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Editorial

Next Month

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Yes, there's some out there!

Digital drums

and music software

Plus

News, comments and reviews

THE WORLD of home computer users is large and diverse, and it's a challenge to any magazine to cover it in sufficient depth. Some take to one man's hat, catering only for Commodore games players, or only for business users, or only for programmers. Commodore Horizons prides itself on covering all the many aspects of Commodore computing. There's something for everyone: game reviews for a variety of machines, hardware articles, programming tips, reader's programs, news and our popular regular features such as Answer Back and Mail Merge. Also starting this month is a regular column by popular programmer and sheep-herder Jeff Minter, who we've loved away from another mag which apparently wasn't able to face up to The Hairy Dad's constructive criticism.

We'll also see a few changes as the result of our recent Reader's Survey, which produced a massive response, and gave rise to lots of good ideas. The breadth of coverage shown in the magazine will be reflected in the Commodore Horizons Show in October, of which more details on the news page. There'll be something for every Commodore user at the National, Hammersmith, London, on October 26th/27th, and as an extra inducement to come along, there's a voucher in this issue entitling you to 50p off the entrance fee.

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SUBMITTING ARTICLES Commodore Horizons invites readers' contributions, either program listings or articles. Articles should be typed, double spaced with a wide margin. Where possible programs should be submitted on cassette or disk with a printout on plain white paper. Please keep a copy of your submission — do not send your only copy. Please enclose an a.c. if you wish your submission to be returned. All submissions must be your own original work.

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FOLLOWING the review of Superscribe for the Commodore 64 in the July issue of Commodore Horizons (page 98), I should be pleased if you would advise your readers that Precision Software decided to offer them even better value by launching the product at \$49.95, instead of \$59.95 as originally planned.

Keep up the good work!
John Ramsey
Managing Director
Precision Software Ltd

Reset ideas

I'VE HAD a reset switch fitted to my 64 for about a year, and I find it most useful for halting anti-mouse programs, basic especially. Because the memory is not actually cleared when the reset is used, with the help of a small machine code program we can stick it back together and fix, amend and run again if we like. First load and run the test program, then type NEW, then load the program you wish to break. When it quits, press the reset then type SYS 50000, then you can fix the program. This can be very useful in certain instances.

games if you get really stuck.

Another one which some readers might find useful is for unformatted files in games such as *Masterblaster*. Load the game, press reset then type
poke \$0771,\$0400
poke \$0772,\$0400
poke \$0773,\$0400
poke \$0774,\$0400

The people concerned about these guarantees who don't want to stick bare paperclips into the user port or solder any wires in the machine, here's how to make a plug in reset switch. First, buy a small pack to make switch and a six pin plug to fit the serial port, the same as is on the disk drive. Then solder the switch to pins Next and No.2 (see user manual), plug it in, and that's it. If you have a disk drive connected, then it can plug into the back just the same; it can be left in place indefinitely, and it will not interfere with the normal working of the computer in any way.

Here's Mr Dent's Basic

```

Reset program:
80 POKE 0 = 0 TO 25
90 READ BYTE
90 POKE 50000+C, BYTE
40 NEXT C
90 DATA 100, 0, 100, 1, 100,
  40, 32, 51, 103, 34, 103, 49,
  150, 47, 150, 49, 103, 50,
  150, 46
90 DATA 100, 40, 101, 50, 90
    
```

P Dent
Sutton
Co. Durham

Helpline hints

I COULDN'T agree more with P. Dent's plea (C.81, July issue) for an Advertiser's helpline! So how do you fit all of you frustrated subscribers having sleepless nights over *Rescue*?
Experiment or Time Machine I offer my humble services as your guide. Could anyone in return, save me from being ripped apart after blowing up the tent in *Claves*? I'm also in great need of assistance with *Level 95*.
Newsbullet
M Hinchliffe
Filtonville 208
105F 64 Amsterdam
The Netherlands

Arabic answer

I REFER to your article in the July issue titled 'Mysterious Arabic'.

The Arabic operating system, ZAN-64, is a product developed, manufactured and marketed by our company. Zaxxon Ltd and run by R.L. Sullivan, a close associate of Zaxxon Ltd.

Zan-64 is a bilingual Arabic/English operating system used for the Commodore 64 microcomputer and has been

officially approved by Commodore. Zaxxon is proud to declare that Zan-64 is on sale now all over the Arab countries, and we are currently engaged in developing a similar product for the C68.

Zaxxon and R.L. Sullivan have been closely collaborating on developing high standard Arabic software. And the first result of this collaboration was the joint development of the Arabic wordprocessor '94 Qalim Elbari' for the Commodore 64. This product was launched at the 6th Commodore Show in June. David Abiad
Zaxxon Ltd

1531 to Vic 20

MY BROTHER has a C64. If I buy myself a cheap Vic 20 on my own, is there a cable available that would connect between the cable of his computer and the Vic 20, so we could share it between the computers?

Andrew Shanks
Brentford
Essex

SOMETIME word manufacturing is cable enabling the C64's 1531 cassette unit to be used with a Vic 20, or must be able to supply the parts to make a connection. Any suggestions, please?



Don't Buy another tape...

(OR DISK!)

...Until you've seen the low, low prices in our Commodore Club magazine. Light up your bank manager's face by getting **Shadowfire** for just **£5.95** (saving £4), steal yourself a bargain with **Spyburner** at only **£4.95** or join the privileged by buying **Elite** at **£11.50** instead of £14.95. What's more, if you get an order in before the end of August you can claim a **FREE GAME**. Yes, place an order worth £12 or more and you can take **Midasman's K&K Start** (which was given a rave review in the July issue of Zap!), or the Spectrum game **Fred's Keepers** — recently released on the Commodore 64 — at no extra cost.

So what's the catch, we hear you say? How many tapes must I commit to buy? The answer is none. If you become a subscriber to our magazine (which is available only by post) then we send you as a member of our software club at no extra cost, it's then up to you whether you buy anything or not. There are no minimum purchase requirements.

The magazine is published six times a year and is packed with product reviews (including lots of screen photos) game playing tips, competitions to enter and more. Hurry now — if you take out a subscription within the next four weeks we'll give you a £1 voucher towards your first purchase through the Club.



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Loading challenge

CHALLENGE! Research has introduced a budget priced automatic load alignment tape for the Commodore C24 cassette unit, or any compatible disc recorder. Like Intertec's MicroV Advantage 3000 product, the Challenge tape allows you to gauge the load alignment of the tape deck until it is exactly tuned to the tape. This avoids loading errors caused by the various load-align programs.

You'll have to supply your own automatic screwdriver to use the cassette, but at \$4.95 it's certainly the cheapest way to set up your C24 properly. Contact Challenge on 0791-44663.

Wizards and water

TWO NEW 64 titles from Thera-EM's Sportsline budget genre will be in the shops soon. **Merlin** and **Kayak**, both cost £2.98. Merlin features the powerful magical healing and spiritism and the deadly Hellfire in an attempt to complete his magic brew. Experiments have to be mastered out of the air, and anti-spells have to be tapped before Merlin can win through to the next screen.



Kayak is a canoe slalom simulator, in which you have to control your craft through 20 gates and dangerous rapids, facing the clock to become the World Champion.

Contact Thera-EM, Thomson House, 286 Farnborough Road, Farnborough, Hants, GU11 3A3(3).

SUPERSOFT'S latest batch of releases include utility programs for the 64 and the C16-Plus/4.

Word Perfect is one of the first word processors to appear for the C16-Plus/4. It's a machine code program allowing up to two pages of A4 text to be entered, and displaying text on the screen exactly as it will be printed out. Maximum line length is 160 characters, and facilities include insert/delete, copy, line, tab setting, margins and centering. **Word Perfect** costs £12.95 on tape or £14.95 on disk, and is also available for the C164 64, at £13.95 and £15.95.

Music Master, the popular 64 composition package, has also been adapted for the C16-Plus/4.



One or both titles can be played using the QWERTY keyboard, and there are ten pre-pro-

grammed backing rhythms in accompany your compositions, as well as extensive editing facilities. **Magic Master C16** is available on tape or disk, at £12.95 and £14.95.

Instant Recall is a filing system for the 64, which allows you to store up to 20,000 characters of information. Particularly well-suited to holding club or hobby records, **Instant Recall** can be used with a suitable printer to create address labels or reports. Price is £17.95 tape, £19.95 disk.

Next month we'll take a look in more depth at some of these programs, meanwhile contact Supersoft at Winchester House, Canning Road, Winchester, Hants, M30 4BQ, 01463 1866.

Solar's C16 strategy

SOLAR Software has launched a series of budget-priced games for the C16-Plus/4, and claims to have sold 15,000 units within a fortnight of launch. Solar's Brenda Shey explained that the games, all priced at £29.95, are conversions of successful Vic 20 titles by programmer John Shey. "John has written a routine which enables him to convert the Vic programs directly to the C16. All the games are written to avoid confusion with the Vic originals." Titles include **Mission Mars**, **Saikid Rex**, **Kanack Out**, **Caveball**, **Alien Attack**, and **Quick Draw**.

Solar Software also plans to

produce a full-price C16 game in the near future, as yet unannounced. The budget titles are being distributed by Centrowell, Leamington, Leam, and a range of smaller distributors, although Solar has not yet been able to conclude a deal with the chain stores.

"We're not touching the 64 at the moment", commented Brenda Shey — "we've had two games, **Wizard Magic** and **Jungle Quest**, didn't sell well despite good reviews and extensive advertising. We're now reviewing them as budget titles, but we feel that the 64 market is glutted, so at the moment we're

concentrating on the C16, where there's still a demand for new games, especially at budget prices."



Contact Solar at 77 West Drive, Bury, Lancs, B91 5BA 1795.

German EPROMs

LIGHTWAVE Leisure has announced further details of their range of Commodore products imported from West Germany. The **EPROM burner** allows you to play a special Erasable Programmable Read-Only Memory chip into a motherboard, and load it with your own programs, in effect creating your own "cartridge" software. The EPROM burner plugs into the user port of the 64 or C128, and the 64 or 128 motherboard boards plug into the cartridge port. EPROMs are created by ultraviolet light and reprogramming. The mother-

board, with EPROMs loaded, can make the software available to the computer in 8K sections at three different addresses.

Also available is the **Board** which copies all data, address



lines and data wires from the cartridge port. Full instructions and operating software are included. The EPROM burner costs £24.95, 128K board £24.95, 64K board £12.95, and the test board £4.95. Phone Lightwave on 024-649 5000 for more details.

Pascal in words

PUBLISHERS Herb Saunders are to bring out a title dedicated to the **Unified Pascal** package for the 64, reviewed in our July issue.

Author Ian Sinclair has written over thirty books on using home computers, and claims that Unified Pascal is the first good implementation of the language available. The featured **Unified Pascal** on the Commodore 64 is by GUY, Alan's Niles Jones and Terry Wilson.

Contact Herb Saunders at 1 B Ann's Road, Epsom, Surrey, Surrey, BN9 3UN.

Digital dreams

COM'S LATEST Commodore products include a video digitiser, first seen in this country at the Commodore Show in June, and a disk-based game. Both products are departures for the company, which has

memory. Images can then be printed out in black and white using the MPS-801, or in colour using a range of colour printers.

The image is displayed on the screen in four levels of grey, which can be coloured separately



previously concentrated on cassette software.

The **Video Digitiser Module**, produced by the German firm Print-Tecknik, costs £249.95, and is available mail order only on the PCW show in October. Plugging into the 84's aux port, it enables signals from video tape or a video camera to be stored in digital form in the computer's

using the function keys. CRI, say that later developments will allow the digitised pictures to be incorporated into user's own programs. The disk-based game is **Wizard**, a sophisticated "platform game" available at £12.95 on disk only.

Reviews in due course. Meanwhile, contact CRI, on 110-2001 00-311 2924.

Ultimate's Blackwyche



ULTIMATE'S new COMPAK title will be **Blackwyche**. Continuing the adventures of Sir Arthur

Penelope, hero of Staff of Karnath and Encountered, **Blackwyche** is set on a haunted gallery. Sir Arthur's task is to face the step of the curse which has fallen upon it, by finding the Captain. Under the spell of the evil Crystal Skull, the Captain languishes in the depths of the ship. Only Sir Arthur, with the aid of the ship's log and the magic Bell, can save him and break the curse. **Blackwyche** uses the same interactive animated graphics seen in Staff and Encountered, and will sell for £24.95.

Activated

INTERNATIONAL software company Activision has appointed a new UK managing director, and announced details of its new COMPAK titles.

Hugh Ross-Parsons, formerly of SCA-Columbus video, takes over as MD in September.

New games titles from Acti-

vision include **The Great American Cross-Country Road Race**, which allows you to plan your course across the States and challenge your opponent in a fast-moving test of skill and endurance; and **Beard the Beast**, a bike-racing simulation based on the famous sporting marshall. Both retail at £29.95. Contact Activision at 01-465 7555.

Precision plans on C128 software

PRECISION Software's version of **Superbase** and **Superwrite** for the C128 will include some unique facilities.

Planned for launch at the PCW show in October, the packages can be loaded into the C128 simultaneously, and can exchange information. **Superbase** and **Superwrite** are already available for the C64/64+, but Precision MD Nigel Lovett-Tanner explained that programmer Simon Trimmer had managed to produce an even more powerful version of the programs by using the full potential of the C128. "Superwrite uses a full 128K, with a large text area, but it's possible to load Superbase into that text area if you're willing to accept the reduction in size. The two programs can then act as a fully integrated unit."

Moreover, since **Superbase** and **Superwrite** are highly "disk-serve" programs, the combination on the C28 can take advantage of the improved performance of the 1571 disk drive. "The 1571 is five times faster than the old 1541. **Superbase** and **Superwrite** on the C28 are able to use "burst mode", in which the 1571 operates twice as fast again."

Precision intends to keep prices of its C28 software within the budget of home users, so the C28 versions of **Superbase** and **Superwrite** are to be priced at £99.95 and £79.95 respectively. Although packaged separately, Precision may offer the two packages together in a money-off deal at a later date.

Contact Precision at 5 Park Terrace, Wandsworth Park, Sursey, 01-310 7666.

The Show is go

USE THE voucher printed below to get 50p off the admission fee for the Commodore Horizons Computer Show at the Newrad, Hammersmith, London, on Saturday and Sunday, 26th/27th October.

The show, arranged by Computer Marketplace in conjunction with Commodore Horizons, will offer something

for every Commodore computer user: game players, application software users and business users. Just cut out this coupon — photocopies are not acceptable — and you can get 50p off the entrance fee.

Exhibitors should contact Computer Marketplace, 28 Orange Street, London W1 2PS 7643, 01-979 1622.

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Talking of speech recognition . . .

Atari's Voice Master for the 64 will digitize and replay your own voice, recognize speech and play music. Tony Mills puts it through its paces

Atari 800's unique Voice Master gives the 64 a number of capabilities which would have been unimaginable when the micro was first released. For a start, it enables you to digitally record sounds and play them back at different pitches; it also responds to sound inputs, and can act as a musical instrument by playing tunes on the SID chip. How has all this been crammed into one package?

Voice Master consists of a bracket including a microphone on an adjustable arm, a master unit in bracketed aluminium which plugs into a joystick port, and software on disk.

Manufactured by Covox in the UK, the whole system seems very well put together, and functioned with no problems at all.

Echo

It's best to start off by using the *Echo* programs, which show you an idea of Voice Master's abilities without going into all the complexities. On loading the software, you are invited to speak into the microphone, which plugs into the master unit. Using the function keys, you can then reproduce the sound you have recorded, either "straight", or with an accelerating/decelerating echo, or with an accelerating repeat which makes your voice higher and higher until you sound like Noddy.

The actual quality of the sound sampling is good, although you won't get the best from the unit unless you play your 64 into a hi-fi amplifier. The length of the sample can be traded off against the quality, although the literature doesn't make clear what the maximum sampling time should be. Still, the quality of short samples is almost as good as that on well-known games like *Libertalia* or *Impossible Mission*. Using the main program, you can store up to 32 sound samples. Speed and volume of playback, as well as sampling rate, can be set by simple Basic commands. The voice recognition software works by comparing the frequency spectrum of a sampled input sound with that of a stored "template", produced through a "learning" routine in which you speak the required words several times, and the software produces an "average" against which to compare later input. The sounds can be displayed in the form of a bar chart.

On the voice recognition front alone, the Voice Master has impressive potential, for control of electrical equipment, security, word games, and so on. There are also musical applications made possible by the Voice Master software; you start sing or hum into the microphone, and the program stores out the frequencies, and plays the SID chip (in the normal note, in a wide range of programmable tones and octaves. Music can be displayed on a store, saved and edited, and printed out.



software; you start sing or hum into the microphone, and the program stores out the frequencies, and plays the SID chip (in the normal note, in a wide range of programmable tones and octaves. Music can be displayed on a store, saved and edited, and printed out.

Potential

Perhaps the most interesting aspect of Voice Master, though, is that the voice samples it makes can be stored and used in Basic programs in a fully transparent form — in other words, you can write a game using Voice Master sound effects, save it to tape or disk, and give it to a friend who will not need a Voice Master in order to get the benefit of the terrific sound effects. Now anyone can produce games with speech effects such as those in

Ghost Busters, without having to call in the services of expensive American software houses.

Voice Master may seem a trifle expensive at £39.95, but the potential of the device is only limited by your own imagination. Atari has already put out several games incorporating Voice Master speech effects, so if you want a quick demo of its quality, just look out for that on a *Link*, *Fire'n'Side*, or *Pump Jet*. More programs, including educational titles, are on the way.

Contact

Next month *Computer Horizons* will have an exclusive competition in which you can win a Voice Master from Atari. If you can't wait that long to get your hands on one, specialist retailers are already stocking the unit, and I would anticipate much wider availability once the 64 version gets the chance to see and hear this amazing device. ■

Hardware: Voice Master

Model: CBM 64

Price: £39.95

Supplier: Atari, Unit 10, Victoria

Industrial Park, Dunford,

West, 0023-42118

C128

PRICE EXCLUSIVE

The news you've all been waiting for is out — Commodore Horizons, the only magazine represented at the trade launch of the C128, reveals the all-important retail price

COMMODORE'S trade launch of the C128 revealed that not only is the machine a powerful competitor in terms of facilities — it's a winner on price, too. The C128 will be available from 1st of September at £269.

As most readers will already know, the C128 is designed to complement the existing range of CBM machines, not necessarily to supplant them. The 128 operates in three modes:

- 64 mode reproduces all the features of the CBM 64. It's completely compatible with all CBM 64 software and hardware, making it possible to use 64 cassettes, disks, cartridges, printers, modems and monitors.

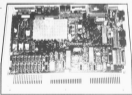
- 128 mode has 128KB RAM available for Basic programming. The new Basic dialect, V 7.0, has over 140 commands, including commands for sound, music, graphics and

animation which are sadly lacking on the 64. 128 mode also has a built-in machine language monitor, forty or eighty-column screen display, and uses the 14-key numeric keypad.

- CP/M mode is designed for running professional business software written in the CP/M format. Most CP/M software is written to use 80 column screen display. However, the forty column screen display can be selected,



The C128 reveals — exclusive interior shots reveal the 290, 300, 301, 304M chips, back-switching controller, I/O circuitry, video chip and 8092. The screen graphics were produced with a 3D-line program; the memory map shows the machine's full programming potential.



and needed to display the full eighty columns. Disks in the IBM, Kaypro, Osborne and/or CP/M format can be read with the 1071 disk drive.

To make the most of the 128's facilities, you will probably need an eighty-column 1900 monitor and the 1071 disk drive, which runs 5-10 times faster than the 1041. Although no

details of prices for these have yet been released, it appears likely that the complete 128/1571/1900 system will cost around £658. The 1900 monitor comes in two models, the 80-column monochrome 1900-M and the 40 or 80 column colour 1900-C.

The CBM 64 will continue to be sold at £199, though whether it can compete with the

128 at this price remains to be seen. Commodore's plans seem to rely on making more money on peripherals than on micro-market forecasts indicate, though the size of the micro-buyer market is decreasing, the value is going up in most years by printers and disk drives rather than cassettes decks and joysticks. ■

You've never seen anything like it.

A Mouse that's light years ahead of anything else of its kind, with the best graphics software ever written for the Commodore 64, 128 and SX64.

It's packed with features – you'll be amazed at what you can do with charts and creative designs.



We've given the Mouse a wide variety of brush and spray shapes,



different screen textures and a whole palette of pre-programmed background patterns.

(You've the option of designing your own, too.)

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You can draw shapes, fill areas with textures and special

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Or put clear, attractive business graphics on paper for professional reports, charts and newsletters.

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Put all that together and you've a stunning graphics package – at the touch of a finger.

It will even integrate happily with our forthcoming business software.

The Mouse comes complete with disk and cassette software, full instructions and a price tag of just £74.95.

Stunning graphics at a touch

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No sore loser

A surprisingly sophisticated arcade adventure with lots of graphics and sound gimmicks, *Finders Keepers* is a combination of a successful *Spindash* title, *Elmory* serves correctly. The sprites in this one are excellent.

you control a little knight, making his way through *Spiral* in search of treasure and cash in order to win the hand of a beautiful princess, and a place on the "Polygon Table".

Apart from the usual left/right/jump controls, there are also options to get, drop or trade objects. Since the amount you can carry is limited, you must find a trader every so often to convert your findings into cash.



The man's gold, and there are lots of unexpected bonuses

such as three-ster maces, lots of good grenades, a hypnotic swirling colored border and plenty of status indicators to keep you on cue. Excellent value for money.

Program: Finders Keepers, 64
Supplier: Microscopic
Price: £1.99
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

Plane amazing

A incredibly impressive air battle simulation, *Skyles* goes to show that the 64 is still capable of being cooled to even greater heights of graphic sophistication.

The *Skyles* fighter jet can hover is armed with rapid-fire lasers, heat-seeking missiles and defensive shields. You choose to fly off the many forces attacking your asteroid base. There are several mission selections available (training for air combat, for ground combat,



for both, or the real thing, with various combinations of enemy tanks, planes and submarines).

The graphics are quite exciting; big, detailed enemy vehicles seen from the pilot's

point of view, with convincing scrolling and *Skyles* uses spins and explosions. There are lots of little extras, such as guided missiles, heat-up radar displays, altimeters, fuel gauges, and so on. This isn't quite enough to make *Skyles* a satisfying "simulation" — it's certainly a good arcade game, but if you want something realistic, go for *DJ's Fighter Pilot*, *Soil*, *Iron-Breaker* (see for shoot-'em-up fans).

Program: Skyles, 64
Supplier: Aristocrat
Price: £2.99
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

Defend or die

A first sight *Droptop* appears to be just a defender copy, and the comparison is far more than it. On reflection, though, how many good versions of *Defender* are there? Apart from *Allegri's* imitator *Castles*, I can't

think of a good version for the 64.



So *Droptop* stands out as a good implementation of the basic theme, with enough original twists to make it

interesting. You control an aerospace armed with a jetpack, laser and atom bombs. The mission is to fly over the base landscape, watching *Castles* and destroying the alien invasion. There come in many varieties, including slow-moving bugs, faster enemies, light-weight flying clouds, swirling pods and laser-some saucers. All are aimed on smashing you into a million pieces (with a great explosion effect) and preventing you from depositing the homomoids at the

base base. With the usual bonus lives, power-up atom bombs, steady score effect and high-score table, *Droptop* is a good example of just old-fashioned steady action which demands the best and most precise reactions.

Program: Droptop, 64
Supplier: US Gold
Price: £2.99 cons, £3.49 ind. disk
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

Over the moon

Here we go, here we go, here we go, indeed. *Five-a-Side Football* is a follow-up to *Slap Shot*, the ice hockey simulation, and looks very similar. The small players are fully well detailed, but don't move very realistically from side to side, they're OK, but more LIP or DOWN the field and the

speed of movement goes gradual. The screen view switches



to follow the action, as in Commodore's *International Soccer*, and the five-man teams (two players or one against the

computer) can shove, tackle, and shove-quit convincingly, under-jerked control.

There are no corners or throw-ins, but you can foul your opponents (they land with a satisfying THUMP) and bounce balls off the side walls.

Extra features include a pass-to-option, which is poor graphically and not much fun to play, and software speech which could be better. When the crowd sings "Here we go, here we go ..." before the kick off, it

sounds more like one man singing in *Atari's* of *Top Shooting Stars* is a *Five-a-Side* speech algorithm — which, in fact, it is, for the speech doesn't add much to the atmosphere.

Quite playable, though not as polished as it might have been. **Program:** Five-a-Side Football, 64
Supplier: Activision
Price: £1.99 cons, £2.99 ind. disk
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

What is this Thing?

Zoozling? Grenin's latest *Land* game introduces the best new hero for ages, Thing on a Spring, who bounces through this arcade adventure accompanied by suitably zany sound effects. It has to be said that although the graphics are great, what really makes this game is the unique, marvelous Country

& Western/Punk music and zippy sound effects.



Thing's job is to bounce anything that's wrecking of the game, and in fact what we have here is a sort of cross between Pac-Man and Labyrinth.

Now little bouncer has to make his way through a maze full of food parcels, picking them up as he goes. Chasing after him are several nasty baggies — you can select the number from one to five. Your only chance to avoid them is to use the fact that they

cannot pass through the turn-tables dotted around the maze.



Push through them and they flink around, forcing you

switched. However, Level One is challenging and zany enough, and I assume it only gets better. Well above average for this sort of thing, and worth getting for the soundtrack alone.

Program: Thing on a Spring, 64
Supplier: Grenin Graphics
Price: £1.80
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

Trouble with bugs

Dooble-Bug has a marvelous bit of artwork on the cover, depicting two insectoid warriors on sky-scooters chasing each other around futuristic towers. Now, since this is a game for the unimpaired Vic, it

wouldn't be fair to expect anything that exciting of the game, and in fact what we have here is a sort of cross between Pac-Man and Labyrinth.

Now little bouncer has to make his way through a maze full of food parcels, picking them up as he goes. Chasing after him are several nasty baggies — you can select the number from one to five. Your only chance to avoid them is to use the fact that they

cannot pass through the turn-tables dotted around the maze.



Push through them and they flink around, forcing you

to find another path to get at you. But the baddies are very intelligent, always taking the shortest route to you.

Nicely programmed, and perfectly good fun.

Program: Doodle-Bug, Vic
Supplier: Microtronic
Price: £1.99
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

Time for the C16

This one's clever — why hasn't anyone thought of it before? Although the main idea is pretty jaded — a sort of *Solaris* game through various stages, avoiding fire from enemy craft and destroying targets along the way — the gimmick is that *TimeShip* gives you three stages on the screen all at once.

In the top screen, you pilot a fighter over a moderate range of the middle, a jetpacker through



remade the bottom, a submarine through underwater caverns. In

each screen there are twelve Time Orbs to destroy. You have

twenty-four subjective hours to clear all three screens, but if you lose too many lives the three time-zones will slip out of synchronisation. Only by clearing all three and resetting the time readings to tonight you can save the universe. You can gain time by picking fuel drums or bombs.

Excellent graphics and pleasing 250K/250K sound effects. Good fun for arcade fans.

Program: TimeShip, C16
Supplier: English Software
Price: £1.99
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

I spy again

Spy Vs Spy One — At the *Solaris* — introduced a revolutionary split-screen tri-player concept and unusually good graphics. The sequel, *The Island Capers*, retains much of the flavour of the original, but adds to the players' options.

Again, the screen is split into

three parts; the top and bottom half show the current locations of the Black and White spies, and indicators at the sides show their status and the weapons they're using. The aim of the game is to find a secret weapon hidden on the island, then to escape by submarine. Stay too far through the winding scenery and you'll end up in the sea.

Again, you can try traps for your opponent, but in *The Island Capers* you have to create the traps yourself, using various tools and whenever objects come

to hand — including snapping crabs. You can also tunnel under



your opponent, both from land canyons and so on.

This pre-production version looks every bit as good as the first game, with excellent graphics and animation and factoring gameplay. However, it might have been nice to see the same programming techniques applied to a new idea.

Program: Spy Vs Spy 2: The Island Capers
Supplier: Beyond
Price: £3.99
Graphics: ★★★★★
Sound: ★★★★★
Gameplay: ★★★★★

Wet fish

Anglers must have some **A**ssert of a death-wish. First the cunning **Knackout**, now this occasionally boring effort. **Match Fishing** is supposed to be a simulation of the thrills of competition angling — all it offered for me is the sheer tedium of spending hours half asleep on a river bank.

After repeatedly selecting the number of plovers, entering the names, choosing the type of bait,



back to line strength and so on, you are given a description of the

length of riverbank which has been assigned to you. Switching to an admittedly nicely drawn graphic screen of the riverbank, there's then nothing to do but wait until one of the prey numbers flashes on and off. You then enter yourself from your fishing log allowed to hit the appropriate number key, and you're rewarded with the most pathetic representation possible of an angler reeling in an embarrassed-looking tubful.

If I was Jack Charlton, I'd take the money-quick, shoo-off to a shady riverbank somewhere, and try to forget the whole thing.

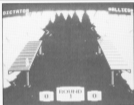
Program: Jack Charlton's Match Fishing, 64
Supplier: Adigata
Price: £6.00
Graphics: ★★★★★
Sound: ★
 Gameplay: ★★

On the Beach

Creators of the original **C**oastal **Head**, claiming that despite the impressive animation and graphics, the game did not stand up to extended playing, did little to stop it notching up big sales. I expect things will be the same with **Beach Head 2** — **The Distance Striker Back**.

As in the original, there's a great deal of violence involved as your tank hove attempts to defeat the haddies — this time the screens of the extended add to the fun — "You hit!", "Moby!" and so forth.

The stages include troops trying to destroy machine gun emplacements, escaping prisoners crossing the water under fire from tanks and armoured cars, a helicopter



swaps, and an incongruous battle with dancing blades across a ravine. As you'd expect, there are one or two player options

and various levels of difficulty. Overall this doesn't add much to the original, but thousands of players will want to get it anyway.

My major objection is that each stage takes too long — although I suppose that if you enjoy this sort of game, then this is a good feature.

Adding software speed to a game gives it an extra dimension, but the gimmick is bound to wear off soon. Hopefully the American programmers will then turn their undoubted skills towards original ideas, rather than rehashing old ones. Beach Head 2 has a chance to do well, but if there's a Beach Head Three, I'd like to think it could be over better.

Program: Beach Head 2: The Distance Striker Back
Supplier: US Gold
Price: £9.95
Graphics: ★★★★★★
Sound: ★★★★★★
 Gameplay: ★★★★★

Warlocks

One of the few decent **O**ne-arcade adventures for the C64, **Sword of Destiny** manages to pack quite a lot into 126. As usual with this sort of program, there's a lot of comic-strip dealing with evil warlocks, brave warriors, Abysses of Death, magic, mystic energy and stolen hearts, but you don't want to

know that — you just want to know what you get to kill, don't you?



The warrior is depicted by a large, single-colour sprite, and

the haddies include ghosts, skulls, serpents and so on. Your magic sword soon makes short work of them, though, adding to your reserves of power. There are many floating objects to be found, each one of which opens up the way to the next part of the Abyss. If you find yourself stuck at any level, you can take a ride courtesy of a hot air balloon, which will bounce you up to another level.

Jump/ok or keyboard options,

and reasonable sound effects and music, complete what is a decent C64 offering. Also available from Gemline for the C64 is **Dark's Dimension**, which is playable, but not so sophisticated graphically.

Program: Sword of Destiny, C64
Supplier: Gemline Graphics
Price: £5.50
Graphics: ★★★★★
Sound: ★★★★★
 Gameplay: ★★★★★

Teddy boy

The Daily Express's popular little cartoon bear, **Rupert**, is 40 this year, and presumably in part of the celebrations his friends are having a party. But, alas! Rupert's lost his friends, and so find there he must follow a trail of party invitations through the vampire's castle. In

his way are the soldiers, ferocious ramparts and dangerous traps, but the brave little chap takes them all in his stride. The animation, particularly of Rupert himself, is very good, but the backgrounds leave something to be desired. The game will obviously appeal more to younger players, and won't set much of a challenge to arcade fanatics. Although the whole

package is very slickly done, with super music and the best loading



screen I've seen for ages, I couldn't help feeling that to

refine the in-between Rupert should have been allowed to go mad with a chainsaw in the middle of the ramparts I know, I'm cynical.

Program: Rupert & the Vampire's Party
Supplier: Argus Press Software
Price: £7.99
Graphics: ★★★★★
Sound: ★★★★★
 Gameplay: ★★★★★

Top Twenty CBM 64 Games

- | | |
|---------------------------------|-------------------------|
| 1 (B) Demobuster | Software/US Gold £3.95 |
| 2 (—) Elite | Firebird/Amstrad £14.95 |
| 3 (—) Way of the Exploding Fist | Melbourne House £3.95 |
| 4 (2) Schach | Barclay £4.99 |
| 5 (3) Pitstop 2 | Eyes/US Gold £3.95 |
| 6 (5) International Basketball | Commodore £5.99 |
| 7 (7) Theatre Lunge | PSS £3.95 |
| 8 (—) Rocky Horror Show | CPS £3.95 |
| 9 (—) New to a Cell | Comark £10.99 |
| 10 (5) Impossible Mission | Eyes/US Gold £7.95 |
| 11 (—) Jet Set Willy 2 | Software Projects £9.99 |
| 12 (4) Hobart's Dummy Run | Micro-Gen £3.95 |
| 13 (34) Cauldron | Pelare £7.99 |
| 14 (23) Beauty Bob Strikes Back | Big 5/US Gold £3.95 |
| 15 (8) Sprinter 40 | Microsoft £9.99 |
| 16 (—) International Tennis | Commodore £10.99 |
| 17 (—) Drop Zone | Microgen/US Gold £3.95 |
| 18 (15) Independent | Ultimate £9.99 |
| 19 (10) Grog's Revenge | US Gold £3.95 |
| 20 (—) Stangloop | Virgin £9.95 |



Bubblers

- | | |
|----------------------------|----------------------|
| 1 On Field Football | Activision £10.99 |
| 2 Amazon Warrior | New Generation £7.95 |
| 3 Oakland Soccer's Cricket | Amalgam £9.95 |
| 4 Tim Lovin's Cricket | Pinksoft £3.95 |
| 5 Kickfoot | Allgate £3.95 |

Top Ten CBM 64 'Non-games'



- | | | |
|---------------------------------------|-----------------------------|------------------|
| 1 (B) Mini Office | Business Publications £1.95 | Business Library |
| 2 (—) Music Studio | Activision £14.99 | Language |
| 3 (2) Simon's Book | Commodore £20.00 | Education |
| 4 (—) Drafts & The Crosshatch Factory | MS Multimedia £9.99 | Education |
| 5 (2) "D" Level Tutorial | Commodore £4.99 | Education |
| 6 (5) White Lightning | Osco £14.95 | Library |
| 7 (5) Ab 1 | Osco £9.95 | Education |
| 8 (5) Ten Steps to Mail Service | Microsoft £3.95 | Education |
| 9 (—) Spreadsheet | Coltrane £19.95 | Business |
| 10 (7) Post "D" Level Tutorial | MS Multimedia £14.95 | Education |

Bubblers

- | | | |
|----------------------|-----------------------|----------|
| 1 Post | Osco £14.95 | Business |
| 2 Games Dealer | Microsoft £3.95 | 1985 |
| 3 Machine Code Tutor | New Generation £14.95 | 1985 |



Top Five C16 Games

- | | |
|----------------------|-------------------------------|
| 1 (B) Grandma | Adventure International £3.95 |
| 2 (—) Dark's dilemma | Graphic £3.99 |
| 3 (2) BARK Racers | Masterton £1.99 |
| 4 (—) Dark Tower | Melbourne House £3.95 |
| 5 (2) Blogger | Allgate £3.95 |

Bubblers

- | | |
|-------------------|-----------------|
| 1 Tower of Evil | Thorn DMI £3.95 |
| 2 Olympian | Vynasch £6.99 |
| 3 Flight Path 737 | Anlog £5.95 |

Top Five Vic 20 Games

- | | |
|-----------------------|-----------------|
| 1 (1) Rockman | Masterton £1.99 |
| 2 (2) Flight Path 737 | Anlog £5.95 |
| 3 (—) King Tut | Masterton £1.99 |
| 4 (2) PSP | Masterton £1.99 |
| 5 (4) Handball | Osco £3.95 |

Bubblers

- | | |
|--------------------|------------------|
| 1 Mickey the Micky | Fielded £2.95 |
| 2 Decidlog | Masterton £1.99 |
| 3 Football Manager | Activision £3.95 |

All data compiled by RAB/C from a panel of specialist dealers.
Sales period - 4 weeks prior to July 26 1985

BYA2 Frankie went to Hollywood and never looked back. In what may be the first ever case of "You've heard the record, now buy the computer game", Ocean has come up with a program that's sure to be a hot hit. Thankfully, it isn't a case of ladders-and-platforms, with little Holly Johnsons strapping around in search of gold discs — **London Design**, the programmers behind *Shogun*, have put all their expertise in advanced programming techniques such as windowing and icons into **Frankie** the game.

Opening with the familiar shopping mechanics of *Rates*, the game allows you to control the shadowy figure representing your undeveloped personality. The first scene is a row of houses in Manhattanville — your goal, the legendary Pleasure Dome. There are over sixty tasks to complete along the way, and you'll need imagination, inventiveness and quick reactions to complete them all.

To attain the Pleasure Dome, you must score 9900 *Figure Points* — which are awarded each time you complete a task — and reach the top of each of four bar charts shown on the right hand side of the screen. These represent your Love, Pleasure, Wit and Faith factors, and once they are at maximum



• Here it all begins.

you will have become a complete person.

As you move through the scenes, the animation of the character and the brilliant windowing effect, causing you to juggle with one, you should examine the detailed roomscape carefully. Use the joystick or keyboard to make your figure reach out for various objects. Touch a cupboard or chest of drawers, and you'll see a window opening up on the screen beside you. You can then use the joystick to move the pointer to the various objects in the window, and select the *Quit* icon (the mouse).

There are fifteen different objects to find, each of which can help you to reach the



FRANKIE GOES TO HOLLYWOOD

277 mopheads Frankie decorate the box — but the central figure in Ocean's game is a shadowy version of YOU. Does David Fox love it or hate it?



Pleasure Dome. Most of them suggest their own uses: a flask jacket, a box of milk, a videotape and so on. Others will help you to balance your personality factors. You can only carry eight objects at a time, and each can only be used once. Use an object at the wrong time, and a window will appear bearing the message "A — whatever — is of no use here", and you'll have lost it. So, when you study your inventory (by pulling back the joystick and pressing fire), make sure that you select the right object to use.

Moving from room to room is accomplished simply by moving to a door, standing in front of it and pushing the stick forward. The screen then windows open to show the new room.

The scenes include living rooms, kitchens,

hallways and gardens, each full of the mundane objects of everyday life that you must experiment with everything to find how it can aid you in finding the Pleasure Dome — the



• By the window on the computer



• War? What is it good for?



• A maximum of eight objects can be carried



DESIGNER'S FRANKIE

Computer game



Ocean

GAME: Frankie Goes to Hollywood
MICRO: CBM 64
PRICE: £9.95
SUPPLIER: Ocean

television light switches, furniture, and the various objects.

Things really take off when you insert a video into the TV system, and find yourself plunged into a series of arcade-type games. In these you have the chance to increase your personality ratings by beating the flying saucers at a target, or you can shoot at famous politicians, take part in a battle between Reagan and Gorbachev, use Mercedes-Benz from bumper, play games with a computer terminal, and more.



• In the corners of power



• Run the run-roads



• Collect the clues to solve the murder mystery

You'll soon realize that there are ways and means of making your way around the secret rooms of the Pleasure Dome. Once you find your way into the Corners of Power, you can map the labyrinth and plot your way to the Ultimate Screen, the Pleasure Dome itself.

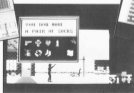
There's also a murder mystery to solve, in which you must collect the clues which appear at random, return to the scene of the crime, and identify the killer.

However much you play Frankie, there seems to be more to find. Thankfully, although Design Design, joined with the developer of the Frankie philosophy, ZIT's Paul Morley, they didn't feel obliged to include all his ideas in the game — such as a system designed to be thoroughly boring (because life can be tedious, for most sophisticated graphics, sound and operating systems have been brought together to create a game which is exciting at first sight, and which continues to provide plenty of excitement the further you progress.

It isn't worth for the 12" version. ■



• The computer terminal



• The inventory window lets you progress



• Frankie gives you the best game to play with a 12" screen



DYNAMITE SOFTWARE

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9978, 9979, 9980, 9981, 9982, 9983, 9984, 9985, 9986, 9987, 9988, 9989, 9990, 9991, 9992, 9993, 9994, 9995, 9996, 9997, 9998, 9999, 1



Melbourne's quest

Ken Matthews gives you the chance to win copies of the new text adventure and investigates the icon-driven Fourth Protocol game

I've managed to drag myself away from *Melbourne* long enough to take a long and witter look at three of the latest adventures to hit the market and, with so little space to play with, I'll get straight on with the job.

First up is *The Fourth Protocol* from Hushlabs, based on the superb novel of the same name by Frederick Forsyth. The game is centred around a KGB plot to smuggle a nuclear device into the UK and demands it before the PSY election, blame the 'accident' on a US base and replace the Thatcherite junta with a hard left government dedicated to withdrawal from NATO.

You play John Preston, now head of the section of MI6 responsible for the security of buildings and staff throughout 'X'. In the first part of this thriller some NATO documents have been leaked and you are slowly drawn into a chase to uncover the traitor.

Should you gather the required information in part one and manage the above routine tasks, you will be succeeded to MI6 and



allowed to brave the London traffic to track down the bomb before disaster strikes.

Part three is a simple task — define the device using the information gained in the first two games. You will be backed up by the SAS but, not surprisingly, the KGB are quite keen that you should fail in your efforts and will do all they can to ensure that things go with a bang!

The first two parts are completely icon driven, but the menus are very simple to understand and quick to use. It is inevitable that the game will be thought of in comparison to *Melbourne* for the icon, personally, I feel that *The Fourth Protocol* is greatly superior in all respects, not least the pace of the action, so any of you put off by icons — give this one a chance.

In game one you won't need to leave your office as often, as memos and reports appear on the VDU, and the phone keeps you in touch with your team of watchers until a memo from 'C' changes the course of your career — if you've got things right.

Game two gives the traditionalists a chance to get the map-drawing gear out, stack codes and surround yourselves with scraps of paper and cigarette smoke as you wander around the capital in search of the clue to discover the location of the bomb and get the password to part three. The icon system can be a little cumbersome here for simple movement that is normally accomplished by one letter commands but this is more than compensated for by the icons used to manipulate items, thus avoiding a frustrating search for the right picture to achieve success.

The highly original plot and inspired programming have combined to produce the most absorbing adventure I have seen for a long time — it deserves to be a best seller as much as the novel on which it is based.

The second offering this month is completely different. *Suzanne's Supergun* the Adventure, which is aimed at the very young audience.

The aim of the adventure, like the TV series, is simply to defeat the evil Neutron Campbell and his band of crazies. The game has been written by AF's Brian Howard and has graphics and animation of the same high standard as *Gridlock*.

The adventure itself appears to be a pot pourri of situations from the TV series which left me at a complete loss from the start. So, after a visit to hospital, the worst sleep and a frantic search for porridge, I bade farewell to *Suzanne* and decided to leave it to avoid loss of the demonic old lady.

Back onto safer ground, we will round off this month's review with a brief look at *Melbourne* House's follow-up to *Classic Adventure* — *Mordon's Quest*.

Peppercorn

Your task in this game is quite clear, you must simply use the ultimate brain deactivation! The game has over 100 locations — which puts me a little over a third of the way through — and boasts a plot which carries you from the distant past to the far future to possible parts of the immortality machine that will allow Morden to regain his grip on things and allow you to get your grip on mind issues.

This epic quest begins in a rather stretched house (reminiscent of the underground stations of similar name) which may have inspired the title and leads, via space-time, jungle and permanent pyramids, to an ancient city where things really begin to come together.

The vocabulary of the game is claimed to be over 400 words and, as yet, I've had no

difficulty in communicating. A great deal of time has been spent making the location descriptions long and varied enough to establish the atmosphere. Thankfully, I've also yet to find a *Melbourne* bug like those that plague *Shenck* and *The Hobbit* — *Mordon's Quest* has done a lot to ensure my faith in the anti-problem adventure — it's a good, solid text adventure.



Finally, before I get back to the quarters, I'd like to thank you all for your letters — please keep them coming — particularly Jim MacGregor of Glasgow who sent me an excellent text adventure written by him called 'Easdale' which is a joy to play and deserves a plug here. It can be obtained from Supersoft, Westbury House, Canning Road, Harrow HA1 3SL.

A lot of you ask in your letters and on the phone how to get into receiving software and writing for magazines and I tell you about the necessary skills of literary genius, wit, charm, innate good looks, money, etc — seriously though, well love to hear your adventuring anecdotes — so much so that we're offering prizes of tape copies of *Melbourne's Quest* for the half-dozen most interesting or amusing stories chosen by our 'impartial panel of experts', so hurry up and set pen to paper.

Next month I hope to find space for some hints and tips so let us know what you need to see!

· COMMODORE 64 ·



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Elite – the ultimate, award-winning space challenge.

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

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

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

"The Final Frontier?"

(Mega Game, Your 64, June 1985)

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

(Commodore Horizons, June 1985)

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

(Commodore Computing International, June 1985)

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

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



Gold
Award 1985

State of the Union— state of the art

Geoff Brown and Tim Cheney of US Gold run the highest-profile software company in the UK — yet the software comes from the States. Christina Enkline finds out why

"IT'S the thrill of getting into the charts that attracts me — getting the titles in there and watching them climb up. I was an unsuccessful musician for ten years, and all I wanted then was a chart hit!"

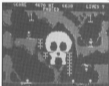
To say Geoff Brown, who, as managing director of US Gold, is certainly enjoying chart success these days. Software charts have been heavily criticized for inaccuracies for a long time now, but since US Gold's titles feature strongly in all of them, it's probably fair to assume they're not too far wrong on that score.

US Gold is run by Geoff and general manager Tim Cheney, if Geoff seems across as the more creative thinker of the two, Tim has his feet firmly planted on the ground. He has a strong track record in home computers, having worked at both Commodore and Casper.

The company was started by Geoff and his wife Anne, almost by accident, as part of their main

business, Comsoft, a software distribution company.

Along with the usual bits of the day, a few Atari titles straight from the US were trickling



Geoffrey — the game of the sparkling film



Tim Cheney (l) and Geoff Brown — "We pride ourselves on our high standards"

through Comsoft. Unfortunately, they never trickled out of Comsoft into the consumer's pockets — in 1988 they were the too expensive despite their very high quality.

"Everyone liked the stuff, but selling it was a nightmare" said Geoff. "Then when the Commodore 64 began to become popular we began to import for that too, but of course the 64 software had to compete with British titles, such as *Demomaster's*, and the need for a price cut became even more urgent.

"We approached companies such as *Demomaster* and *Kareid*, we guaranteed them volume sales, in return for allowing us to manufacture, package and set our own price. It was like checking *Moscow River* with only one leg — they simply weren't interested."

Beastlord

Geoff badgered and harassed the two US companies into submission. He eventually managed to acquire manufacturing rights from them as well, which meant that the newly invented fast loading system could be incorporated. The product began to move.

In January 1984, on a trip to the US, Geoff popped in on *Microprose* (renowned for strategic simulation games) and a top dog's called *Arnes*.

"They were just two guys in one room, and neither had ever heard of them, but they did have a title called *Beastlord*, which I thought would do well in the UK," explained Geoff.

Deals were signed with both *Microprose* and *Arnes*. Comsoft now had exclusive rights to the products of four US companies, all of a quality rarely seen on the Commodore 64 in this country.

"So far it had all been a terrific uphill struggle just to sign the deals — now I had to make sure it was worth it by selling the game."

Geoff reckoned the best way to promote the title was to give them a corporate identity — and the name US Gold seemed to fit the bill.

He was right to back *Beastlord*, as well. The game became hugely successful almost overnight, and as the games market in the UK began to slow down the American software houses realized that they would need to export their packages and open up new markets to keep growing. US Gold was content to make deals with others of American software.

By this time, Geoff and Anne's creation was



beginning, Frankenstein-like, to get out of control. US Gold's catalogue was chaotic; they had done absolutely nothing about Britain's biggest selling machine, the Sinclair Spectrum, and Commodore, their original business was beginning to wobble.

Each problem was tackled in turn. To preserve the corporate identity ideal, subdivisions of US Gold, such as All American Adventures, Transatlantic Simulations and Commodore, their original business was beginning to wobble.

Ocean

They approached **Ultimate** and **Ocean** regarding licensing out conversions of titles. Ocean took up the idea with enthusiasm, and took the pressure of conversion work and advertising work from the hard-pressed Geoff and Anne Brown. This conversion effort was not just for different machines, but because with the increasing sophistication and programming length of the US titles, conversions from Commodore disk to cassette were becoming less straightforward.

Lastly, to meet the demands on their time, they approached Tim Chaney to join them as general manager, which he did in January 1983.

Tim enjoys seeing US Gold dominate the charts just as much as Geoff, but for Tim, it's because charts mean sales.

Selling is Tim Chaney's forte. He joined Commodore early in 1982, and was out on the road with the Yu 20, at a time when most



Beasthead 2 — the final stage

people thought computers were only for the boffins to take apart and rebuild again.

In August 1983, he moved to Computers as sales manager, and he stayed at Computers until the latter end. "People seem to forget that the 1-year computers may not have been too popular in Britain but we had large markets in Turkey, Scandinavia and France," he comments.

After Computers crashed, he returned to Commodore as national accounts controller. He remembers admiring the excellent software appearing from US Gold at the time, and needed very little persuading when asked to join the company.

After the trials and spills of Computers and its lyrics, says US Gold he provided little in the way of challenge by competitors?

"Well, yes, it's certainly true to say that I had no idea how much more powerful US Gold would turn out to be," said Tim. "It took quite a while just as vulnerably how an average title, while completely dependent on good US software continuing to come through. But then, it doesn't necessarily follow that all good American software is going to come to US Gold."

Apart from the contacts made by Geoff Brown in the early days, US Gold do use three people in the US working on its behalf to ensure that the best doesn't get overlooked. The recent Walt Disney and Elyps deals were 'sourced' by their US contacts.

The Elyps contract takes over existing and forthcoming titles, so that **Impossible Mission**, **Pitfall II** and others first imported in CIBS will be re-packaged to include the familiar US and Gold badge style logos. **Summer Games II** and **Winter Games** are also not from US Gold this autumn on both disc and cassette.

Conversion

"One of the problems we are increasingly finding is that cassette conversion is getting difficult," said Tim. "On Summer Games II and Winter Games we are going to have to load in games separately, as on the other versions. Obviously that's much less satisfactory on cassette because of the loading time. Some of our KIDDS titles such as **Mirky's Space Adventure**, simply defy conversion and will only be available on disc."

Mirky's Space Adventure is part of the month-long Walt Disney deal US Gold pulled off last spring. It is an unusual contract for the company in that it gives US Gold the right to develop games based on **Britain to Oz** and **Black 4 castles** — previously the company has only published existing games. The deal also includes **Winn the Pooh** in Hundred Acre Wood, **Donald Duck's Playground**, and

Mirky's Space Adventure

US Gold's regular tie-up with **Disney** means that the company will be releasing the computer game based on **Castles**, the new Steven Spielberg backed film. **Gnomes**, the film, involves a gang of children boored with long summer holidays, who learn stories about hidden treasure, and set off to hunt for it in a network of underground tunnels and caves. The plot sounds like a game programmer's dream.

Interestingly enough, US Gold's **Gnomes** game will be released here in September although the film is scheduled for a Christmas run, so the movie will beat the movie by a good three months.

By Christmas, US Gold plans a catalogue of around 100 titles, including conversions to Atari and Amstrad and even Intertex. Is there not a danger that some US companies might feel their products will get lost in the sheer size of US Gold's list?

Viability

"We do try to ensure viability by advertising titles separately, and not bringing out huge batches of games at any one time," said Tim. "We work out the advertisements and what sort of ads there should be for each title quite separately. But, again, you can't deny that the titles are competing against each other — we can't stagger launches so that the games don't clash."

The company also has two other trump cards up its sleeve for 1985. **Broderbund's** much loved **Kamikaze** laser simulation will be available from US Gold on the Commodore this autumn. It will be interesting to see how a company with **Milbourne House's** immensely popular **Expanding Fit**.

Secondly, the company is looking at possibilities of producing an official World Cup football program to coincide with next year's World Cup in Mexico.

A popular cliché this summer is that low software sales are ensuring that the strong companies are getting stronger and the weak companies are getting stronger and the weak ones weaker. Tim Chaney remains that so long ago warner. The American companies are contract to release quality entertainment software, there's no reason why US Gold shouldn't go from strength to strength. But the emphasis has to be on the word quality. As Geoff Brown says, "We could go and pick up hundreds of packages from America — there are so many being produced, that they do have to be of a very high standard — that's what we pride ourselves on" ■



WINTER

The world's funniest programmer turns his back on children's comics and starts a series for CH... anything could happen!

GREETINGS again, this time from the input pages of Commodore Magazine (well I enjoyed writing the Zapp, but it seems they didn't like my newsletter so I'm afraid I got the COMPSD ... but I don't mind at all, I'm still getting through!)

Confessions of a Computer Junkie ... I've had a random for quite a while now, and up until the Commodore show I didn't really see it much, but I logged on the work after the Show and ... well ... I haven't been to bed before five o'clock in five since, and I'm definitely in line for a mega-photo-bill next quarter ...

The trouble is this thing they've got called



Charlie. You can go on, upload frames into a directory, anyone can log around with them and upload their reply which you can read immediately. Sort of like on-line CB but with a longer time delay and not so many waffles (although there are some). It's nice in that you can text text, graphic frames or even programs, and that several people can join in the chat at once. It gets super 'chubby', there are several hard-core late-nighters who you regularly meet (there's even a group of late night wannabes, that's VIK, ANTELOPE, BATT, CRUJAR, YETI, etc) then there's the famous Fagg with his sheep and floggy's (a jazz music demo) ... Most people have their own little directory somewhere (mine's called VIK'S HAIRE BIT) into which they upload demos, graphics, anything interesting that people may want to see, and usually for free too. You can wander about the database at will downloading whole'yards of whatever you're interested in, then logoff and try them out. Of course you can buy commercial software too in a special area called Software Park, and more

of it can be saved to disk or tape (by using the help of the "is it not on disk yet?" dilemma menu). And anything which can not distribute and share stores has got to be zapped.

The only bad thing I can see about the Net are that it does slow up a bit if you go on and there's a lot of other users about (like say a Sat afternoon) but if you're like me you'll do most of your workback in the night ... which leads me onto my other gripe: it's staggeringly addictive (the bags under your 'yak's eyes will attest to that) and you'll have to watch it if you're not to cry that mega photo bill!

If you're considering going home, the



advice of the 'Yak is Go for it! it's ZAK!ZAK!ZAK!' I'll say yes on the Chatline at Jam 24777 'Yak-zapper' ... Well I got my copy of **Kiss me 'ere it's zapped**, it's just that **Star Walkers** ... Seriously though, it's well put together; if you liked it on the Beeb then you'll love it on the '84, the docking sequence is hyper-hyped, especially if you're a Docking Computer and you just that see 'COM' music on the computer docks at breakneck speed



Homocraft



... to the ...
... entrance of the ...
After Donkey walks ...
... Mark you, the ...
... looking computer ...
... HAS been known ...
to blow it up! spend your ...
atoms all over the side of the ...
space station, and I'll be ...
lucky to see some 'yak' babies it is ...
Star Walkers instead of the old lines ...
down to the middle of the screen, just ...
we got at the moment ... Each game ...
and only minor holes of personal taste ...
though, like on the '84 it's every bit as ...
impressive as it was on the ...
Beeb ...
All this talk of mega ...
games' but today will lower ...
the 'yak stick' down and consen ...
sually plugging away at **Executive's** ...
Moan Cards ... you know, that ...
old arcade game which came ...
out in the Galaxian era where you ...
Maxed an little fluffy ...
balls and had to make your ...
wheels dock every now ...
and again, I know it's only a ...
simple down-up but will the 'yak' ...
beat that of 6 to count ...
... talk with Executive ...
has about a five button ...
money (not time bank!) ...
better for us junkies! ...
... Still into arcade ...
conversions I now ...
got that **Crestal** ...
Galaxy I was on ...
about, and boy is it ...
a joy of a ...
little mega-fun!'. For in this way, I played ...
the '84 version ...
while then ...
walked up to ...
the actual ...
game in North ...
ampton for ...
Rick and ...
immediately ...
sawed six stars ...
as much as I ...
ever managed ...
on the coin-op ...
previously ...
that shows a ...
really good con ...
version, when you ...
can practice an ...
'84 version and ...
keep the benefits in the arcade ...
I hope someone does an

R M A N I A

... good in
... job with
... that mega-
... **Yakki Machine**
... Madras arcade game
... the Yak can get
... amounts of that one,
... many Mister Hips have dis-
... appeared into Madras's elec-
... tronic gutter ...

The Yak was also well impres-
... ed by what he saw of Mell-
... brown's new Kang Fu one at
... the Commodore show ... great
... graphics of Oriental music too,
... and it's also unique in that it

... contains soft-
... speech and
... animation

... simultaneously
... although you can turn
... this off 'cos it does even-
... tually sound like the
... Dead of the Dakotas but
... if you're into the martial-
... arts it's nice, certainly in the
... areas there this is really
... good.

Yak Machine! ... I saw
... have one of the Madras-
... Machine's, the
... Atari 520ST ... the
... WHILL, blown away
... by that one, like
... totally Astonishing

... Still, Commodore
... ain't their
... too badly
... either, their
... 128 looks like

... being the
... very finest
... thing on the market
... and an obvious
... approach
... for all
... us Yak
... junkies.

At first I
... must admit
... the ST over-
... took me as I
... didn't see
... much in the
... Commodore's
... offering, but the more I
... look the
... better it gets.

Look, in
... 128 mode you get



the best basic this side of Alpha Centauri with
... lots of useful stuff like commands for 512 or
... a spin-of-track so, plus the clock (and there-
... fore your program run faster as fast as on the
... '84. Plus you get 64 modes so you can still play
... whatever turns you on, then if you want to
... be magnificent you get CPM and the 280
... mode. At around £80 that's pretty good in the
... Yakklands, the only real problem you'll
... have is whether to go 128 (yep!) 8bit but
... retaining C64 compat or' also not having to
... learn that much new stuff (I'm not exploiting
... your extra power) or to go 14bit with the 280

ST (Aer's) software; ST: not much software
... as first, but if you're prepared to wait I
... guarantee I'll blow your brains out! ...

It'll be interesting to see what Commodore
... makes of the new Amiga, into subordinated
... launch in America this summer. I can't
... wonder whether Commodore will introduce
... it into UK, until they can get the price out of
... it. High price apart, this machine sounds
... mega. I can't imagine graphics I have, 4895
... colours someone must intend 100 per cent
... for they said, or' if they talk in scan-lines it
... means static interlaced all round again,
... yipped! Even if Amiga itself turns out really
... unimpressive, there's still the possibility of
... 128 Commodore using similar chips in a low-
... cost series ...

While on the subject of Amiga I must
... relate a weird encounter I had at C'Commodore
... show ... yes, Commodore employees, come
... up I met and asked me if I'll be doing any
... non-driven graphic adventures in the Shadowline.
... Who, asks a puzzled 'Yak' 'WTF' can he
... 'write looking for really original software for
... the Amiga. So he went original stuff so why he
... want the Yak to copy Shadowline huh? Pre-
... maybe he was worried about the looks ... but
... it gets sillier saying 'n're gonna see 'em on
... a micro-drive too like Amiga, so why not
... Calouquaque on Miami or something, why
... only graphics?!! There are some weird
... 'thinkin' going on somewhere ...

Anyway I finish now, I got subgame 2 to
... do, if any of you Commodore folk got Netwin
... do give me a MBX (id is L.L.A.M.A.) or go on
... the Chatline, I'm the one with the bags under
... the eyes or' not typing straight from too busy
... fingers ...



Demystifying the machine code muddle

Assemblers, disassemblers, editors, monitors — what are they, and how can they help you to master machine code? *John Cochrane sorts out the confusion*

THIS article is about machine-code. Then, with just one sentence I have probably scared

off about half the potential readers of this article. Machine-code, monitors, assemblers, disassemblers, editors, these are words which confuse and scare a large proportion of computer users because they have come to represent the "black-art" of computing, something that only the white-knives and computer-geekies can master. I won't

make the mistake of claiming that machine-code is a simple subject, but I do say that with patience it can be understood by most programmers, and that most programmers will benefit from spending at least a little time experimenting with it.

I shall attempt to explain the differences between editors, monitors, and assemblers, which are the tools most frequently required when writing machine-code programs. The remainder of the article is a brief review of some of the commercial programs available, their relative strengths and weaknesses, and the ways in which they might be used. The programs reviewed are just a few of the many available but they represent a good cross-section of the types of programs on sale.

Editor

An editor is a program which allows you to enter and modify files of data. The Commodore 64 has a very good built-in editor which is intended for Basic program files. Program files are built up by entering a line at a time. These program lines can be saved, loaded, listed, and modified. In the same way assembly-language (I'll explain this term in a moment) files, list files, and data files need editing when working in machine-code and the Commodore 64 Basic editor is often used for this as well. Where such things as ency-

cling generation of line numbers or a block line-delete function are required then either the

Finally assembles. These convert assembly-language programs into machine-code programs. An assembly-language program is one which is written using microprocessor commands, or instructions, as words rather than the byte-codes usually used by the microprocessor. Thus, for example, the assembly-language instruction "RTS" which means return-from-subroutine will be converted by an assembler into the material code 06 decimal (06 hex).

Assembly language programs are step-by-step descriptions of machine-code which can be understood (in theory) by humans.

Many of the packages also include a disassembler. This displays the assembly-language equivalent of a machine-code program. The disassembler is usually included as part of the monitor program as it is a way of examining the programs currently held in memory.

Much confusion arises because the terms described above are often misused or used rather loosely. Most commercial 'assemblers' will also include an editor and/or monitor. Many 'monitors' will include a disassembler (converts machine-code into assembly-language) and perhaps even an assembler. Many programmers and writers talk of machine-code programming when they really mean assembly-language programming, assembly-language programs are called source-code or some limit on, machine-code may be referred to as object-code, and so on.

Hex loader

If you want to start experimenting with machine-code you will need some of the software tools noted above, and probably more if you want to program seriously. It is possible to start with just the software already provided



Software tools make it easier to get into machine code — but which do you need and how do you choose the best package?

Commodity editor has to be extended or replaced with a new editor.

A monitor is a program which is used to directly examine the computer memory, to make changes to the memory, and to keep track of what the microprocessor is doing at various times. Most commercial monitors allow you to do additional things such as copy blocks of memory from one place to another. In principle, a monitor is all that is really needed to set up and run machine-code programs. In practice, however, monitors are too tedious to use for all machine-code programming but are important for some operations such as debugging machine-code programs.

in the Commodore 64. As I have mentioned, the Basic editor can be used as a general-purpose editor, blocks of memory can be saved and loaded using the normal Basic commands, and PEEK/POKE can be used to set up data and programs in memory. His loaders are often reproduced in books and magazines which allow the writing of machine-code programs. Such programs are in fact primitive monitors. However the scope for serious programming is limited and producing machine-code in this way is very slow.

The next step up is to write your own monitor, or even a full assembler, starting from Basic. This is quite feasible, as David Lawrence and Mark England have demonstrated with the **Mastercode Assembler** which includes a monitor, an assembler, a disassembler, and an editor, but such programs are generally rather slow to run. Also, machine-code tools written

around Basic will tend to be less sophisticated, and hence less versatile, than purpose-built commercial programs and they can run up quite large amounts of memory and hence comparatively little for your machine-code.

Commercial

If you want an easy life and are more interested in machine-code than in finding out how the Commodore 64 Basic system works, then you will go out and buy a commercial package. Which one you buy will depend on your own special requirements and the depth of your pocket. I have listed some of the most important features of a number of representative packages in the table, you will have to decide what it is you want to do before you can pick out the best package for yourself. If you want to delve into the depths of the Commodore memory but do not anticipate

seriously producing much machine-code of your own then look for a good monitor. If you intend writing commercial machine-code software of your own or you intend working on a particularly complex program then you should probably concentrate on the more sophisticated packages.

I have included the **Mastercode Assembler** in the table, as it shows what can be done with a well thought out program entered from the keyboard. I have also included the **Aids Training Course** produced by First Software because the assembler and disassembler, although somewhat simple, are included as part of a much larger package.

Do not place too much emphasis on any particular feature noted on the table, it is often possible to achieve a given effect even if a single special command is not provided. Also, the tables cannot tell the whole story about the strengths and weaknesses of each package.

Documentation is another important area. All the packages state that they do not attempt to teach machine-code to beginners but all should subsequently explain what the package does and how to best use it, this is achieved with variable success. The **Zen 64** instructions are easy to read and have a complete reference section, although if anything I think that there could be a little further explanation of the more complex assembly processes. The **Examen** manual is very brief and offers very little by way of explanation but is at least complete. The **Milvus Assembler** manual is too brief and does not do the software justice; the user is left to experiment with the software to find out the limits of what can and what cannot be done. Finally, the manuals provided with the First Software products are translated from German and are very well prepared. Although there are a couple of areas where the translation is not as clear as it should be, the full descriptions and use of examples makes for a clear understanding of how to use the package. ■

HOW THEY COMPARE

	Mastercode	1st Aids	Examen	Zen 64	1st Examen	Milvus Examen
Editor facilities						
Auto line number						
Remember	*			*		*
Block delete	*			*		*
Merge/Append					*	*
Disc directory			*	*		*
Monitor facilities						
Register display			*	*	*	*
Memory hex display	*		*	*	*	*
Memory char. display	*		*	*	*	*
Display file pointer	*		*	*	*	*
Fill memory blocks			*	*	*	*
Copy memory blocks			*	*	*	*
Compare blocks			*	*	*	*
Load/save blocks	*	*	*	*	*	*
Verify save			*	*	*	*
Switch memory banks			*	*	*	*
Search for string			*	*	*	*
Accept decimal entry	*	*	*	*	*	*
Hex converter			*	*	*	*
Exclude MAC	*	*	*	*	*	*
Exclude subroutines			*	*	*	*
Single step	*		*	*	*	*
Breakpoints			*	*	*	*
Trace			*	*	*	*
Assembler facilities						
Assemble to (Disk)	DMT	D	M	M	DM	DM
Assemble to (Memory)						
Assemble to tape						
Delayed assembly				*	*	*
Split assembly	*		*	*	*	*
Chain assembly			*	*	*	*
First source file	*	*	*	*	*	*
First assembly	*	*	*	*	*	*
Label length (chars)	8	any	0	31	8	any
List labels/symbols			*	*	*	*
Extension (Alphanumeric)	A			ALN	ALN	ALN
Extension (Alphabetical)						
Extension (Hex)						
Extension (Half byte)						
Multi-instructions				*	*	*
Macros				*	*	*
Assembler branching				*	*	*
Estimation entry point				*	*	*
Comments	*	*	*	*	*	*
Constants (Hex)	HEXC	HE	H	HEXCA	HEXC	HEXC
Constants (Decimal)						
Constants (Binary)						
Constants (Decimal)						
Constants (ASCII char)						
Constants (ASCII)						
Search for string				*	*	*
Search and replace				*	*	*
Disassembler facilities						
Modify code		*	*	*	*	*
Find disassembly	*	*	*	*	*	*

Package: The Aids Training Course

Price: £28 (disc)

Supplier: First Software Ltd, Unit 208, Horseshoe Road, Pangbourne, Berks, Tel. 07187 5244

Package: Examen

Price: £8 (tape), £18 (disc)

Supplier: Interceptor Micro's, London House, The Green, Tadley, Hants, Tel. 07356 7145

Package: Zen 64 Assembler

Price: £20 (tape), £15 (disc)

Supplier: Crystal Computing, 125 Sandley Road, Chorlton Hill, Manchester, Tel. 061-281 6685

Package: Assembler Monitor 64

Price: £20 (disc)

Supplier: First Software Ltd, Unit 208, Horseshoe Road, Pangbourne, Berks, Tel. 07187 5244

Package: Milvus Assembler

Price: £68 (cartridge)

Supplier: SapereSoft, Winchester House, Canning Road, Wokingham, Hants, Tel. 01-961 1166

Glorious colour

An extract from **Raeo West's** authoritative *Programming the Commodore 64*

UNDERSTANDING user-defined characters is essential to getting the most from multicolor mode. However, the general idea is fairly easy to grasp. It is another Commodore compromise. In order to get more color into the screen, resolution is cut in half. Below is a discussion of how this works with ordinary graphics; the principle is the same in high-resolution mode.

Normally, a "row" in a character definition shows up in the foreground color, and a row shows up in the background color, so only two colors are obtainable within each 8x8 character area. Multicolor mode allows four colors to be selected per character, at the cost of halving the horizontal resolution. Instead of 8x8 dots, it offers 4x8 "wide" dots, each of which can take one of four colors.

Multicolor mode is enabled by setting bit 4 of VIC-II register \$E0 to 1. This is done by using POKE \$E0,\$E0+\$10000. (Normally, POKE \$E0,\$E0.) The following command switches back to normal mode: POKE \$E0,\$E0-\$10000. AND/OR (normally, POKE \$E0,\$E0).

Enabling

The above POKEs enable and disable multicolor mode globally, over the whole text area; but it may also be enabled on a character-by-character basis to have any effect. This is done by the value in the corresponding color RAM location: if it is from 0 to 7, then the character appears in ordinary mode, and if it is from 8 to 15, then the character will be in multicolor mode. In other words, bit 3 in a color RAM location determines whether the corresponding character is in ordinary or multicolor mode. Thus, the screen may simultaneously display multicolored and ordinary characters.

To get the full of this, type some listing:

Table 1		
Bit Pattern	Color Specified By	Address of Register
0-0	Background 0 color register (normal background color)	\$1281 (\$081)
0-1	Background 1 color register	\$1282 (\$082)
1-0	Background 2 color register	\$1283 (\$083)
1-1	Lower three bits of color RAM (character color)	

Table 2		
Normal	Multicolor	Displays As
00001000	00 00 00 00	BC0 BC1 BC2 BC3
00101000	00 01 00 00	BC0 CR CR BC3
01001000	00 00 01 00	BC1 BC2 BC3 BC3
00101010	00 01 01 00	BC1 CR CR BC3
01001010	00 00 01 01	BC1 BC2 BC1 BC3
01101010	00 01 00 01	BC1 BC2 BC1 BC2
01001100	01 00 00 00	BC1 BC2 BC1 BC2
01101100	01 00 01 00	BC1 BC2 BC1 BC2
00000000	00 00 00 00	BC0 BC0 BC0 BC0

in several colors, including the low or muted Commodore key colors. Enable multicolor mode with the POKE given above. You'll see that characters in black through yellow are unchanged, while those in orange through light grey alter dramatically, because bit 3 of their color RAM has this dual function.

The source of the color in each two-dot unit is shown by table 1.

Registers

The three registers can take values from 0 to 15; the three bits specified by color RAM refer values 0-7. Notice that units containing 8F appear as black in standard or multicolor mode. Note that the border color in \$1280 is independent of the background colors, unlike VIC-20's multicolor mode.

It follows from this table that an orange (Commodore key-BL4) character will be displayed as black when multicolor mode is enabled — try it with reverse-space block in orange. Similarly, a light green character switches to grey.

Consider how the character A is defined in BC04 (see table 2).

The first illustration shows how the definition is interpreted in normal mode: since display in the background color and since display in the foreground color, specified by the character's color RAM.

The second and third illustrations show how the bits are interpreted as grouped in pairs by the 84 in multicolor mode. The abbreviations BC0, BC1, and BC2 represent the three background color registers, which are set to 5 (dark blue), 1 (white), and 2 (red), respectively, on power-up. (The SN-64 sets BC0 to white, however.) CR is color RAM, which is 14 (pale blue) on power-up of the 64. Note that the three background colors apply over the whole

screen area; only the character color can vary from character to character. Therefore, when designing multi-layer graphics, select the three colors you wish to spread most widely on the screen, and let the character color vary locally.

Assuming the 64 has its power-up values, some POKEs \$1276 to enable multicolor mode. All characters will be displayed in

multicolor mode, since their color RAM value is greater than 7. Assuming the various registers have their power-up values, BC0 will show up as dark blue, BC1 as white, BC2 as red, CR as a dark blue (produced by the pale blue value with bit 3 stripped off). This is what the colors should be, but they may not show up particularly clearly on your TV or monitor.

The cursor disappears because the source space character is a block of bits pairs in the pattern 11; the color is given by color RAM and then shows up in multicolor mode as dark blue. Type Commodore key-GRN to make it disappear; printing will continue in multicolor mode. CTRL-GRN will also make it reappear, but causes printing to continue in standard mode because of the different color RAM settings. Enter POKE \$1281 to make BC2, as well as BC1, white; the multicolored characters now contain large areas of white. Type Commodore key-WHT followed by a few more characters; even larger areas now show as white, as BC1 and BC2 and CR are all now white. Usually, of course, contrasting colors will be used. CTRL-WHT will select a foreground color value less than 8; type this and then further characters; these display in standard mode, because of the color RAM value, and are unaffected by BC1 and BC2 settings.

These multicolor characters have a chunky appearance, since they have half the horizontal resolution of standard characters. They can be used for decorative borders and designs, and for graphics. You may need to experiment to find the best combinations of colors for this effect. They are easier to use than user-defined characters and take up no extra space in RAM. Finding characters which look right may be difficult, though.

Multicolor

With some work characters in multicolor mode can produce impressive results. For example, BC0 may be set to 12, and BC1 and BC2 to 8 and 14, giving orange and light blue and the local colors on a medium grey background, allowing, say, a grey sky, orange ground, and light blue middle-distance, with small objects in any of the eight main colors.

The following BASIC program lets you experiment with all combinations of BC0, BC1, BC2, and CR. It displays almost the entire character set (with, once at the top of the screen in standard mode and again below it in multicolor mode). The function keys F1, F2, F3, and F4 advance the values in the three register values and the color RAM of the multicolor mode characters.

You may prefer to experiment with character sets in two colors—only if so, modify the program to POKE the background registers with 8, and make the function keys toggle, with POKE \$1281—(\$1282,\$1283) AND 11)

Listing 1

```
10 VIC=53148:COL=53264
20 PRINT "(OLD)"
30 FOR J=0 TO 255
40 POKE (J*4+0),J:POKE COL+J*2,J
50 POKE (J*4+2),J:POKE COL+J*2+528,J
60 NEXT J
100 POKE VIC+32,PEEK(VIC+32) OR 15
200 GOTO 30 IF GOTO TRM 200
210 IF GOTO "[I]" THEN POKE 53264,(PEEK(53264)+1) A
   OR 25
220 IF GOTO "[r]" THEN POKE 53264,(PEEK(53264)+1) A
   OR 25
230 IF GOTO "[P]" THEN POKE 53264,(PEEK(53264)+1) A
   OR 15
240 IF GOTO "[Y]" THEN TRM 200
250 VC=(PEEK(COL+528)+1) AND 15 OR 0
260 FOR J=0 TO 255:POKE COL+J*2+528,VC:NEXT J
270 GOTO 200
```

Listing 2

```
220 IF GOTO "[P]" THEN POKE 53264,(PEEK(53264)+1) A
   OR 15
230 IF GOTO "[r]" THEN POKE(53264),(PEEK(53264) AND 15)
   : POKE 53278,(PEEK(53278) OR 6)
240 IF GOTO "[Y]" THEN POKE(53278),(PEEK(53278) AND 15)
   : POKE 53264,(PEEK(53264) OR 6)
250 VC=PEEK(COL+528)+1
```

or a similar statement. The AND 15 is necessary to remove the high nibble, which varies. Also try replacing line 250 with 250 VC=(...)-NC.

Multicolor mode is probably the 64's most popular graphics mode. Although its theory resolution is halved, in practice TV limitations mean that 128 individual colored dots (that is, 48 sets of 4 sets) really distinguishable across a TV screen. The 64's Commodore key+ character, for example, is one made of alternate 0's and 1's. It's composed of alternate 00 and 01 pairs. This is why multicolor characters often look similar to their normal equivalents, and why normal characters — Commodore key+2, for instance — often appear thicker than you'd expect.

Even with multicolor mode enabled, characters don't have to be displayed in multicolor mode, which adds to the mode's versatility. Programs can be developed using PRINT and/or POKE to move characters around; each program will work just as well if the graphics are rendered in multicolor form. This requires more work, since character definitions must be loaded into RAM and the VIC chip made to access them. However, this is still easier than full bitmapping.

Bitmapping

Extended background color mode is a relatively new display mode, and the VIC-30 has no analogous mode; it cannot exercise with color modes. The screen bleeds out as long as multicolor mode or bitmapping is also switched on. Like multicolor mode, the full graphics set is divided by four to allow more color. Usually the 64's background color (BG0) controls over the whole background, and through each of 1600 character colors can vary. The background has to be consistent — though this is dispensable by including solid blocks of local color. Extended background color mode allows the background and color of each character to be chosen from one of four colors. Dots are interpreted singly, not

in pairs like multicolor mode.

The trade-off is only 64 characters can be displayed at one time. The two highest bits of each character determine the background color (see table 3).

Table 3

High Bits of Character	BC Color Specified by Background 2 color register (used screen background)	Address of Register: 53281-53283
0 0	Background 2 color register	53281 53281
0 1	Background 3 color register	53282 53282
1 0	Background 2 color register	53283 53283
1 1	Background 3 color register	53284 53284

The displayable characters are the first 64 in the character definition area. The foreground color is set by the color RAM nibble. In summary, each of the 1600 characters' backgrounds can be set to colors 0-15; each background can be set to one of four colors, each of which may be 0-15; and only 64 differently shaped characters can be displayed, each in two colors at most.

Extended background color mode is selected by setting bit 6 of VIC-II register 5H1 to 1; this can be done with POKE 53265,PEEK(53265) OR 64. The command POKE(53265,PEEK(53265) AND 63) switches back to normal mode (POKE(53265,0) for an and POKE 53265,27 has will normally work fine.)

You can view the VIC-II registers using BINARY-DUMP/RESTORE. Background colors 0-4 are set to 0, 1, 2 and 3, corresponding to blue, white, red and cyan. Now, enable extended background color mode with the above POKE. The cursor flashes red but pale blue, because inverse-space is POKE(0 as 00 on the screen; the bit pattern is 00000000, which is 00 with 000 as the leading bits. So it shows as a space character with background color governed by BG2, which is red.

Type a few unSHIFTed letters, and they will

appear the usual light blue on dark blue. Now try SHIFTed letters; they are unSHIFTed on the screen, but their background is now white, governed by BG3. The POKE codes for A and SHIFT-A differ by 64, so the same character is displayed in extended background color mode.

Type CTRL-[FMS] followed by unSHIFTed letters; now the background is red. Use the cursor, because bit 6 is set to select register BG02. Finally, without pressing RETURN, type in a few SHIFTed letters; this [FMS]SHIFT combination sets bit 7 to 1, selecting BG0's own background. The result is a bit hard to read on some sets; try POKE 53280,0:POKE(53280,7), setting BG0-BG3 to black, white, yellow, and cyan, with red leaving (POKE 648,1).

Highlights

For a further demonstration, add these four lines to the "Multicolor Mode" demo program and run the result (Listing 3).

Extended background color mode can now be selected by typing B, and multicolor mode by typing M. Typing 0 advances the value in register BG2, while the other keys function as before.

You'll see the reduced character set and extra background colors clearly. The small available range of character shapes makes this mode unsuitable for most purposes. But if you're content with numbers, uppercase letters, and punctuation symbols, extended background color mode allows colored

highlighting which is otherwise much harder to program.

The unSHIFTed, SHIFTed, inverse, and inverse-SHIFTed characters (in ordinarily extended) will be displayed on background colors as stated in 53281-53284. Note that unSHIFTed space, conveniently appears as the default background color. ■

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64

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Steve Cullen, Peter

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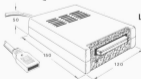
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Powerful for the experienced user

Superscript also gives you flexibility to customise it extensively during your own personal business or for an enterprise. This means that with a single keypress you can produce completely user-programmed results like addresses from a gateway, lists of documents/information available per programmed sequence of operations. That's intelligence!

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Reflex

This 64 program comes from Paul Munce of Mongoose-In-Spring

REFLEX is a two-player game which tests the speed of your reactions. Two computers face each other across the screen. The yellow computer is player one, joystick port one; the white is player two, joystick port two.

When the word DRAW appears, press your fire button as fast as you can. The first player to achieve ten victories wins the game. The game includes sound effects and simultaneous flashing border colours.

```

10 FOR I=0 TO 100:PRINT "DRAW",FORC=0:FORC=255:G
20 FOR I=1 TO 255:PRINT "#####"FOR J=0 TO 10:PRINT
30 FOR I=1 TO 255:PRINT "#####"FOR J=0 TO 10:PRINT
40 PRINT
50 FOR I=1 TO 255:PRINT
60 PRINT "#####REFLEX"
70 PRINT "#####"FOR J=0 TO 10:PRINT
80 PRINT "#####"FOR J=0 TO 10:PRINT
90 PRINT "#####REFLEX"
100 PRINT "#####"FOR J=0 TO 10:PRINT
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1060 PRINT "#####"FOR J=0 TO 10:PRINT
1070 PRINT "#####"FOR J=0 TO 10:PRINT
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1120 PRINT "#####"FOR J=0 TO 10:PRINT
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1160 PRINT "#####"FOR J=0 TO 10:PRINT
1170 PRINT "#####"FOR J=0 TO 10:PRINT
1180 PRINT "#####"FOR J=0 TO 10:PRINT
1190 PRINT "#####"FOR J=0 TO 10:PRINT
1200 PRINT "#####"FOR J=0 TO 10:PRINT

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