COMMODORE 64 386/388 BAUD TERMINAL PROGRAM,
50 PORE 53200,800PONE 53200,800PONE&A&A,1
11 WAIT 200,64
12 PRINT CHR$(147)
15 PRINT* TELEPHONE COMPUTER*
17 PRINT* *****
20 OPEN IO,2:0,CHRG(16A1)+CHR$(10)
25 IF PEER(200) < 1 64 THEN 100
30 GET#IO,64
35 IF A$="" THEN GOTO 25
40 IF ASC(A$) > 95 THEN GOTO 25
50 IF A$=CHR$(13) THEN PRINT A$; GOTO 25
60 IF ASC(A$) < 32 THEN GOTO 25
70 PRINT A$; GOTO 25
100 PORE 200,64:GET 00
110 IF $0=CHR$(17) THEN $0=CHR$(10)
120 IF $0=CHR$(19) THEN $0=CHR$(140)
130 PRINT $10,0$;+PONE 200,64:0$="" GOTO 30

```

the telephone ring once and then ring off. You then telephone back again straight away, this time you should hear the shouting sound.

Bulletin board systems are not made size, fairly one person can access it at the time so you will have to be patient if the number is engaged. Don't give up as all bulletin boards are worth looking at and it is usually the most popular ones that are the hardest to get onto.

List 2 is not a full list of all the bulletin boards available as there are many thousands all over the world - it is just a list to get you started. It may be worth checking with your local council or many of them now can their own bulletin board service. If you really get the bug you may like to purchase one of the many books on bulletin boards around the world. If you

want to try the USA, the Computer Telephone Book is worth looking at, especially if you do not have a pay for the telephone calls.

The world of micro communications is really worth looking into so it opens up all sorts of possibilities and after all, if the reports are to be believed, overseas will be using more to communicate with each other before long. Have fun, but please do not abuse the systems and remember the bulletin boards are provided free for all to use.

If you would like a free listing of the Zenoderm program for the Commodore 64 send a large stamped self-addressed envelope (A4) plus 20p P.O. to cover cost of printing to:

B Lloyd, 9 Haverhill Walk, Woking, Surrey GU24 2JL. ■

## Sample bulletin boards

BLANFORD BOARD.....	0250 54494 (300/300 baud)
C. A. B. B.....	01 631 3076 (300/300 and 1200/75 baud)
C. S. B. B.....	0392 53116 (300/300 baud)
CHILDEN, (18, 30-22, 30)	07073 20723 (300/300 baud)
CITY BULLETIN BOARD.....	01 626 4194 (300/300 and 1200/75 baud)
CURBIA (ring back 10.00-22.00).....	049 92314 (300/300 and 1200/75 baud)
C-VIEW.....	0702 546373 (1200/75 baud)
DISTEL (commercial).....	01 679 1060 (300/300 baud)
ESTELL (commercial) 09.00-10.00).....	0279 443511 (300 baud)
HULL-FORUM 00.....	0482 859167 (300/300 baud)
LIVERPOOL MAILBOX 00.....	051 428 8924 (300/300 baud)
LONDON TDS.....	01 340 9400 (300/300 baud)
HAPTEL (aspin).....	0702 552941 (300/300 baud)
H. U. B. B.....	0617 360447 (300/300 and 1200/75 baud)
H. B. B. S. EAST. (22.00-19.00).....	0492 630106 (300/300 baud)

# Tales from the Arabianknights

Graham Taylor takes a magic carpet ride with Macromedia's first CBM 64 programmer, Monica Herrera



YOU'D BET believe the thinking that all computer programmers are males under 30 — it often seems like it. In fact, with the possible exception of adventure games, you might think that computing as a whole was one of the last bastions of male exclusivity.

Monica Herrera is one of the very few female talent computer programmers, and her Macintosh game *Sea Queen* is one of the more interesting and interesting Commodore programs released recently.

Herrera has a Masters Degree in music, and she learns a computer language first, as a necessary tool for composing her music. "I was working on a scheduling project and found I needed to use a computer," she explains.

Learning assembly, Herrera worked with two editors for International Computer Systems and "poked up" 286 machine code. As she explains it, a month ago — there's no hint of labor mobility here, Herrera seems to regard it as no great feat.

Moving to Sierra Elite, her Assembly expertise earned her a job as program designer and project leader, chiefly on Atari programs.

But understanding assembly language and writing computer games are not necessarily synonymous. Who games? I asked Herrera referred to one of the programs which sparked her interest with obvious enthusiasm. "I remember the first thing I ever saw I was sort of out of children's program involving Humpty Dumpty, and was almost like a little mouse."

## Babel

Last January Herrera set up her own company, Dink Software, with another ex-Thorn employee Adrian Wadley. Dink will concentrate on producing games for other computer markets, and doing conversion and development work to sustain. We talked about the thrill of programming in general, and the work on *Sea Queen* in particular.

"The thing that excites me most is getting an idea and gradually turning it into reality through various steps."

"With *Sea Queen*, I was drawing on my

own culture as an Arab. I was brought up with stories of Scheherazade and guests, and it seemed a good idea to use them in a game. You start with the boat, then they put you on three (in Cassia) which you must get into a bottle — that's your starting point, so then there's the question of where does the game start off, and where is the bottle."

"The final version of the game was quite different from some of my original ideas. I had originally thought it might be set in an Arabian setting of the Arabian desert." The game is set on the ocean, and the process of going the three into the bottle extends over four screens. In the first you locate screens on your magic carpet, on the second you search for the magic stone on the third you look for a basket, and release a prisoner, and finally you try to trap the fly.

"From the screen lists, it is a matter of

looking with it and putting it all down as the form of a story board, and like those used for videos. Once I looked right on the story board the various sprites could be designed by drawing the shapes on squared paper. Actually once the storyboard and design were right the coding is relatively quick, except when you have specific problems to overcome like coding the sailing vectors and so on."

## Commercial

On the Commodore 64 as a programming machine, Herrera recognizes that whatever the drawbacks, the capabilities success of the 64 makes it one of the Spectrum vital commercial targets. "Well, since I realized that with the Atari, I had to figure out that a machine like that is still has many more features that help the programmer. Nevertheless the 64 is close to the Atari in many ways, so that you get some sprites — with the Spectrum, for example, there's nothing there to work with — you even have to write your own scrolling routines."

Herrera went into more detail about the way she uses the 64 and the problems she took as a programmer. "Well, eight sprites isn't much, although obviously you can use overlays to give you much more of that. The SID chip is amazingly, very powerful, but you have to work very hard to use it up — sometimes the problems are the values — multibytes made it a problem.

"One thing I do like is the way you can get the hardware support to speed the a, a good use of the sprites — that's very useful. I guess my main complaint is about the software development system — all they really tell you is that something has to be something, what else you really need to know is really what you're told."

Returning to *Sea Queen* as a game, I asked that while since developing the 64 had played recently, it was actually possible



to complete the game and go through all the screens at the easiest level after only a few plays. "Was she unusual?" "Oh yes, definitely. It always made me a point it's possible to do early on, but equally certain that a game probably more and more difficult — to a certain extent that probably reflects US games thinking, which is where most of my work has been done in the past. I recognise that in this country you can get away with things, getting tougher earlier — people have more patience here it seems."

### Boardgames

The Commodore set will feature simply six Hasbro's latest titles. Four programs are planned, one suitable game which the designers as a kind of test, a program designed for advertising purposes — a kind of educational display — and two "board" games. Hasbro is offered to talk about issues plans for reasons which are a mixture of business concern and, well, superstition. "I sometimes think that people's ideas from up here do not and non-other people's head."

"I did persuade her to say a little more about the board games. It's an idea we are talking about at the moment to do some computer versions of some board games that we did well known here, but have unfortunately been very successful — so want to do some things which are more sophisticated than what's been done previously on computers. I'd particularly like to do some things where it isn't all instant response, and you have to think."

With shades of that original Happy Design children's program in mind, Hasbro

*"The thing that excites me most is getting an idea and gradually turning it into reality."*



is also interested in trying to do some educational software. "The problem is that most educational software is so bad. To do something good would need a lot of time and effort."

"I asked if Delek would ever market its own games instead of selling them to other people. "Obviously we would like to, but the financial risk and investment is simply too great at the moment." Nevertheless some of Hasbro's experiences with other business companies have resulted in a host

depts of certain very quickly.

"I have had quite a few bad experiences. programs I've written, have not been sold and properly, and generally the whole kind idea of negotiating contracts is taking up more and more time — these days I want to do my programming in all until the contract is signed — it's just too risky."

Hasbro adds wisely, "What you start a software business you gradually realise there is so much more to it than just programming." ■

# 3D COMPUTERS

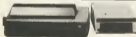
## THE HOME COMPUTER SPECIALISTS

with more branches than any other Computer specialist dealer we offer

**CALL  
STOP  
SHOPPING**  
For you

**3D**

call at your local branch for friendly advice and service



See a complete display of hardware and software to build up your 3D200 system

### SOFTWARE

All the best offers from the top U.K. and U.S.A. software houses, eg

LLAMASOFT  
DATA SOFT  
EPYX  
INFOCOM  
RABBIT  
INTERCEPTOR  
SUPERSOFT  
ON LINE  
ABRASCIO

### PERIPHERALS

DISCS  
PRINTERS  
JOYSTICKS  
MONITORS (B&W/  
COLOUR)  
LIGHT PENS  
CEN CARTRIDGE DISCS

LARGE RANGE OF BOOKS  
DRIFTYDS, CASSETTES &  
PROMOTE PAPERS ALONG PC BY  
STICE

Easy Peeking at all branches

**TOLWORTH**  
250 Tolworth Rise South  
Tolworth, Surbiton  
Surrey KT6 3NS  
Tel: 01 842 4317

**BUTTON**  
20 Station Road  
Repton, Repton  
Leicestershire LE12 8DQ  
Tel: 01 842 2834

**ELAND**  
114 Chesham Avenue  
Ealing, London W5 4BB  
Tel: 01 842 6888

**BECKENHURTH**  
Citygate #1, 2  
New Green, Givvite Green  
Huddersfield  
Herts. HD2 3AJ  
Tel: 0424 770282

**REMBERT**  
28 Starley Road  
Newbury,  
Berks. RG14 2TE  
Tel: 0430 35047

**LUTON**  
1 Manor Road  
Coburgians, Luton  
Beds. LU1 4EE  
Tel: 0562 68876

# The Adman Speech Maker is a real conversation piece!

The Adman **SPEECH MAKER** creates writing programmes with speech made easy on the Commodore 64

The latest synthesiser is pre-programmed not only with 244 set words and sounds, but also the 64 basic parts of English speech known as allophones - which can be used to build up your own limitless vocabulary

The uses for this are endless—in given timed messages, for example, and to add an extra dimension to interactive educational programmes or adventure games

It can also be used in conjunction with widely available programmes from some of the top software companies, such as the **SD** and the **Dear** educational series (CDRM) **Seven Kingdoms Valley** (Bag Bytes), **Jack & the Beanstalk** and **3-D Solitaire Fish** (Thor)



If you want a conversational piece for your Commodore 64 you'll find the Adman **SPEECH MAKER** at most good computer stockists

Or simply order one direct from us at £29.95 with no extra charge for postage and packing!

Dept. C, Adman Electronics Ltd, Ripon Way,  
Hamgate, B. Yorks, YO1 2BD Tel (0423) 740673  
Adman Electronics Ltd is a member of the Adman Group Company PLC

Please send me an Adman 64 speech synthesiser at £29.95

Name \_\_\_\_\_

Address \_\_\_\_\_

Cheques or PO's should be made payable to  
Adman Electronics Ltd, Peterborough  
30 days for delivery

**Adman**  
ELECTRONICS

PEAK/SOFT

The Lords

**CRICKET**

BETTER THAN THE REAL THING!  
Control TV

BRITAIN'S  
NO. 1  
CRICKET  
GAME!

Total joystick  
control over  
ballflight  
3D graphics!  
COM64 £8.95



Swinging  
bat, plus alternate, launch all under total joystick control!  
Batting  
Batteries and bat under total joystick control!  
Pitching  
Pitcher's wiper and fingers under total joystick control!  
Plus  
3 full three-dimensional bowling, swing, pitching and balling rig  
analysis

The greatest cricket game ever for any  
home macro — anything else simply isn't  
cricket!!

Send this for my COM 64 1 enclosed cheque/PO for

Name \_\_\_\_\_  
Address \_\_\_\_\_



COM64 £8.95

Send this coupon to your retailer and with money  
order/cheque/PO for £8.95  
Send to: PEAK/SOFT, Dept. C, Hamgate, Ripon Way, Hamgate, Yorks YO1 2BD  
Name & Club: \_\_\_\_\_  
PEAK/SOFT is a registered trademark of the Adman Group  
© 1985 Adman Electronics Ltd. All rights reserved. All other names may be registered  
trademarks of their respective owners. All other names may be registered trademarks of their  
respective owners.



**PEAK/SOFT**

Check with your retailer  
clip the coupon or phone your  
Access/TV for number  
44 QUEEN STREET, BAURINGTON  
NEWARK, NOTTS  
Tel: 0430 256330 (24 hour answering)





## REWRITE THE HIGH SCORE TABLES

So, you've got a Commodore. You've also got enemies. With the Gunshot, you'll have all the opposition cowering in corners. 8-directional action and an all-in-one moulded stem allows accurate annihilation and strength to survive those all-night sessions. Dual fire buttons for fading fingers (and a rapid fire version when they're really coming thick and fast). And, if you break it (and we know you'll try) our 12-month guarantee will prove invaluable. Only £8.95. The Gunshot plugs directly into the CBM 64 and Vic 20.

Ask about Vulcan interfaces for the C 16 and Plus 4

See the range of Vulcan joysticks and interfaces at your local stockists - we'll see you on the high score tables

  
**VULCAN**  
**ELECTRONICS LTD**  
*Joystick Genius*





# COMMODORE SOFTWARE FILE

## Flight Master

FLIGHT MASTER isn't so much a flight simulator, it's more an interactive movie simulation.

After the title screen you see the runway displayed, and you take off by pressing the up cursor key. If you release it too soon or press the wrong key you will crash.

Once in the air, you must keep the

aircraft level and in the middle of the runway by using the four cursor keys. If you can keep level for long enough you will see the landing runway, and you must then land using the down cursor key.

The program demonstrates the C1x register sound and bit-m graphics commands.

*The first resident program for the C1x comes from David Jencks of London.*

```

10 REM      ## FLIGHT MASTER ##
20 REM      ## DAVID HISCOKE ##
30 TL=150 TR=154 L=7 R=313 A=5 LH="2" D=1 R=152 T=6 D=150 A=155 FL=0
40 COLOR 1:2 COLOR 8:1 COLOR 4:1 VOLT
50 GRAPHIC 2:1
60 BOK 1:8:155:316:0:0
70 ON VRL CLR DOTO 120:200
80 DRW 1:2:7 TO 315:R:18:0 SOUND 3:785:7
90 GET R# IF A#C3="T"THEN 300
100 A#="1+2000000110" IF A#2 OR A#15 THEN 420
110 FL=FL+1 IF FL=50 THEN 500 ELSE200
120 GET B# IF A#C3="T"THEN 400
130 DRW 1:L:150 TO TL:A:R:0 DRW 1:R:150 TO TR:A:R:0 DRW 1:TL:H TO TR:A:R:0
140 IF A#="T"THEN 170
150 SOUND 3:485:5:5
160 IF A#50 THEN 60 ELSE120
170 DRW 0:L:150 TO TL:A:R:0 DRW 0:R:150 TO TR:A:R:0 DRW 0:TL:H TO TR:A:R:0
180 A#="4 TL=TL-2 TR=TR+2
190 SOUND 3:485:5:4 SOUND 3:485:5:2 DOTO160
200 CHR 1:12:4:"FLIGHT-MASTER"
210 SOUND 1:18:200
220 FOR VV=1 TO 2000 NEXT VV
230 CHR 1:18:8:"BY DAVID HISCOKE"
240 FOR VV=1 TO 1000 NEXT VV
250 GRAPHIC 0
260 CHR 1:6:4:"PRESS AND HOLD THE T KEYS" CHR 1:12:8:"BTO CONTINUE"
270 FOR VV=1 TO 10000
280 SOUND 3:1820:5 SOUND 1:20:5
290 GET T# IF T#="T"THEN 300
300 FOR 32=1 TO 100 NEXT 22
310 NEXT VV
320 LH="1" DOTO 50
330 DRW 0:2:7 TO 315:A:18:0
340 SOUND 3:785:0
350 IF A#="B"THEN T=T-10 A=A-10
360 IF A#="P"THEN T=T+10 A=A+10
370 IF A#="0"THEN T=T+10 A=A+10
380 IF A#="T"THEN T=T-10 A=A-10
390 IF A#14 THEN A=A-10 SOUND 1:750:4
400 IF T=140 THEN T=T-10 SOUND 1:750:4
410 IF A#15 OR T#11 THEN 450 ELSE 00
420 DRW 0:2:7 TO 315:A:18:0
430 IF A#2 THEN T=T-10 A=A-10
440 IF A#15 THEN T=T+10 A=A+10 SOUND 3:180:7
450 DOTO 300
460 FOR K=8000 TO 400 STEP-10
470 GRAPHIC 0:0 COLOR 0:3 SOUND 3:K:5
480 GRAPHIC 0:1 COLOR 0:1
490 NEXT K STOP
500 A#="T+4 DRW 0:2:7 TO 315:A:18:0
510 A#T

```







# BEYOND

## CHALLENGING SOFTWARE



THE FIRST EVER  
TWO PLAYER ADVENTURE

All the action of the  
time as two people play  
simultaneously. No waiting  
for turns as you lay your next  
trap to try and outwit your  
opponent. The Black and White  
spies made famous by MAD<sup>®</sup>

Magazine search a variety of foreign  
embassies for the top secret briefcase,  
engaging in hand-to-hand combat, and  
escaping one another through  
different rooms. It's mad-cap  
action against a friend or the  
computer in a different embassy  
layout everytime.



Please send me **SPY vs. SPY**

for my Commodore 64 (\$9.95)  cassette  CITY

Coming done 64 (\$11.95)  disk  TOTAL

Include Postal Order/Check payable to **Beyond** or charge my credit card

CALL TOLL FREE  
8558 3-4567

OR BY MAIL  
85-837 3899

Card Number \_\_\_\_\_  
Access No. (delete not necessary)

Name \_\_\_\_\_

Address \_\_\_\_\_

Postcode \_\_\_\_\_  
Please send me details  
of the **Beyond Club**

This is the SPY vs. SPY adventure created by Beyond P.O. Box 1000  
in Sparks, MD. Full scenarios and user's guide to the 1.1 enhanced edition follow. Use  
BAYCUB Competition Rules. Frontier Road, Market Harborough Leicestershire LE17 9JH

# CHROMASONIC COMPUTER CENTRES

48 Junction Road, Archway, London N19 5RD Tel: 01-283 9703 and 9495  
238 Muswell Hill Broadway, Muswell Hill, London N10 Tel: 01-883 3705

## WELCOME TO THE WORLD OF COMMODORE

Maintenance, Service, Support, Training  
all from your No. 1 Commodore centre

### Commodore 16

#### THE STARTER PACK

Commodore 16 computer  
Cassette unit  
Intro to basic part 1  
Four printers

£139.99

### Commodore 64

#### PROFESSIONAL SYSTEM

Commodore 64 computer  
1041 disk drive  
MP5804 dot matrix printer  
FREE SOFTWARE  
Keyboard (wordprocessor)  
Keyboard (spreadsheet)  
Intro to basic part 1

£599.00

### Printer's

POSBOT	£229.95
POSBOT	£274.95
POX100	£442.75
FX 80	£319.95
FX120	£349.95
DX100	£489.75
LD1 80	£199.95
July 6/100	£389.75
Demoprint 2000	£329.95
Basic 5/101	£229.95
84 Commodore cable	£19.95
Software for above	
(total)	£3.95

### Commodore 64

Commodore 64 computer	£199.95
8004 portable computer	£795.99
15201 cassette unit	£39.19
Screen Saver cassette unit	£29.99
1041G disk drive	£199.95
1680 computer/clock	£99.95
MP5801 dot matrix printer	£199.95
MP5804 dot matrix printer	£299.95
MP5801 colour printer	£399.95
MP51101 daisy wheel	£299.95
1301-G colour monitor	£199.95
200 card	£90.00
Commodore patch/c	£6.90
Quakehat II joystick	£10.90
Commodore patches	£13.90
Memory kit	£5.95
Plinth for 64 system	£24.95
Superfont 64 (v. 100)	£94.95
4/c. joystick	£37.75
CBM4 to IBM interface	£49.95
Bargain professional kit	£12.95
CBM4 to computer kit	£69.95

### Plus 4

#### THE OFFICE AT HOME

Built in software  
Wahlprogramm  
Statistik  
Spezialart  
Business graphics

£299.99

### Commodore 64

#### STARTER PACK

Commodore 64 computer  
Cassette unit  
Intro to basic part 1  
Quakehat II joystick  
Intro to our classes

£255.00

### Monitor's

Commodore 1201	£195.95
Microline 1421AP	£249.75
Philips 12m green	£79.55
64 Pin-top cable	£7.00
Monitor plinth	£11.95



Commodore 64  
guaranteed for 2 years

### Terms

All products guaranteed for 1 year unless otherwise stated  
Payment may be made by Access, Enclosed, Bankers draft, Building Society cheque cash or Postal Order. Bank cheques need 5 days for clearance. We reserve the right to change prices without prior notice. All prices are inclusive of VAT  
Please check before ordering for currency changes

### 64 Software

	new	old		new	old
FlytenFit	£9.95	£19.95	Distances	£19.95	
Game Game	£14.95	£19.95	Run Run Machine	£9.95	
Market	£14.95		Space Search	£9.95	
Pe Storm	£9.95		Staff of Events	£9.95	
4 in One High	£9.95		Swain	£9.95	
Star Wars	£4.95	£19.95	T2	£3.95	
Scrabble	£13.95		Wingshooting	£14.95	
Swain	£13.95		Wizards	£9.95	£14.95
Delta Link	£9.95		Right Sector 1		£92.00
			Tapes	£9.95	

also cassette disk - diskette  
R-100

### Media Supplies

Diskette	
Disk by Packard	
3520 401	£11.99 £299.95 £54.75
3520 401	£19.99 £299.95 £33.75
Includes disk storage from 4080	£19.99 £29.95
Diskette or cassette to floppy of 10	
Computer timing paper	
11475 121 84 704 9	£12.99 11475 121 84 704 9
Photo a card of 6 items of 2800 sheets	
Printer ribbon	
MP1201	£9.95 £299.95 £9.95 £299.95
MP2007	£2.99 £199.95 £2.95 Jul. 01.95

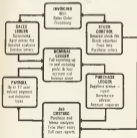


Maintenance, Service, Support, Training, Installation  
all from Chromasonic Business Systems

## The Pegasus System

### STAND ALONE OR FULLY INTEGRATED

Fast, precise accounting power  
right in your fingertips



Please us now to see how Pegasus accounts programs can help you and your business

## Commodore Business Equipment

8288GD 128K Base Graphics	£1845
8288 128K Computer	£795.00
8288001 Single disk drive	£488.00
8288 Dual disk drive	£805.00
4025 Dot matrix printer	£370.00
1567 Dot matrix printer	£240.00
Per. to 8288 cards	£27.00
845 to 855	£31.00

NB - All prices are exclusive of VAT

## Superoffice

### The Ultimate Commodore Office Administration System

The complete office automation system with Full Records Management, Calendar, Word Processing and Spell Checking

## Special Offer

For further details of a very special offer of  
**FREE SOFTWARE**  
WORDPROCESSOR DATABASE  
SPREADSHEET  
with every purchase of a Commodore business system  
**PHONE US NOW**

## Commodore

### 8288D

128K Computer  
single disk drive  
and monitor

Wordprocessor,  
Database Spreadsheet  
and  
DOT MATRIX PRINTER

£1690.00 (incl. VAT)



# CHROMASONIC

# PERSONAL COMPUTERS

48 Junction Road, Archway, London N19 5AR  
Tel: 01 263 8483 and 8496  
228 Haverhill Hill, Haverhill, London N10  
Tel: 01-883 3705

FAST LOADERS

## COMMODORE 64

TAPE TO DISK



## R.B.S.

A NEW GENERATION conversion utility developed from the acclaimed Hypersave-64 R.B.S. converts virtually all your long loading cassette programs to TURBO LOAD faster than the CSM disk drive. Multi part and subunit programs are handled effortlessly. Constantly optimized independently. No additional hardware, no cables, no SYS calls, no user knowledge required. Load "The Heber" in 129 seconds. Toronto Lightning fast. Feedback now obsolete. R.B.S. will convert more programs than any competing utility. Cassette £7.50p.

## HYPERSAVE-64

Retaining the flexibility which the programmer demands Hypersave lets you in control. 3 additional Basic commands have been verified to 40% continuous Rate at HYPERSPIND with full error checking. Covered programs reload independently. Autocut facility. Hypersave also allows a small number of fast loading programs to be converted to Hyperload. Reviewed in Your 64 issue 2. Cassette £7.50p.

## FREE WITH EVERY ORDER

SEND US A GUIDE TO CASSETTES 1-8 CONTAINING INFORMATION ON PUBLISHED MARKET INFORMATION. FAST RESPONSE GUARANTEED. CREDIT P.O. OR SALES.



## DISKUS I

Introducing the new market leader. This is the simplest to use and most efficient tape to disk transfer utility yet devised. No program rewriting is required and transferred programs will automatically run when loaded.

- For simple multi and subunit programs.
- Automatic filename handling.
- Efficient use of disk space.
- No user knowledge required.

Diskus I will handle several program types which other utilities ignore, including hidden files. A bonus program is included which will transfer a number of fast loading programs to disk. Cassette £7.50p.

## PRO-SPRITE

Library, Editor, Animator for single and multicolour sprites. Joystick control. Packet with features. Menu-driven. 100% machine code. Complete with your first sprite library. Cassette £7.50p.

## DOSOFT

2 Oakmoor Avenue  
Blackpool FY2 0EE

## BONUS ITEMS ON SPECIAL ORDERS:

ANY TWO OF THE REMAINING JUST 16 99P.  
ALL THREE ONLY 175 00P.  
ALL PROGRAMS SUPPLIED WITH FULL INSTRUCTIONS AND MAY BE TRANSFERRED TO DISK.

COMMODORE 64

OXFORD  
PASCAL

## YOUR FUTURE WITH COMPUTERS DEPENDS ON PASCAL

**OXFORD PASCAL**

- PASCAL is the most powerful, easiest to learn, most powerful programming language.
- PASCAL is FAST - up to 2 times faster than BASIC.

**OXFORD PASCAL II**

- PASCAL II is the most powerful, easiest to learn, most powerful programming language.
- PASCAL II is FAST - up to 2 times faster than BASIC.

**OXFORD PASCAL III**

- PASCAL III is the most powerful, easiest to learn, most powerful programming language.
- PASCAL III is FAST - up to 2 times faster than BASIC.

**OXFORD PASCAL IV**

- PASCAL IV is the most powerful, easiest to learn, most powerful programming language.
- PASCAL IV is FAST - up to 2 times faster than BASIC.

**OXFORD PASCAL V**

- PASCAL V is the most powerful, easiest to learn, most powerful programming language.
- PASCAL V is FAST - up to 2 times faster than BASIC.

**OXFORD PASCAL** £14.95 + P&H £1.00 = £15.95

Oxford University Press  
 2/Beaconsfield Lane  
 Maidenhead, Bucks  
 SL6 5AA  
 Oxford OX1 2JF, England  
 Telephone 0628 5300  
 Telex 0 347 100

58 Commodore Business March 1982







## ANSWER BACK

### Hi-res Raeto

CAN YOU tell me how to make the whole screen high resolution on the IBM? The Programmer's Reference Guide doesn't cover this, and Comshare has been unable to help me. Can you explain how to do this and how to plot point on the hi res screen?

T. Williams

Apple

Comshare

**TASK REFERENCE** book you need is *Basic Word's Programming for the*, which is available from Edinco, 100 Bond, Pentridge Green, Hordern, Essex. The price 420 you'll find a *Basic program for full-screen graphics-controlled plotting in daisy mode*. The program allows plotting and a choice of columns by 24 rows in size, in full colour.

### Losing pounds

I USE THE Italian

Youssef word processor with my 48 and Brother HB15 printer, and have always found Cyber-Lang and Yore to be very helpful in solving my problems. It's great to find a software supplier who cares about what happens to customers after they've paid for the goods!

Now I'm looking for someone who can tell me how to earth to print the 8 1/2 x 11's that go on the spreadsheet, but how you are to print it—when it comes to mistake the Brother HB15 really takes the kinkiest print. Any hints on changing screens out there? J. Cole

Chapel St. La Folia

Derbyshire

**TASK & SOFT** is essential to go for 48, and may well be **CHRISDOR** or **AL** up your HB15. It's a matter of trial and error to work it out. Try **AL** first, and if that does not

print out I then use a loop as follows:

**10 OPEN 4:4**

**20 FOR I = 1 TO 70:127**

**30 PRINT space NEXT**

**40 CLOSE**

This should print all the characters on the print wheel and enable you to establish which character corresponds to I. Finding that, your printer may require an escape sequence to be sent in order to create other parts of the print wheel. **CHR\$(27)** is normally sent in Escape, but it's possible your printer may require two characters to be sent. Read your manual carefully and see what is specified about escape sequences. It may even make more sense to you.

### Going Forth

Is there a version of Forth on disk for the Yu 207? I have the cartridge Forth from Datacube, but I can't find a disk version.

Geoff Corral

Widewater

London

**YOU CAN** get *My Forth* on disk from Adams, via Admans, 20 Newark Avenue, Rochdale, Lancs, 0706-524284. The program requires a Yu with at least 8K expansion, and is also available for the 48.

### Superbase solution

I HAVE A 48 with a KDC FT-300 which has a conversion parallel interface. I had hoped to use Phoenix Software's Superbase, which is excellent, but I can't find an interface which allows me to use it with the parallel. It seems that all the software based interfaces made in part of the industry used by Superbase. Can you suggest a reasonably priced interface which will interface with the program? P. J. C. Auster

Truro

Comwell

**ALL YOU** need is a Parallel 48 interface cable available from Microsoft of 7 Chesham Close, Boreham

Wood, Herts, 01-952 2395. The cable links around 218. Superbase has a software driver routine which provides all the software needed, and if you want to use the Parallel outside Superbase you can buy a software package from Microsoft for £1.

### Pay your money . . .

I HAVE A 48 with a 1941 and a Shivers CP40 printer, and a Trappier printer controller. Could you suggest a suitable payroll program which would cover around 20 employees?

Ang. Malinver

Widewater

London

**YOU COULD** try *Payroll Plus* or *Form Landfill*, 26 Queen Lane, London SW 14, 01 878 7044. This program covers for up to 100 employees and has no special printer requirements, but it does not provide the statutory sick pay calculations. There is a phrase editor in case of problems and the program screen can be set.

### Pseudo- random

I HAVE recently discovered a fault on the Commodore 64. After using a short program to generate a random number, I have found that after changing the computer off and trying again the same random number is generated. Could you explain? Chris Watson

Reading

Jersey

**THE VALUE** produced by the 64's random number generator using **RND** are always the same when using a positive argument, this is not a fault, and can be used to good effect in many programs. The way to produce a pseudo random number is to use **RND(-1)** as a seed for the number generated, and in a later line use **RND(1)** for your sequence. Try these pages on:

10 N = RND(-1)

20 FOR I = 1 TO 20

30 PRINT N(I)

40 NEXT

### 80 column scream

I HATE A 48 with IBM disk drive, 1704 monitor and Brother HB17 printer. Using Easy Script I find I have a very good word processing system, but I find the 40 character width screen a drawback in that any way I edit use this equivalent with a module or disk based program to increase the screen width to 80 characters? A. Wolfe

Chesham

London

**I DON'T** know of a way of using Easy Script with an 80 column monitor, but you if it did I wouldn't recommend it — the 80 column systems I've seen can give you a certain case of the shins!

Try using the Paper Clip word processor, which can be scrolled across while being typed to the screen.

### VAT attack

MY FATHER has a shop and has problems with VAT. He has asked me to buy a program for my Yu 20 which will work out 17% of a string of numbers fed into it, but I haven't been able to find one. Can you make any suggestions? D. Ward

Coach

Leam

Leam

**IT'S VERY** simple to carry out this type of calculation in Basic. Try the following program, which will work for any Commodore computer.

**10 T=0**

**20 PRINT "ENTER NUMBER"**

**30 PRINT "END TO END"**

**40 INPUT N1-N2**

**THE END**

**50 T=T+N1\*N2/100**

**60 PRINT "TOTAL VAT AT**

**17% IS "T" = "T/100"**

If you need help with a technical query or problem write to:  
**Jack Cohen**

Commodore Reference  
13-12 Little Newport  
Street, London  
WC2N 7PP



If YOU are tired of using your computer with an old black and white portable TV or fed up with endless arguments over who gets to see the family set, DER has the solution.

The Ferguson MCR1 is a full function portable colour TV, but because it has DIN sockets for direct RGB and composite video input it also functions as a computer monitor. Because the signal isn't demodulated before being transmitted to the screen, the image is a sharp picture and clear sound. The MCR1 TV/Monitor normally costs £425, including the upper price concession card for your COM or Vc 20, or it can be hired from DER showrooms for £97 per month.

To win an MCR1 donated by DER, all you have to do is put in order of merit the various features of the data. For instance, if you think the most important feature is "easily portable" then mark on your entry 1, C — and so on through to F.

When you've done that, complete the following to be sent in an age, name and original address in block letters or lower. — DER puts you in the postcard bucket.

Add your name and address and send your entry on a POSTCARD to: DER Contest, Commodore Magazine, 12-15 Little Newport Street, London WC2R 1PP, as soon as the last day of March. Results will be announced in the May issue. Normal competition rules apply.

The results of the January Beyond Software competition are as follows: the overall winner is M. Briggs of Newcastle, who names copies of Pal Wares, Polaris and Lords of Hologate. The first 20 runners-up receive copies of Pal Wares, Stephen Foster Books, Wandsworth, M J Davies, Llandudno; P O'Connor, Newcastle; B Richardson, Scarborough; M Bulajevska, Thurston Heath, 5 Solihull, Huddlesdon; David Gibbons, Galseng, 2 McMillan, Ayleston; John Woodhead, Teaford; G J Wilson, Lough; G Newell, Birmingham; P B Jones, Millard House, 1 M McKinley, Inverclyde; C J Newton, Larkston; P David Niklasch, 2 R G Chapman, Chatham; R Smyth, Manchester; W Swales, Glaston; C Baker, Heston; M A. Harrison, Llandudno.

The second 20 runners-up receive copies of Pyrex for the M. E. Smith, Gumbark; B Palmer, Salford; R McCarthy, Newark; R M Hazell, Brent; S Conway, Edinboro; J Coomars, Stock; S Shiner, Huddersham; M J Wilkinson, Scarso; M LeVallin, Don'treston; P Mann, Portsmouth; A Connors, Bawdon; M & David Reading, G P W Wain, Plymouth; V Merril, Watton; D J Sikes, Southampton; P Brito, Plymouth; D Wylie, Heston & Epsom; Liverpool; M Perry, Crayford; H Harrison, Solihull Trent.

Every entrant will receive free membership of the Beyond Club, and a voucher entitling them to all of the Beyond game of their choice with the next edition of the club newsletter published in May.

# DER

## Win a new TV/monitor

- \*A Direct input for a sharp, clear picture
- \*B No hiss or hum on the sound
- \*C Easily portable for use in any room
- \*D Automatic source switching — no need to change connections
- \*E Full-function colour TV with Ferguson picture quality
- \*F Modern styling at an affordable price





# QUINX

for Commodore 64



Available now, price £6.95, from your Dealer or  
**SUPERSOFT, WINCHESTER HOUSE, CANNING ROAD, HARROW**





# SCHMEDELA

*A Light Synthesiser*



flamesoft



# KoalaPad™ Touch Tablet

## JUST PICTURE IT!



JUST PICTURE IT - BEING ABLE TO DRAW YOUR OWN HIGH RESOLUTION GRAPHIC OBJECTS ON YOUR COMPUTER SCREEN WITHOUT HAVING TO WRITE A PROGRAM



Well, now you can - with the amazing Koala Pad from AudioGenic!

The Koala Pad Touch Tablet provides the direct link between you and your system - it plugs into your Commodore 64 and lets you draw directly onto the screen with a resolution of about 600 dots and a choice of 16 colours and 16 shades from your software palette.

But that's just the beginning - because every Koala Pad package includes the incredible Koala Pad software which makes it child's play to

- Fill outlines with a colour
- Draw straight lines
- Make frames
- Draw circles
- Plot letters from a palette
- Move objects around
- Copy shapes
- Create entire images
- Draw in an arc
- Draw shapes between two points
- Save your pictures to disk or tape

The program will automatically remove them from the table by moving a mouse or by using the draw-it-out function. A complete Programmer's Guide is also available to tell you how to incorporate Koala capabilities into your own programs.

Use your own TV and an experienced programmer to produce real high resolution graphics on your monitor! The Koala Pad from AudioGenic makes it as easy as a pencil and paper. Just picture it!

Available with Cassette or Disk software for the Commodore 64  
From all good computer shops - or direct from AudioGenic - just fill in the coupon!

Please send me  
Commodore 64 Disk or Cassette £79.95†

THE KOALA PAD IS A PRODUCT OF

 **Koala**  
Technologies Corporation

Exclusive distribution in U.K. and Eire by

(GTY) Koala Pad Disk/Cassette† I enclose cheque/PO for

Please subject  
to postal  
without notice

Please charge to my Access Facility/Post. Transfer Number to

Bank Account

or Credit Card

Signature

Mr/Ms/Mrs

Address

**Audiogenic** LTD

P.O. BOX 88, READING, BERKS