

# The Australian COMMODORE and AMIGA REVIEW

**Video**

**C64 Digitiser**

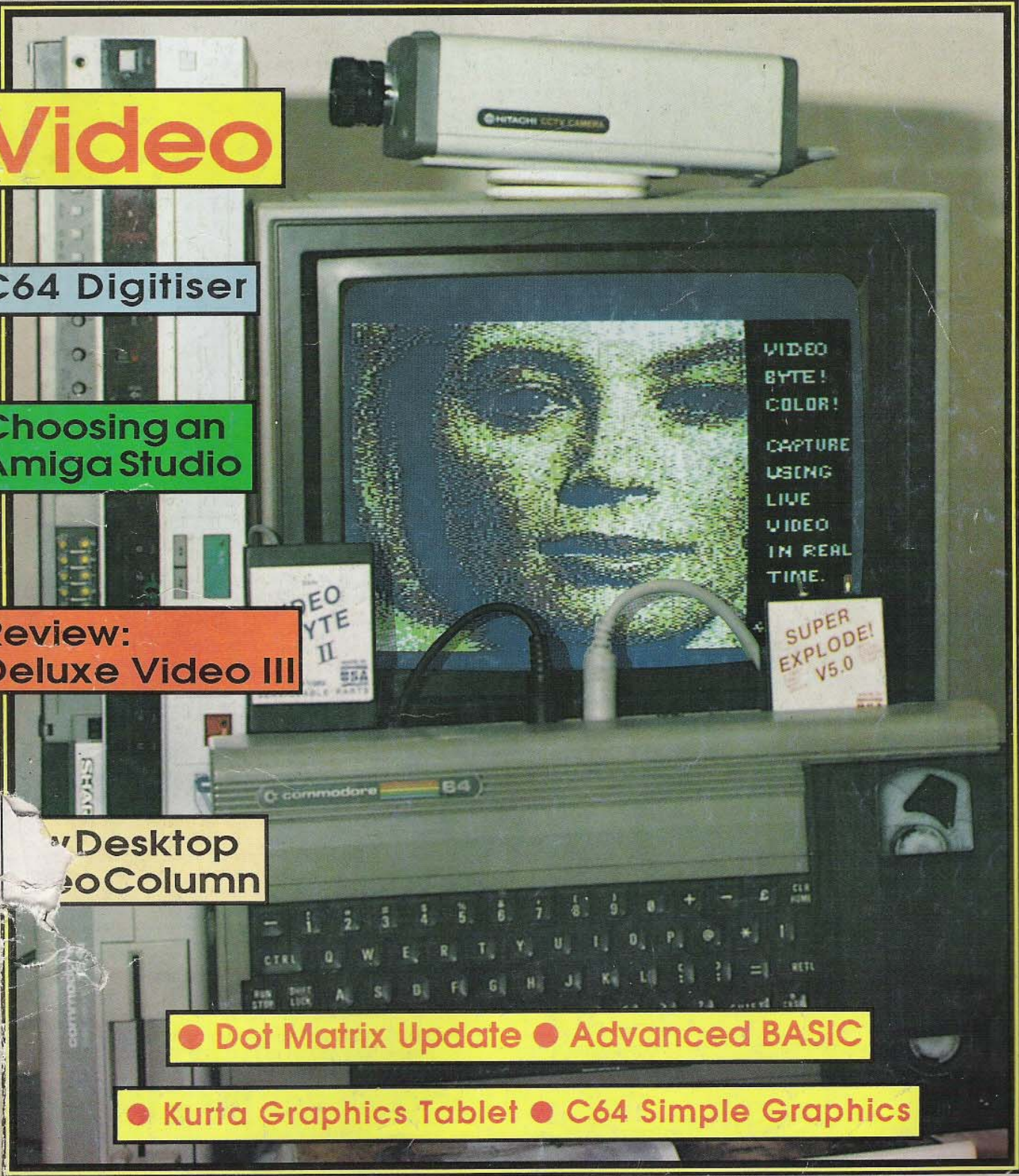
**Choosing an  
Amiga Studio**

**Review:  
Deluxe Video III**

**Desktop  
Video Column**

● **Dot Matrix Update** ● **Advanced BASIC**

● **Kurta Graphics Tablet** ● **C64 Simple Graphics**



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# The Australian COMMODORE and Amiga Review

VOL. 7 NO. 4

April 1990

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LEADERS IN PC ENTERTAINMENT

# Editorial

COMMODORE have definite plans for two, possibly three, exhibitions this year.

The first exhibition falls in line with this month's theme - getting into video. It is **Sound and Vision '90**, a major exhibition for the film and television industry. It will be a four day event, to be held at the Sydney Showground from July 3rd to 6th. Commodore expect to be the sole computer exhibitor, with a largish 165 square metres of space. It sounds from those involved as though it will be an event well worth visiting, especially if you're serious about the Amiga in video and music.

The second exhibition is in the educational arena. The fifth **World Conference on Computers in Education** will be held at Darling Harbour from July 9th to 13th. Once again, an ideal point for teachers and students to view the Amiga's capabilities on a slightly smaller Commodore stand.

The fact that Commodore has chosen these events, rather than mainstream shows such as PC 90, is proof of their commitment to promoting specific areas of the Amiga.

Organisation behind these events has produced a large rush of enthusiasm amongst dedicated users and professionals. How thrilling it was to be personally involved in the behind-the-scenes organisation. Many names and faces within the industry who are masters of their art are involved with Commodore's plans for this year - which is continuing to unfold as the year Amiga succeeded.

The third is a possibility which we hope Commodore will pursue. An exhibition covering all areas of the Commodore C64 and Amiga machines would be eagerly received by Commodore's faithful following, also bringing these great machines to the attention of the uninitiated.

No doubt, it would also be an opportunity to showcase products from overseas suppliers as well as talking to representatives from people like Gold Disk, Soft Logic, Newtek and the like. I believe such a show would be a very worth while event for Commodore and Commodore users alike. Let's hope they keep the plans rolling along.

Lastly, I am very keen to hear from any person interested in writing a regular column about the C64 or C128, especially about GEOS. Please contact the editor

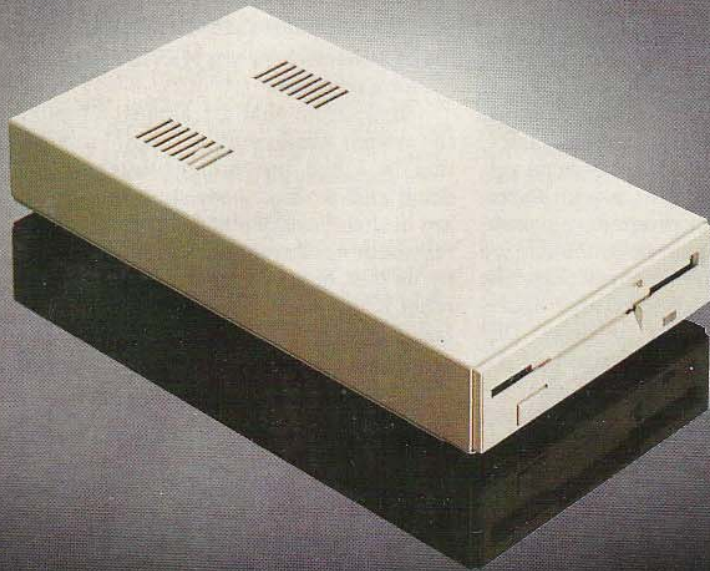


**Andrew Farrell**

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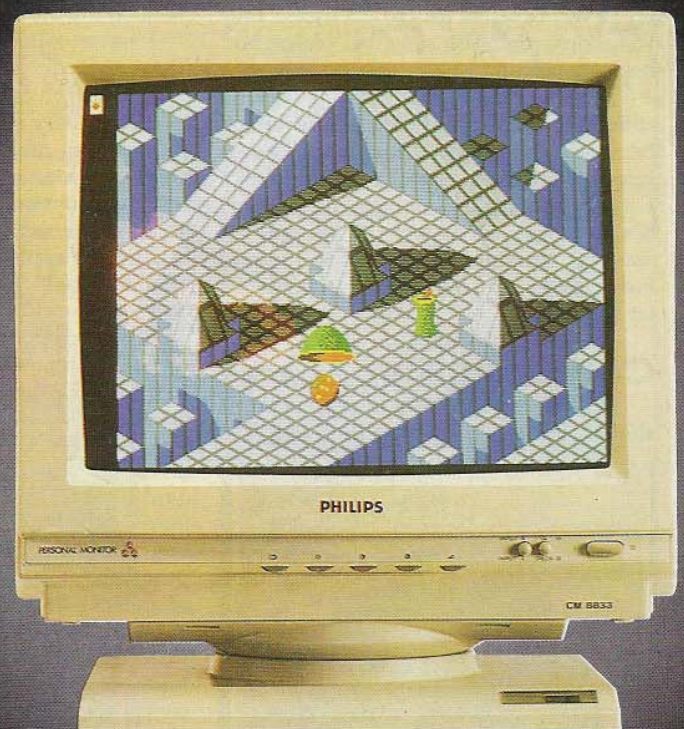
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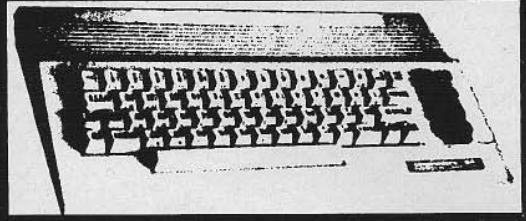
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# C64ers...



## JiffyDos Update

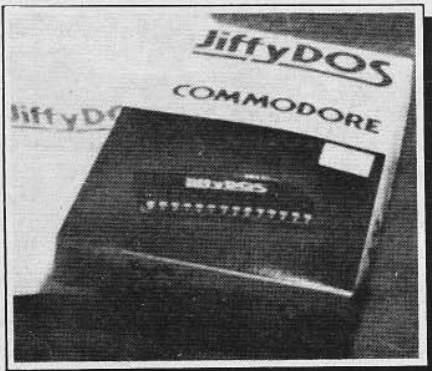
● Having first read the review of JiffyDos some time last year, I was a bit dubious about some of the claims made. However I purchased the system anyway. (I have a C128 plus 1571 drive.)

I proceed to fit the "chips" as instructed in the docs. Fitting the chip into the drive was a simple painless procedure, clearly laid out in the instructions. Next I came to installing the two chips inside the C128, where I discovered I had a discrepancy as to which chips to replace. With "The Anatomy of the C128" book on hand, I tried to identify the correct chips. I found that what the book said was the 64 kernal was not what the installation instructions said - which was right? Well, working on the assumption that the makers of JiffyDos knew what they were doing, I fitted the chip as per their instructions. Lo and behold it worked! Ten out of 10 to Creative Micro Designs, they were right and the so-called "reference" book was wrong.

Anyway, having put the tops back on computer and drive (I left the screws out, because if the system didn't work, or was incompatible with any of my programs, I wanted to quickly replace the original ICs) I proceeded to test the system. All was fine, programs loaded up to 15 times faster, saves up to three times faster. So far so good.

### Compatibility

● The system was doing what it should, but now came the final test, that



of compatibility. I've got lots of games, so I can do them any time. My main priority was to use the system with *Superbase*. So I loaded the program, no problems, access files, again no problems, the final test was to run one of my *Superbase* utility programs which scans and reports on all data spread over six disks. This process usually takes in excess of 1.5 hours. To cut a long story short, the process took exactly 42 minutes, without any problems. SUPERB...

So I continued using JiffyDos for the last three months. During that time I have come across several programs (games) that would not load, also one graphics package (*Artist 64*), so first thing I did was switch the JiffyDos off and try again, still no go. Next I replaced the original ICs and still no go. (I know the programs were okay because I tried them on my brother's C64 plus 1541.)

I never found out about the games (they were on loan anyway) but I did phone Pactronics, the distributor of *Artist 64*, to query the problem, the reply I got was "yes, there is a problem with this program loading on the 1571 drive". I sent the program back and got a refund (thanks, Pactronics). I assume a similar situation is applicable to the games that wouldn't load. In short the JiffyDos is compatible with everything I've tried, with the exception of the programs that won't load on the 1571 anyway.

NOTE: Although the programs in question were all stated to be for the C64/128 they are no good for the 1571 drive. As you know this drive is standard on a C128D. Is it any wonder that there are so many "pirated" programs and disgruntled users about? (Ocean programs seem to be one of the biggest offenders using this type of "protection".)

Well, back to the subject of JiffyDos. I've been using the system since about mid-October. The only time I've had to switch it out is when using some copy programs (*Fast Hack'em + Disector*) which use specific drive routines. NOTE: I switch the system out now + not replace the chips, because I've found that

the ICs themselves are NEVER responsible for a problem.

Apart from that I'd almost forgotten the system was operative - until last week that is. I had just bought another 1571 drive and realised how slow they really are in their "native state". I put up with it for about six days, and was so frustrated by its lack of speed that I purchased another IC for the drive. Result - two super-fast RELIABLE disk drives. If Commodore had only incorporated this system themselves the "lumbering hippo" tag would never have been given to their drives.

### What else?

● So what else does JiffyDos do? The answer is simple. Very little. It has single key DOS commands, an OLD command, and the V6 has an inbuilt two drive copy routine, but these routines are not to be sneezed at. While the copy routine isn't the fastest in the world, it is reliable, efficient, easy to use, readily accessible, and it hasn't corrupted one piece of data or file at all (which is more than I can say for some copiers).

Another plus is that the function keys are the same whether in 128 or 64 mode, something that no speed cartridge does. I find it very annoying trying to remember what Fkey does what in any particular mode. Also these keys can be easily reprogrammed. Also JiffyDos speeds up ALL disk operations, not just loading program files, like cartridges do.

What JiffyDos cannot do that speed-up cartridges can is freeze/backup programs, capture/edit sprites, character sets, etc, but then again how often are these options used anyway?

In my experience what most C64/128 users require is a good fast reliable disk speed-up utility and JiffyDos is the way to go. It's the most unobtrusive, reliable, most compatible system I have found, and for its purpose I would like to highly recommend it for ANY user of the Commodore C64/128. For its cost (about \$100) users would be doing themselves a gross disservice by opting for a cartridge to do the same job.

R. GASSON

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# Ram Rumbles



## Her Majesty's Amiga

● Commodore have done it again. The royals are impressed - and now the entire range of CBM products in the U.K. are on the HM Stationery Office ordering list. The list is used at over 11,000 ordering points in government departments and private industry.

## Commodore office

● The Others, a company dedicated to expounding the virtues of Commodore equipment in their role in public relations, have taken the step of Amiga-ising their office. More on that soon! Until then, we would love to hear from people who are using any Commodore equipment in an office environment or for any professional line of work. Write in with details - best letters will be published in part in Ram Rumbles.

## Commodore in the media

● Fast turning into the most popular segment in the magazine, we must thank all those readers who have responded to are request for media sightings of Commodore computers. Response to the new Snappy Tom ad has been marvellous, with facsimile and letter notification of the momentous event. Yes, the Amiga 500 is clearly visible! Can anyone tell us, which wordprocessor is Snappy Tom using?

Before moving onto other local Commodore Media events, we should mention several overseas sightings. A Danish television show with a difference sports an Amiga 2000. Viewers can call up the studio and on their tone phones play *Oswald*. The game has caught on big, and a joystick version for home use has also been released. On the TV show players can win anything from a chocolate bar to an Amiga 500!

Meanwhile, over in the USA, *Computer Chronicles*, a show dedicated to computing, has been plagued with calls from

Amiga users regarding their lack of attention to this wondrous machine.

As a result, the *Chronicle* recently devoted an entire half hour show to the Amiga. Products demonstrated included *Kindwords* (couldn't they find anything better?), *Deluxe Paint III* (thank goodness) and games such as *Menace* and *Battle Chess*. There were also demonstrations of MIDI music and video animation and FX with *AnimEffects* and *Broadcast Titler*. Why doesn't a local TV station wake up to the dire need for a good Home Computing segment at an early evening spot?

## Local sightings

● The BBC production of *Tumble-down*, recently run on the ABC, showed a C64 by the hospital bed of the lead character. The program was about an officer in the British army shot in the head some ninety minutes before the end of the Falkland Islands war. The computer screen showed a repetitive message which vented some of the character's bitterness at his situation and treatment in hospital. Interestingly enough, it was used as a prop and was not touched throughout the scene. Thank you, Tony Petheridge of Epping, for that moment of Commodore media.

● Mr S. Huntly, resident of Orange, responded to our plea for sightings with a sighting in *Sesame Street*. Why were you watching *Sesame Street*, Mr Huntly? Passing through the lounge room when the kids had it on? Well, good for you - because there was a C64 on show as the various muppets explained computers.

● Our winner for this month - with no less than four separate sightings - including the Snappy Tom ad (no points for that, everyone else saw it too!), is Daniel Henderson of Manly. Daniel saw the BBC production *Call Me Mister* and sighted the co-star at work in his wheelchair-bound state busily hacking into Britain's mightiest computer systems with a trusty C128, 1571, 1801 and printer.

Far less heroic was the fate of an older style C64 which appeared in the Australian movie *Dear Cardholder*. The movie was about a software writer who tries to live completely off credit cards. He gets rid of his C64 in favour of the Apple Macintosh, which proceeds to eat him out of house and home with its need for ever more ex-



## Update



STUNNED!!! I think that is the best word to describe my feelings at your reaction to WEST PHASER - AMIGA and PC. Here at Pactionics we barely had time to check them, put the warranties in before they were all sold out. I must therefore apologise to some of you who haven't been able to get hold of WEST PHASER, but can assure you there are more stocks on the way. For those of you who already have WEST PHASER or will shortly be enjoying this fabulous game, I am pleased to tell you that we now have stocks of "CRAZY SHOT" - another brilliant phaser controlled game!

I don't know if I have mentioned to you Amiga owners a game called "PINBALL MAGIC", but this has become one of the best selling games in Europe and now here, and recently received absolutely rave reviews in the Sydney Morning Herald. We have just received a game from the same programmers called "TENNIS CUP", and I can promise you that this is the definitive tennis game with outstanding graphics and sound effects. You can play singles or doubles, train, tournaments (Davis Cup); you can select one of up to 32 different opponents or even create your own opponent! INCREDIBLE!

For the C64 users we have some great new books and games for you too! Just to whet your appetite and if you don't want to sleep too well at night, get hold of "NIGHTMARE ON ELM STREET"! - Yes, Freddy is back!!! For the more faint hearted among you, try a more subtle game - "MURDER ON THE ATLANTIC".

C64 books include TRICK & TIPS; ANATOMY OF THE C64; GRAPHICS BOOK FOR THE C64; PEEKS & POKES and GEOS INSIDE AND OUT.

Going back to you Amiga owners, we have just received the latest release - "DESKTOP VIDEO GUIDE". Ask for any of the above at your local Amiga/C64 dealer.

I am going overseas to some exhibitions at the end of this month and will have some exciting news for you in our May UPDATE column.

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orbitantly priced peripherals. His daughter is eventually declared a neglected child by Child Welfare and taken away from him. The moral of the story according to Daniel:- he should have upgraded to an Amiga. He would have avoided a lot of family trouble.

Last of all, on ABC's *Quantum* program a scientist appeared to be using a C64 to analyse test results. This is not the first time Commodore brand equipment has been seen behind British or German scientists during such programs - the PET was a well loved machine too it seems.

A free subscription will start next month!

**Commodores at work**

● This is our new category, and already we have a number of spontaneous entries. We're looking for places where Commodores work. Once again, best letters will rate a mention. The very best will get a free subscription!

● Darren Healy noticed that Hilton Australia use a C64 on their in house movie channel to display the movie timetable. Furthermore, various video juke boxes around the country use the C64 to display info between film clips. One is in the Airmens Tavern at the RAAF base, Laverton, Victoria.

● And now for a multiple media sighting that we figured was really too big for a mere media listing. Alan Stuart of Port Hedland writes:-

"I have lived in Perth for quite some time, then moved to Port Hedland, in the North of the state, in October 1989. There is only a choice of two television stations in Hedland, namely ABC and GWN (Golden West Network).

"GWN is broadcast by satellite throughout the entire of Western Australia, and is either received by satellite dish & decoder in remote areas, or re-broadcast as a television signal at major towns.

"The station's programs are a mixture of programs from Channels 7, 9 & 10, as well as some local content. Also, a proportion of the commercials are those seen on, and produced by, the larger stations. However, there are a number of commercials produced by GWN themselves, and this is where the Commodore Amiga comes into the "scene".

"Having used the product for some time, it was fairly easy to recognise that GWN use an Amiga, Genlock, & CGI's *Pro Video Character Generator* software to

place titles on a lot of their commercials. *Pro Video* produces very distinct characters, and combined with other effects, can create some very professional titles. One example that springs to mind is the commercial for Sun City Ford, Geraldton.

"As this station covers a large area, with a diverse audience, and probably on a tight budget, it appears that they have purchased the computer that offers the best value for money to do the job.

"There may even be a story for your excellent mag here, if you approach GWN and see what they think of the Amiga, after using it for such a long time.

"Anyway, hope I have been of help."

Thank you - isn't it great to see the Amiga being used so professionally. Your spotting ties in nicely with our magazine theme this month too! A free subscription for you. Please phone our editorial office to confirm details on (02) 817 0011. □

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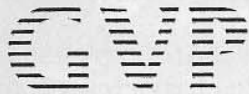
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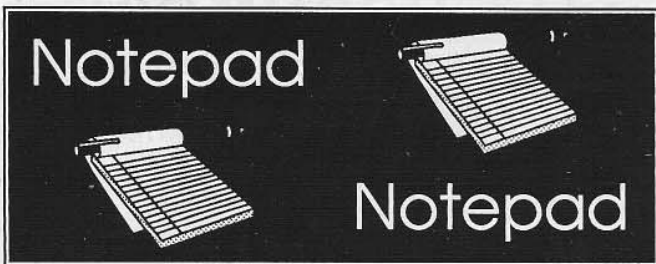
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## NASA buys up more Amigas

● Although NASA have had the odd Amiga in back rooms for some time now, publicity of their recent purchase of 25 additional machines is surely proof of new credibility Amiga now enjoys as a powerful graphics machine. In addition to the Amiga equipment, NASA have also installed a number of Neriki Genlocks from local manufacturer Fordray. Applications for all this gear include computer-aided design, solid modelling, simulation, graphics design and desktop publishing.

Other U.S. government agencies using the Amiga include the National Library of Congress in Washington D.C, and the National Park Service. The Amiga is the heart of the National Park Service's interactive video information kiosks in parks across the United States.

UK applications of a similar nature have also enjoyed the use of Amiga computers. Two Amiga 2000s have been installed in the New Forest Museum and Visitor Centre complete with an interactive database helping visitors locate points of interest. The Amiga holds hundreds of digitised photographs of local animals, villages, sports facilities and places of general interest. We wonder whether digitised sounds could be added to further improve the system?

Other big guns with a fancy for Workbench include: General Dynamics, Walt Disney Studios, Lawrence Livermore Labs, Motorola, Boeing, Tektronics, Dow and Cetus. We would love to hear more

about big names locally using the Amiga. Can you help? If so, please write to us with details.

## Microllusions add to DTV lines

● An Edit Decision List Processor (EDLP) - (see this month's article on Amiga video for more info.) has been released by Microillusions along with a Time Code Reader Generator. Both these devices make truly professional video editing from the Amiga a possibility when used in conjunction with products such as *Photon Video*. RRP EDLP \$499 US and the Time Code Reader is \$799 US - NTSC support only at this time, but PAL versions are planned.



CanDo



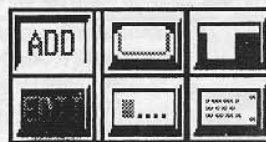
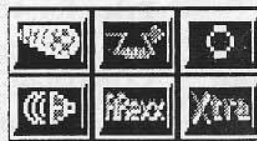
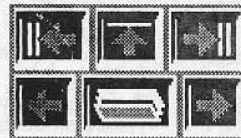
CanDoExtras

## CanDo Audio-Visual Authoring

● Billed as the ideal product for creating multi-media presentations (or Hypermedia), tutorials - interactive or passive, utilities, recreational software and specialised applications, CanDo sounds like a significant step forward in Amiga development software for the end user. (We have to see all these claims - but a review copy is on its way across.)

CanDo is an application generator which makes strong use of all of Amiga's features. Programs

complete with gadgets, windows, menus and timers can be created - and you can use IFF files in the process. CanDo can directly control Arexx, Atalk3, Superbase, SuperPlan, CygnusEd, C.A.P.E.68K, Benchmark Module-2 and any other Arexx supporting product.



For sound, CanDo can utilise Audiomaster, Perfectsound, Futuresound and so on. 1MB of RAM is required, Genlock support is included and with custom micro servers you could even control LaserDisc players, VCR's and Editing decks. CanDo sounds like everything the multimedia designer would ever need. Both Computermart (09) 328 9799 and Computermate (02) 457 8118 are importing the product. RRP is around \$200.

## Hypermarket hot up

● Another Hypermedia Authoring program has appeared. *Viva* from Knowledgeware sounds a lot like CanDo with the same intent of creating applications accessing all Amiga various features all within the bounds of a mouse drive/icon/menu environment. Authoring is object oriented - that is, you don't have to fuss around with lines of obscure code. Once again, the package is recommended for interactive presentations, sales promotions or purely for display and distribution of in-

formation. Also from Computermate (02) 457 8118 - RRP \$279.

## Dunlap rescues damaged disks!

● Among a host of other amazing utility functions, Dunlap Utilities will fix read/write errors on your hard drive or floppy disk, recover deleted files, revive sick disks, and optimise for faster Workbench delivery. There's lots more. Auto screen blanking, IFF menu application launching, customise your Workbench, create a full menu driven turn-key system and generally tidy up. Dunlap sound like essential stuff. Available from Computermate - \$119 RRP.

## Hard-drive backup

● Starsoft have a new one minute per megabyte hard disk backup program, complete with data compression. The interface allows for either complete, incremental (y creation date or archive bit), or selective archiving or restoring of files. Floppies do not have to be preformatted. Sounds great. Distributed by Pactronics (02) 748 4700.

## Benchmark products supported locally

● Laser Image Technologies are importing directly from Avante Garde Software, L.I.T. the entire Benchmark range of products. Benchmark Module-2 is not a port from another machine - it's a simple language with plenty of power built on the Amiga from the ground up. All hardware and software features of the Amiga are supported.

The Construction Set includes a full screen multi-window editor, compiler, fast linker and a number of utility programs. Nearly 100 pre-compiled library modules are also included. Module-2 Software Construction Set sells for

\$260. Other products include a Simplified Amiga Library, Simplified C Library, Simplified IFF Library, and Source Level Debugger. For further details call (03) 578 0868.

### Amiga helps with Lockerbie disaster

● Dumfries and Galloway Police have been using the Amiga 2000 help reconstruct the site of the Lockerbie air crash so they could work out what happened prior to the disaster. Using a video frame grabber, with image enhancement software, the police are able to enhance video material prior to printing out on a Polaroid freeze frame recorder.

### Colourpic frame grabber

● A new real-time colour

digitiser has arrived with full PAL support. Features include framestore, a 192K expandable frame buffer (up to 512K), monochrome edge detection and image manipulation tools, flicker illumination with field repeat, external power and full 15Bit RGB colour data. Pictures are saved in IFF format, with full support of HAM and 32 colour modes as well as overscan. Available from Computermart (09) 328 9799.

### Amiga wins video award

● USA magazine Video Manager recently voted the Amiga 2000 as "Product of the Year" in its category of "Most helpful in the performance of your job." Combined with other winners, Sony video cameras and Panasonic VCR's, the Amiga is no doubt the ideal video partner. □

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# LETTERS TO THE EDITOR

## Superbase 64 problems

● In May 89 I bought *Superbase 128* version 3. My copy has the 1581 disk drive support but no burst mode when using the 1571 disk drive.

I have since heard that the wrong programs had been released in Australia and that we should have the version with burst 1571 ability and no 1581 drive support.

What is required for me to obtain the correct version?

Alan Ross  
Lynwood WA

*Ed: Ask your retailer which local distributor supplied the product and contact them directly! The correct disk should be available.*

## Where are all the pirates?

● As an interested computer user I would like to bring to your notice the fact that Software Piracy

is not limited to those who import, sell, trade or buy pirate software.

Some of the biggest offenders whom the software companies appear to be overlooking (perhaps the biggest in terms of people, both adults and school age children who then spread it amongst their mates faster than any seller could hope to) are the so-called Amiga User Groups.

Not mentioning names, but one particular User Group in the suburbs of Sydney is a blatantly obvious software swap, exchange, copy centre. On a nightly meeting alone I would guess that at least 100 or more programs are present for the above stated reasons.

People do not want to buy (even for a few dollars) what they can get "free". Most of the user members are not interested in programming, graphics, etc, only in swapping or obtaining "games". It is here that a solution to software piracy commences. Stop it here and I believe that a great percentage (perhaps the greatest percentage) of piracy can be stopped.

*Name and address supplied*

*Ed: Hear, hear!*

## Amiga baud rate fix

● In the January issue of *ACAR*, I read that Greg Parry was having problems with running the serial port at 19200 baud. I also had these problems, but they disappeared once I installed *Workbench 1.3.2*. However, I don't know why *WB 1.3.2* fixes the problem except that the lower overhead of the new serial device might have something to do with it.

Luigi Martin  
Dandenong, Vic 3175

## Where's our A2000 C64 emulator?

● Being ardent supporters and users of the famous C64 we feel we have no option but to express to

you our current dissatisfaction with the delays in bringing out a C64 emulator for the Amiga 2000 as conveyed to us by a major SA authorised Commodore dealer eons ago.

We are in the position, like many other C64 users, in that we wish to upgrade to a more powerful Commodore IBM compatible but are faced with the sad tragedy that we will be forced to sell off or give away thousands of dollars worth of C64 software we spent years patiently buying. This is especially heart-wrenching when one realises that we have to start purchasing software from scratch again!

We realise that C64 emulators (as slow as they are) are already produced for the Amiga 500 and 1000. But this is of little consolation since the Amiga 500 requires expensive add-ons to make it IBM compatible and the 1000 is out of production. Clearly there is an enormous market for this type of product if coupled with the Amiga 2000 simple because C64 users do not wish to "throw away" their hard-earned software.

Please, please, Andrew, cause a stir about it and let us know the latest information, if any.

THE C64 LIVES ON!

PS The magazine is tops.

Andrew and Angelo  
Adelaide 5000

*Ed: Our A500 C64 Emulator II operates happily on the A2000, so unless you are hoping a more complex and functional emulator is released for the A2000 - which is highly unlikely - the solution to your problem already exists.*

*Have you further considered that having lashed out over \$2,000 on an A2000, it is unlikely you will continue using any C64 programs because there is so much good Amiga software which is umpteen times better. If price is a consideration may I suggest that even Public Domain titles at \$6 a disk will provide you with better quality software than any C64 emulator.* □

## Commodore Annual 1990

Produced by the editorial staff of *Australian Commodore and Amiga Review*

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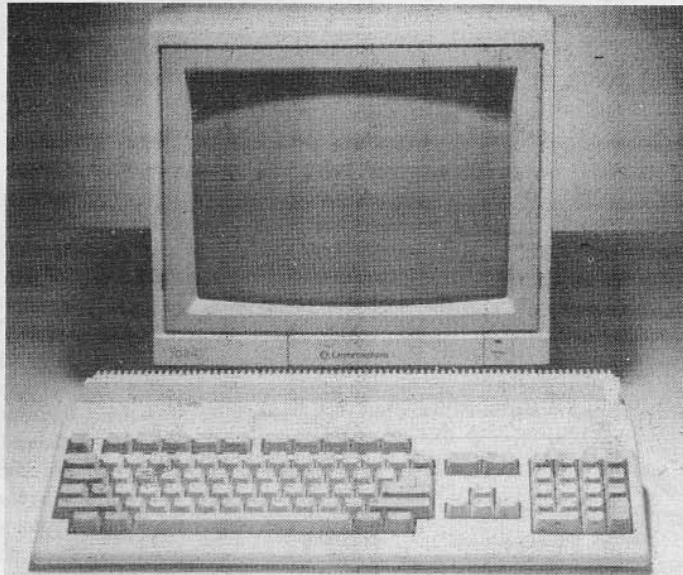
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# C64 Video Byte Digitiser

by Andrew Farrell

*If you own a VCR or black and white video camera, you're ready to get into video digitising.*

VIDEO BYTE III has arrived in Australia, offering complete digitising abilities for the C64 for an affordable \$165. The results can be used in your favourite graphics program, or transferred onto a T-shirt by means of specially inked ribbons.

First of all, what is a digitiser? Using a home computer, such as the Commodore 64, you can digitise a sound or an image. Both of these possibilities arrive at the required interface as analogue signals. Both sound and light travel in waves. By representing these waves by numbers, the analogue signal is effectively digitised. The numbers can then be used to reproduce the sound or image on screen or through the TV speaker.



Where pictures are concerned, the incoming signal is analysed by the digitiser and each point of light on your screen is assigned a value representing the light intensity from white to black. Software can then be used to alter the digitising process to achieve the most desirable results.

Video Byte III is such a device, and includes both software and hardware. The interface which enables a video signal to be input to the C64 is connected to the User Port. As it arrives, the digitiser is ready to use, although some adjustments can be made later on to get the best video signal. (A small pot adjusted using a small screwdriver allows the Gain setting to be increased - our review unit did not need adjusting.)

The interface includes a lead which may be connected to an RCA type video out socket on your video camera or VCR. We used a BNC connector - one which is commonly found on most consumer VCR's. A small adaptor enables the RCA cable and BNC plug to connect.

Rather than examine all the various menu options, I dived in and tried out our office B/W security camera.

The results were acceptable. Being an impatient sort when it comes to new products, I decided not to fiddle with the lighting, focus, subjects and angle of the camera to achieve the best results and progressed immediately to the more promising possibility of capturing frames live from a rolling video tape.

With the VCR connected, I went to Adjust mode, which presents a new image every two seconds. This enables you to adjust any settings on your camera, or in this case, roll the video tape to the right position. At first I tried using the pause facility to provide a still image for digitising. The results were rather dismal,

although on a high quality VCR with a steady still frame I am told the results are quite good.

Cheaper models tend to distort the image, and there's always the possibility of capturing part of the frame refresh even on a high quality machine.

So, the next option was real time - which I half expected not to work. I was amazed to see the results were immediate and of an excellent quality considering the resolution of the C64 in multi-colour mode. It's a bit of a hit and miss process. I found, as recommended by the manual, that it is best to position the tape to a section where the scene does not involve a lot of action. After doing so, I hit the C for Capture key several times until the image you can see on the front cover appeared. There were no finicky adjustments, just instant results. I'm impressed!

The sample time is too high to call this true real-time frame grabbing, but it is just fast enough to be able to grab slower moving images.

Of course, the real fun comes in grabbing an image that would look good on a sloppy joe, tank top or T-shirt. Using the included software, you can add colour and then print your creation - edited, or as captured - onto normal paper. Then, with an iron, you just plaster it on, carefully!

## Video Byte software

- Booting the main disk provides a menu with a number of utility programs and the main program, *Video Byte III*. The utilities include a program to allow a slide show to be viewed (create your own or view the included demonstration images), and a program to handle printing on a 1526 printer.

From the main menu of the main digitising program you can adjust the exposure or light level using the + and - keys. The A key gives you a digitised image every two seconds of not quite as high quality as the real captured graphic called a "clarified image" in the manual - I assume some software enhancement of the image therefore takes place automatically.



Previously sampled images may be loaded and of course you can save images too - however the file requester is bare. You'll need to know exactly what an old file was called! (Although D will give you a directory.) Colour may be added using the V option which displays the image and then activates the 1-5 keys. Each key will shuffle a colour register through each of the 16 available colours, and the five keys will shuffle all four colour registers together. In V mode, the + and - keys will bump you back into grey scale mode.

Two images may be in memory at one time, and you can switch between them as required. A print option is included, although we used the digitiser combined with the Super Explode cartridge which has more sophisticated print facilities. The two cartridges together make an ideal combination. You can switch into the Super Explode cartridge menus directly from the Video Byte software using the E option.

As with any digitiser, at the end of the day your results will depend largely on the quality of all your equipment combined.



Good lighting, a good subject and a good camera help. A good operator is more important - one with plenty of patience. The best part about the ability to digitise an image, is the ability to print it out. And where better to put the end result than on a T-shirt. Using a special ribbon and the colour Star NX1000 printer, impressive results can be obtained as illustrated on these pages and our front cover.

Many ideas spring to mind, including starting your own bureau for custom shirts. "Send in a disk and I'll put it on your shirt" type services would do well. Ideal for user groups, small businesses and just a bit of fun.

NEXT MONTH: Super Explode cartridge reviewed.

For further information see the advertisement on this page or telephone Romac Computers on (02) 547 2306. □

## VIDEO BYTE II the only **FULL COLOR!** video digitizer for the C-64, C-128

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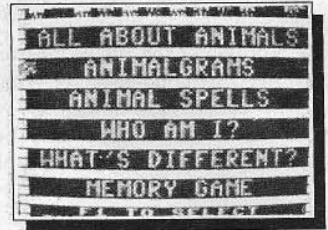
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# C64 video magic

by Scott Wilcox



YOUR COMMODORE 64, or any Commodore computer, has the chance to hit the big time. Yes, it's time all those people who ask the question "What can I use a computer for anyway?" get an answer that is not just another sales pitch.

If you have a VCR, have you thought of video titles? Linking together your C64 and video recorder is pretty easy - and you could use any good graphics program to make titles. Here's what you should do:

**Step 1:** Set up your video recorder in the usual manner, just as though you are going to watch a movie. Take a look at the back of your video recorder and remove the cable going to the "Video In" socket. You will not receive TV signals while the cable is removed. Hopefully you will receive computer signals later on.

**Step 2:** Take the video cable supplied with the C64 and plug the 64 into the "Video In" socket. Now turn on your 64, the TV and the video recorder. For the paranoid, this is quite safe if the steps are correctly followed.

**Step 3:** This is the tricky part. Just as you fine tuned the TV channels into the channels of your recorder, you must now tune the 64's frequency into an unused channel on your recorder. All you have to do is set one of the video recorder's channels to UHF 36. When this is all correct you should see the normal power-on message on your TV screen (see page 5 of the user manual and remember, fine tune on your VCR, not on the TV).

**Note:** When I got the idea for this linkup, I had no knowledge of how to actually hook it up. The small operation only took about 10 minutes the first time, and I am no electronic genius.

blank tape to the beginning and record the computer's signals. Let the tape record right through, then rewind the tape and it's as good as new, or at least it looks that way.

## Titles

● When you rent a home video, you see a title displayed at the beginning of the tape, so you know exactly what you are watching.

The same can be done to movies you record from the TV (be careful not to infringe copyright laws). When you have selected the movie you wish to record, simply use the screen you created earlier.

Now, just like blanking a tape, you rewind the blank tape and record the picture for as long as you wish to view it when played back. The tape is now ready to be recorded on. If you set the timer to record at a later date, be sure the tape has been stopped at a point just after the end of the title recording.

This method can also be used for home movies on your video. If you own a video camera you can put the place, date and things such as directors' names etc. This will give your movie the professional look.

## Animation

● This would have to be the best application for the computer video link. If you are an adequate programmer, you could use the link to make small animated cartoons with text at the bottom of the screen, just like a silent movie. The main section of the animated movie could be made using sprites and redefined characters. By making small cartoons controlled by the computer, you then record each one as the computer animates the picture, and have the whole video broken up into about five or six separate sections.

Do not attempt to take the movie frame by frame, as this will take hours and the start/stop method might not be the best for the video recorder.

You might even think of a few more applications other than the ones listed here. □

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## What for?

● Yes, you may ask why we are going to all this trouble, so I will explain some of the many uses this link-up has for the average user. The hook-up will be of greater benefit to your video recording than to your use of a computer.

## Blank tapes

● Remember when you first bought that blank tape and now it's covered with recordings that you don't even want over recordings that have the same useless existence? I bet you wish you could get that tape to play back a black screen as it did in its early days.

Here is the simple answer. Simply use your favourite WYSIWYG word processor or graphics program to create a title screen. Then set up a black screen to clean out your old tape. Rewind your

# Video and the Amiga

by Peter Ward



A RATHER REMARKABLE television program was broadcast in Sydney last Christmas eve on SBS television. Called *Computer Dreams*, it was a show-piece of computer animation and video montage levelled at the "state of the art". Dedicated workstations rendering images in 16 million colours were used for many of the simply astounding animations.

I should not have been surprised when I saw a Commodore Amiga appear on the television screen, but there was an Amiga 2000 being used by Heidi Turnipseed to create a "cell animation", the artwork from which many *Photon Paint/Video* users would be familiar.

To be fair, the Apple computer people were represented, though I noticed that the workstation being used for "their" animation was definitely not a Mac. IBM? well, sort of; if mainframes at the Thomas J. Watson Center count. Cray Computer Corporation, NASA, Jet Propulsion Labs, Boeing and a few other hi-tech notables using various mainframes were in there also.

Taking note of the final credits read like a who's who in Amiga software. Conclusion: when cost is considered, there is simply no better personal computer on the market for video and graphics applications than the Amiga. Further, even when cost is not considered, an Amiga 2000/2500 with say four megabytes of 32 bit RAM, hard disk, 68030, plus a graphics transputer rendering say, *Sculpt 4D* images in 16 million colours, is still up there with state of the art workstations costing four times as much!

After seeing the program, I was inspired. I wanted to create. I made phone calls. I talked with Warwick Ford at Neriki, I discovered that none other than NASA had ordered some 25 (!) of their genlocks, to use with Amigas to get their video creations on tape. So what, perhaps I didn't have a few billion dollars to spare and send a mission to Mars, but with an Amiga I could at least get it on video.

I soon discovered that the best way to learn what you need and "how to do it" is to look at a few case studies, examine the

process and the pitfalls, then decide what equipment meets your individual needs and budget.

## Editing methods

- We need to digress at this point, and mention the two main editing methods available to the home or semi-professional user to compile the various scenes of a video movie or computer animation into your video masterpiece. An "assemble edit" is to place various scenes one after another, to eventually build the finished production.

If you decide to substitute one scene in the sequence for another, you will have to re-record all of the scenes that occur after the substitution. Failing to do so will result in picture distortion at the "edit-out" point. Most domestic VCR's are limited to this method of editing.

An "insert edit" avoids this problem but is only available to users of VCR's with "flying erase heads". Scenes can be inserted anywhere in the sequence with no picture distortion at the edit-in or edit-out points. The story does not quite end here. There are also Cut, Dissolve, Key, Split and Wipe edits. The latter editing techniques are generally restricted to professionals requiring several professional format VTR's to be accomplished.

Even at professional editing levels, the Amiga has found a new presence. Microillusions have recently released their Edit Decision List Processor (EDLP) and SMPTE time code generator hardware. Aimed squarely at the professional market, this package allows creation of precise editing sequences on professional VTR's.

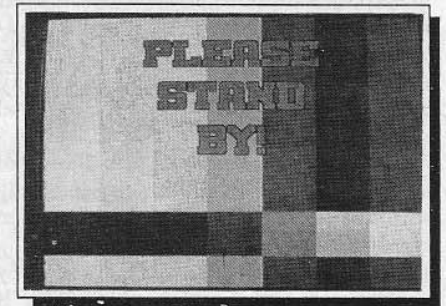
## Simple titles

- So, on to case study number one. To place a title or graphic at the beginning of a home video movie. Requiring a minimum of equipment and software, it is easily within the reach of any Amiga owner with a VCR and video-movie camera. Amiga 1000 owners have an advantage in having a video encoder built into their machines, so provided quality need

not be of great concern, the VCR and camera is all the hardware that is necessary for them.

For the rest of us, acquisition of an encoder or genlock/encoder is mandatory. The procedure is simple. Create the title/graphic using your favourite paint package, connect the video out from the computer (or encoder) to the "video in" socket on the VCR. Record the computer graphic. Then using either the pause button on the VCR assemble-edit in the remaining home video footage or insert-edit the video scenes of your choosing.

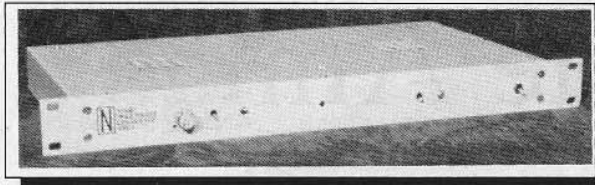
A typical sequence in this instance would be: Amiga title shot, followed by various scenes, maybe another title, some more video, then cut to "That's all folks" at the end of a sequence. You will soon discover assemble-editing is a pain, as you cannot change an opening scene without re-recording what follows as well. Insert-Edit capable VCR's remove much of the drudgery associated with assemble edits.



## Which VCR?

- To acquire this highly desirable insert-edit feature you will eventually travel through the consumer electronic jungle of VCR's to discover that there are not many machines which will let you "insert-edit" and play a movie from the local video hire establishment.

Fortunately both Sony and Panasonic have recently introduced VHS decks with flying-erase heads and insert edit capability, however, a step up in quality to the realm of Super-VHS will reveal features and picture quality rivalling professional equipment for a moderate increase in



The Neriki Genlock

price. The JVC 5000E and the recently released Panasonic NV-FS100A are two good examples.

Insert editing, Hi-Fi Stereo sound, audio-dubbing and 400 horizontal lines resolution make them particularly attractive. The latter also has a "jog-shuttle" dial which aids tremendously in finding an exact edit-in or edit-out point on the tape. A second NV-FS100A can also be linked to the original unit via an editing controller, thus creating a "mini edit-suite" at reasonable cost for the home video-ophile.

Another excellent format for editing is Video-8. Sony's EV-S850PS VCR features a Jog-Shuttle dial, Flying-erase heads, digital stereo sound and the ability to be linked to an editing controller. Sony have recently released the Hi-8 format, having a horizontal resolution of 400 lines placing it in direct competition with Super-VHS. Though professional machines are now available in the Hi-8 format, high end domestic versions are yet to be released in Australia.

The video-taped quality of the computer created title depends upon three major factors: the screen resolution used in the computer generated title, the bandwidth of the encoder used to convert the title into composite video, and the quality and format of the VCR used for the final recording.

A secondary factor is the choice of colours used in the title screen; highly saturated colours tend to "bleed" when transferred to tape, and despite looking great on your Amiga's RGB monitor, they will be a soggy mess on video tape. If you really must have big red letters introducing your video, consider placing a one pixel wide, black (or white) border around the title lettering: this reduces the

"bleeding" on the video-taped copy.

Encoder bandwidth or resolution need not be brilliant. There is little point in using a full bandwidth "broadcast quality" 625 line encoder or genlock/encoder if you are recording a home movie title onto a standard VHS format video cassette recorder. The best resolution your VHS machine can give is approximately 200 to 240 horizontal lines.

Consequently, the result you get from an A520 television modulator or composite video-out port on the A1000 will not be too different from that obtained by using a \$3000 broadcast encoder when recording on VHS. Essentially, the "video" chain is only as good as its weakest link.

Just to confuse the matter somewhat, the accuracy of the encoder, being its ability to preserve the saturation, contrast and hue of the colours used in the original title on your Amiga, is of some importance.

This is where using an A520 encoder will degrade the final result. The Neriki genlock/encoder series made by the Australian company Fordray Manufacturing is one of the few encoder/genlocks which address this latter point. Their encoder section actually enhances the video signal so that it remains well saturated even when transferred onto video tape.

So, for simple cuts from title screen to the video movie using an encoder, such as the Commodore 520, will give acceptable results on VHS. For better quality use a broadcast quality encoder (JVC make one) and part with several thousand dollars in the process. A better solution yet, which also gives you the ability to superimpose titles over the background of your home video, is to use a genlock.

### Superimposed titles

● Case study number two: edited video footage with superimposed animated titles. To further manipulate your original video footage life can be made



Superimposed titles

decidedly easier by the addition of a second VCR. The final version of the edited footage, can then be mixed with computer graphics using a genlock to overlay titles or special effects to enhance the production. This however, is not the only way to achieve this result.

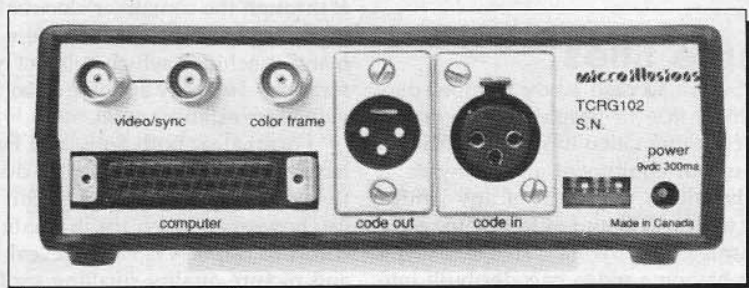
While it is possible to add computer graphics to footage from a video-camera while simultaneously editing the two onto a single VCR, the process tends to get messy, especially when one has to assemble-edit the video-tape. Using a Genlock in conjunction with the Amiga's colour zero function can also allow you to perform Key edits from a title screen to background video (or the reverse).

An important point to note, is that the ability to dissolve titles in and out with the Amiga depends upon the genlock, and not the software as is commonly supposed. Using the colour cycling ability of the Amiga to fade to colour zero or black through successively darker shades of grey will simply result in some nearly black lettering overlaid on top of the background video before it disappears. You can cheat however.

Cycling to black when overlaying a graphic on a black portion of the background video (or white on white) can have limited success. Using a genlock with an "RGB pass-thru" will also help immensely, as the title or graphic can be viewed on the Amiga monitor prior to recording onto video tape. Both Ausgen and Neriki genlocks have this feature, with the Neriki also having the highly desirable fader control.

### Which software?

● To create an animated title sequence for your video, there are a plethora of software packages available to Amiga users. *Deluxe Paint III* and *Photon Paint 2.0* both allow quick and easy title creation with animation. More specialized title packages such as *Video Titler* and *Broadcast Titler* allow sophisticated text animations and wipes. *Photon Video* is an



Microillusions time code reader/generator (rear panel)

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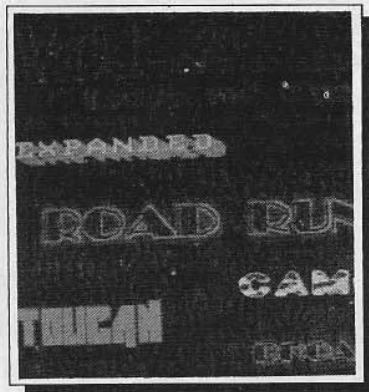
A huge software base that's constantly growing to keep pace with the latest in technology and knowledge.

Plus a whole range of other uses including graphics, animation and synthesized sound.

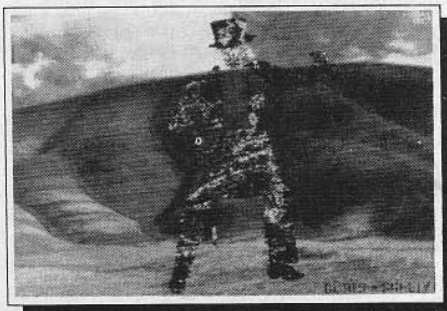
If you're clever enough to buy an Amiga computer, imagine the boost it will give your child's education.



**Commodore**



Aegis Video Titler



Deluxe Paint III

excellent package which allows the user to easily synchronize digitized sounds with traditional cell animations.

A package which has remained very much a "dark-horse" in the cell animation arena is *Zoetrope*. On first inspection Lo-Res, no sound and NTSC format seem to make it unsuitable for serious applications or PAL Amigas. *Zoetrope* however, is FAST and does not require heaps of memory.

Low resolution is also compensated for by having an anti-aliasing function that puts *DPaint III* perspective brush rendering times to shame. From start to finish, you can create an 80 frame animation which spins, swoops and soars within five minutes, and with only one megabyte of memory.

## Memory requirements

● Most titling or animation programs are however, RAM hungry and it is at about this point that the need for more memory becomes apparent. Fortunately chip prices have fallen dramatically in the last few months. Memory expansion for Amiga 2000/2500 owners is relatively painless, simply shop around for the most economical card and plug it in. Amiga 500 and 1000 owners are less fortunate, and often have had to open the case, install daughter-boards, jumper-

leads and configuration programs.

A strong recommendation is that A500/1000 owners should take a hard look at the Minimegs line of memory expansion, which is locally manufactured, competitively priced, simply plugs into the side to the computer and auto-configures in the process. Another way out is to purchase an external hard drive with a memory expansion bus, thus not having to pay too many additional dollars for memory expansion.

Once armed with extra memory, several exciting video feats are within reach. Animations can become longer, more detailed, using more colours and in higher resolutions. It is also at this point that using floppy disks to store even moderately long or detailed animations is tedious. At some point, the use of a hard disk becomes mandatory.

Amiga 2000 owners have a good range to choose from at moderate cost and really don't have a problem. Several hard disk drive manufacturers have also recently introduced models for use with the A500, though they are somewhat more expensive than an equivalent A2000/2500 drive. By now you may have noticed the equipment list is beginning to get out of hand, as probably is the amount owing on your Visa/Mastercard!

## The Works!

● Acquisition of all of this equipment leads us to: case study number three. Home-Video with ray-traced three dimensional animated titles edited in sync to a Hi-Fi Stereo musical soundtrack.

Amiga owners have two excellent programs to choose from, *Sculpt 4D* and *Turbo Silver*. Though moderately expensive, these packages can create animations rivalling those created by dedicated video-workstations. Anyone who has used either *Turbo Silver* or *Sculpt 4D* will appreciate the fact that ray-traced animated titles can take a long time to render on a stock standard Amiga.

A single frame of an animation can take six to eight hours to render. A five second animation requiring 125 frames will tie up your Amiga for weeks! To speed up the process use one of the various "accelerator cards" now entering the market. Again, provided they have the dollars Amiga 2000/2500 owners simply install a 68020 or 68030 card into a vacant slot.

The accelerator of choice for A500 owners would be the Midget Racer by CSA. Amiga 1000 owners should consider the Lucas Board, schematics of which are available through various BBS's or

user groups. Using such accelerators can reduce computing times by a factor of ten or more.

Having solved the problem of creating the slick computer graphics to be included in your video one can now look at the problem of synchronizing the scenes of the video (or graphics) to music. One solution is to create your own original score, with the tempo of the score matching the change in visuals.

Another is to use a time-coded video tape, and using either SMPTE or EBU time code standards one can precisely number and hence synchronize to audio the individual frames of a video tape. Many professional VCR's have the facility to display the time code on a video tape, with Sony U-Matic machines being the industry standard.

Entry price of these machines is usually around the \$10,000 mark. For those of us who are not quite that creative, or wealthy, there is a simple trick. Record the output from a CD-player, tape, LP recording or whatever, without any picture considerations. Nearly all insert-edit capable VCR's will allow recording of Hi-Fi Stereo and concurrent mono sound utilizing a simulcast (or similar) function.

It is then a simple matter of subsequently playing back the tape and insert editing the scenes of the video or computer graphics while monitoring the mono soundtrack: pausing the VCR to insert edit the visuals at an appropriate mark in tempo, crescendo or whatever.

While the Hi-Fi sound track has been replaced by the inserted video audio, the mono sound track containing the music remains unaffected. Having thus edited your video in sync to the mono soundtrack, use a second VCR to re-record your master tape, this time recording the stereo music used originally, on the Hi-Fi track, and video audio on the mono track. Using an audio mixing console can allow you to re-record both music and audio on the Hi-Fi track, however involves additional expense.

By using a video production mixing console, all of the various elements of a video-movie can be easily combined to produce a slick, professional-looking product. The alternative is a ungainly collection of equipment and cables, which can be made to work, but not nearly as effectively as an integrated control unit.

Sony, JVC and Panasonic all make production mixers aimed at semi-professional or high-end home users. Inputs from separate VCR's, camera and audio sources can be mixed, faded, wiped, dissolved, superimposed and en-

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1990 - Election Graphics  
Zap Productions

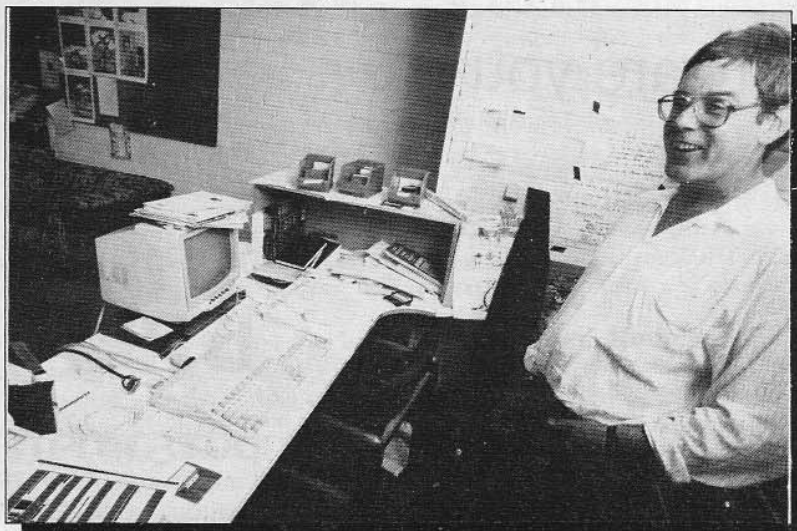
## Professional quality

● Watch Channel 9 for a short time, and you will no doubt see that all too familiar station promotion, soaring across Australia and ending with a glistening "9" logo with the Sydney skyline seen in reflection. The creator of that marvellous sequence was Zap Productions. To find out more about how it was done, I was kindly given a tour of their Sydney studio by Mr Tony Pack.

The tour began with a look at a promotional video they had put together. The ensemble which followed was very impressive to say the least, as was the list of corporate customers. Apart from the major television networks, their work involved clients such as Duracell, Schweppes, The State Bank and Australia Post as well as corporate work and foreign customers.

Did they use an Amiga for any of their productions? My question was soon answered when I was introduced to Mr John Burge, a Senior Animator at Zap and shown a humble Amiga 500, with a Minimegs two megabyte expansion board plugged in its side, sitting in front of a Neriki Image Master genlock! The Amiga is used to create many of the graphics used at Zap Productions by being part of an overall "video montage" process used to create the final product.

What software did he use? The standards were *DPaint III* and *Sculpt 4D*, but just about every other graphics/video program for the Amiga was in their library should they be needed. The Amiga was extensively used in an advertisement done for the State Bank, where text was animated across the screen and eventually transformed into the outline of a motorcar.



John Burge - Senior Animator, Zap. Amiga 500, Neriki Image Master, 2 Megs RAM.

Broadcast quality is achieved by using the RGB outputs from the Neriki, and recording in RGB using a Digital format VCR. More commonly an Amiga generated graphic is ported to either a Quantel Harry or Quantel Paintbox, where it is then overlaid into the final product.

What is a Quantel Harry and Paintbox, you, ask? The short answer is the videophiles Valhalla. More seriously, after the visit at Zap, I contacted the people at Quantel in Sydney to discover more about their very impressive product.

Quantel is a digital electronics company originating from the United Kingdom. Their digital production centres comprise fully digital editors (Harry), graphics generators (Paintbox) and real-time three dimensional mapping, perspective, special effects generators (Encore/Mirage).

All image manipulations are done at 24 bit plane level ie: Full PAL colour images. The Harry can store two minutes worth of video frames (3000 images) which can have any of the special effects applied to them via the Paintbox or Encore/Mirage units. The Quantel Graphic Paintbox uses a 1125 line screen resolution and can print images 5400 by 3700 pixels wide.

By using a Digital format VTR virtually unlimited layers of special effects can be composed onto tape, with no loss in video quality. Don't be too disappointed if you can't afford such stratospheric technology. Quality has its price as there are only four Quantel Digital edit Suites in Australia: at a cool 1.1 million dollars I'm not suprised!

Ray-traced images were not a big part of the production process used at Zap. Ray-trace work is time consuming and hence expensive, however when it is required the people at Zap use dedicated workstations using RISC based microprocessors. Images are calculated using 24 bit-planes, or just over sixteen-million colours. A lot of the programming is done in-house, with most of the code being written in "C".

For the bulk of their productions the people at Zap use a very clever mix of video character generators, computer graphics, scale models photographed on 35mm film, traditional cell animation and live video footage. All of these elements are united by using the Quantel Harry where individual video elements can be combined to create the final product. Operation of the Harry is in a manner not too dissimilar to that of cutting and pasting an anim-brush using *DPaint III*, ex-



cept with the manipulations performed here being on video footage!

When the use of scale models is required, camera motion is often computer controlled so that the scene perspective and motion can be accurately combined with the other elements of the scene at a later stage in the production. To ensure quality, ease of lighting and animation, the size of these models is often made huge.

The Sydney Harbour Bridge currently used in the Channel Seven News introduction, was actually a model some three meters long. As another example, in an advertisement for a new type of toothbrush, live product shots were combined with scenes of amorous tooth brushes, which happened to be scaled up versions over a meter long. Clearly professionalism, quality, complexity and budgets used at Zap were also in the stratosphere compared to the humble title screen created by our home user considered in case one.

Several words of thanks to the following people, Tony Pack and John Burge at Zap Productions, Panasonic and Sony Professional Sales in Sydney and Leo Baxter at Quantel. Their assistance proved invaluable in researching this article.

While we may not all have the desire to create the spinning, twirling, dazzling, mirrored, three dimensional objects in fictional worlds seen in such "state of the art" animations, let alone be able to afford a system capable of rendering such treats within a reasonable time span, it is nice to know the Amiga can do it all, from the simplest title on a home video-movie to an important part in creating a Computer Dream. □



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# TOP 20 COMPUTER HITS!

Title	Amiga	PC	Atari	C64	Title	Amiga	PC	Atari	C64
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Indianapolis 500		●			Shinobi	●			●
Flight Simulator 4.0		●			Digi-View 4.0	●			
Pagestream 1.8	●				Deluxe Video 3	●			
Can Do	●				Stunt Car Racer	●	●	●	●
Ninja Warriors	●				Wide World of Sports Pack	●	●		
Simcity	●	●	●	●	Turbo Outrun	●	●	●	●
Leisure Suit Larry 3	●	●			Clown O'Mania	●			
Colonel's Bequest	●	●			Ghost Busters 2	●	●	●	●
Pro Tennis	●	●	●	●	Battle Squadron	●			

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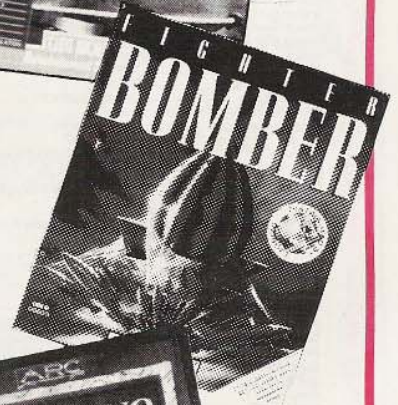
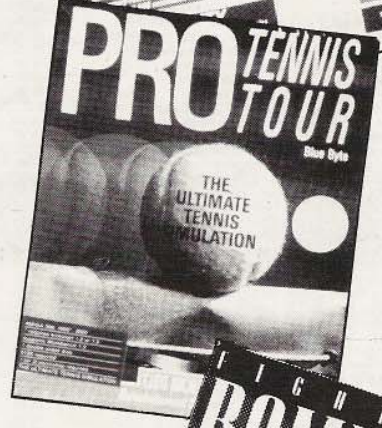
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## Getting into Video with

# Deluxe Video III

by Dennis Nicholson

### The story so far

● Electronic Art's *Deluxe Video* (Version 1.2) has been gathering dust on my software shelf for the past four years. It wasn't that I detested the program, quite the opposite, I felt it had great potential, but only if it could address more than eight screen colours, and if only the two dimensional object animation could be in three dimensions. *DVideo* just wasn't keeping up with the Amiga's desktop video capabilities.

Well, it seems that *DVideo's* creator, Mike Posehn of Granite Bay Software, has been having the same thoughts. With the ingenious technical advances of the Amiga, and the growth in the number of sophisticated Amiga users, Mike has been encouraged to enlarge and refine the program.



### Pre-production

● Comparing the updated *Deluxe Video* to the original version is like comparing *Deluxe Paint III* to the first *Deluxe Paint*, there is no comparison. The software has been completely re-written to encompass the majority of our favourite computer's graphics abilities.

The program now addresses all resolutions with their associated colours, including the Hold And Modify (HAM) mode, and full PAL overscan is also taken into account, which is great news for people wishing to dump their creations to video without the annoyance of seeing

borders around the screen.

*Deluxe Video III* is essentially a set of four separate programs (*DVMaker*, *DVPlayer*, *DVMover* and *Instant Slide Show*) which combined, gives the user the power to create multimedia (audio visual) presentations that contain a mixture of pictures, animations, sound effects and music.

### Roll camera

● If you have been a *DVideo* user in the past you will be more than pleased to know that the work screen interface has remained almost identical to previous versions of the program, but that is where the similarity ends. *Deluxe Video III* is packed full of powerful, and flexible, options to let its users run amok with their imaginations.

Mind you, more power means that more RAM is required to gain full benefit from the program's offerings. Electronic Arts recommend an absolute minimum of 1 meg. Let me just say that if you are serious about using your Amiga for graphics and desktop video work, you should be using a "serious" amount of memory in the machine.

Three megabytes is a good starting point, and with the price of RAM chips falling almost daily, now is a good time to give your Amiga a power boost. Future graphics/DTV software for the Amiga is not going to diminish RAM requirements, it is going to push it to the very limits! *Deluxe Video III* is no exception!

Earlier versions of *DVideo* saved their finished videos as "one unit", that is, all the pictures, sounds, and the like, were saved bundled together into one large file. Version III works differently, in that it only saves the video "script" information, thus leaving all the required elements in their original places, whether they be on disks in DF0: DF1: or even a hard drive. The reasoning behind this is to make it possible to create multiple video presentations using the same data files. One of *DVideo's* major breakthroughs is its ability to utilize Anims

and Anim Brushes created with its sister program *Deluxe Paint III*. It is also possible to convert a section of a video presentation into an independent Anim file with the use of an-in-built "MakeAnim" effect. This allows the user a lot of creative freedom due to the fact that Anims constructed within *DPaint III* can easily be inserted into *DVideo III* productions, and vice-versa.

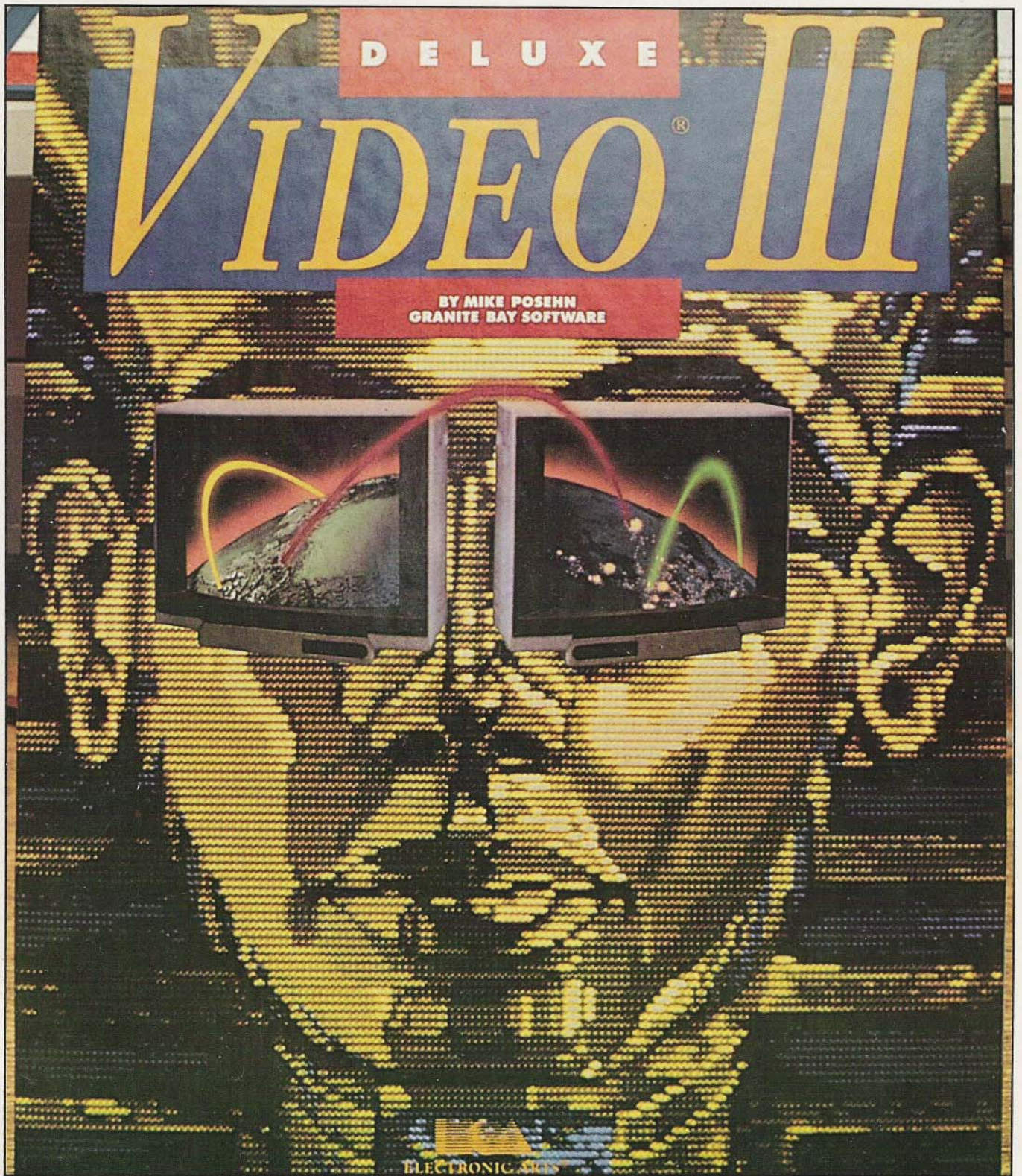
To the uninitiated *DVideo* uses "Tracks" to construct its presentations. The program uses a hierarchical (different level) structure where the user moves through the various "layers" to get to the individual elements of a video. A simple analogy of this is to imagine a single railway line that branches off somewhere down the track into three other tracks. Ignoring the first track for the moment we will call the second branch track "Scene Script", the third track "Effects", and the fourth track "Requesters". Now, if it weren't for the main (first) track we would not be able to get to the others, so it should be called the "Video Script" track, as it controls our access to the rest of the tracks and thus links all the additional tracks to the first.

### On the right track

● *DVideo's* Video Script forms the highest level of the hierarchy, it is the "blueprint" of a video presentation. When *DVideo* is first run a basic Video Script is opened which consists of two Setup tracks called a View track and a Video track. The View track allows the user to define the screen dimensions that he/she requires (High, Low, HAM etc).

The Video track gives the user the option to name the proposed video, what type of image display defaults to use, and to adjust the required timing and control sequences. A Video script can only contain one View track and one Video track. Other empty tracks can be added to the script by dragging a track icon into the script work area. Other tracks available include Background, Control, Device and Tune.

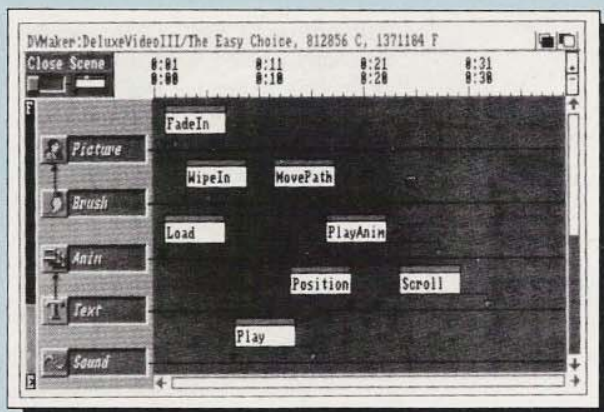
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The Video track can have one, or more, Scene Scripts attached to it, and they can be modified independently of each other, but Scene Scripts cannot overlap. Moving down into the Scene Script hierarchy you find that each Scene is again made up of a number of tracks, and these particular tracks are called Effects tracks, (i.e; an effect for that scene).

Each Effects track has an associated requester which offers several options for each specific effect. Tracks available for the Scene Scripts include Anim, AnimBrush, BackDrop, BackGround, Box, Brush, Control, Device, Picture, Sound and Textline. The total number of effects available now total 35. If all of the above sounds somewhat confusing don't panic, it is not a problem when everything is neatly laid out for you on the work screen.

## Motion control

- Another excellent addition is the MovePath facility. This allows the user to define the movement of a brush by simply dragging it across a preview screen to any desired location. The path will then be used by DVideo to control the brush's final movement. Paths can also be edited at a later stage with the "What And Where" option in case you wish to alter its direction, or even change a brush's window size.

One striking example included with the program shows an AnimBrush of a Cockatoo as it is released from a human hand and proceeds to fly across the screen fighting a rather strong head wind. The only thing missing is the sound of the squawking bird.

A Relative Motion option pushes *Deluxe Video III* to the top of the desktop video class. It is now possible to achieve true relative motion by attaching one

moving object to another moving object. One such example quoted in the manual is that of a moving "planet" brush. A "satellite" brush can be made to move (orbit) around the planet as both objects move in unison along a pre-determined path. Imagine the possibilities! Attaching spinning propellers to aircraft, spinning wheels on vehicles, if you can think of it *Deluxe Video III* should be able to do it!

## Credits

- *DVideo III* will accept fonts from any drawer, and the Textline requester is very user-friendly with a preview facility included where you can view text before committing it to a video. Text placement is accomplished by dragging finished text to the required screen location. ColorFonts are fully supported if you wish to use the many eight-colour fonts that are available.

The Cut and Paste features in *DVideo III* are much more powerful than its predecessor's. It is now possible to cut and paste tracks, effects and even scenes within a video. You can even cut and paste from one video to another without any drama. With one simple mouse click it is now possible to Append (join) one video presentation to another. This gives the user the option to connect several small presentations to make one long uninterrupted video production. This is ideal way of making long videos for people who are lucky enough to have Amiga with hard drives installed.

But there is more, much more! IFF images can be used as patterns behind other images to create unique screen effects. Brushes can be used to Tile backgrounds, and Super Bitmaps (images bigger than the visible screen) are now available to allow for scrolling backgrounds (great for

cartoon-style animation, and the creation of scrolling credits).

With the use of special "Wait" and "GoTo" effects tracks that can be laid within a presentation, inter-active videos can be easily assembled. These can be classified as EUI videos (my own term). End-User-Involvement videos are designed to wait for the viewer to click a particular screen button so that the program can move to their selected choice.

The sound area of *Deluxe Video III* has not been overlooked as the program now supports both 8SVX sound and SMUS music files, plus full MIDI (Musical Instrument Digital Interface) output for professional quality music.

## The big time

- For the more adventurous amongst you *Deluxe Video III* also contains an "Expert" mode which allows the user even more flexibility. Flipping over to Expert mode gives the user access to more tracks and effects such as ARexx scripting, genlocking devices and other video-related output modes, to mention but a few. Turning on this mode can introduce the possibility of making more mistakes as you no longer have the "idiot-proof" mode running.

But with care and a clear knowledge of the program's abilities it does give you an amazing amount of creative freedom. For example, the available scene effects in normal mode number 14, switching over to Expert increases the number to 24.

If you rush headlong into *Deluxe Video III* without reading the manual you are definitely asking for trouble. Even seasoned *Deluxe Video* users will get lost in Expert mode unless they take some time to peruse the relevant sections of the manual. (For first time users these tracks can become as confusing as trying to find your way around the Paris underground without an English/French guide book!) Expert means Expert!

## Editing

- A completed video can be made up of many separate elements, such as still images, animations, music and various sound effects. The DVMover utility has been provided to make the transfer of all the individual data elements to a new location as painless as possible. If, for example, you wish to transfer a video that was originally made up of images and



sounds gathered from several floppy disks onto one disk, then DV Mover can be used to copy all the parts from the different floppies onto a new disk. DV Mover will also make sure that the Part drawer names written into the original Video script are changed to match the new location of all the parts files. A "Get Sizes" option gives users the ability to read the byte size of a selected part. This handy feature helps you judge the amount of disk space that will be required to store all parts.

## The premier

● A DVPlayer program acts as the viewer for completed video productions. It can be also be used to link and show any number of separate videos. Electronic Arts allows this utility to be freely distributed with your finished productions so they can be viewed without the need of the main DV Maker program.

## Spin-offs

● Instant Slide Show is the fourth, and final program, supplied with *Deluxe Video III*. It can be used to create slideshow presentations utilizing any IFF images. Using this program in conjunction with the DV Maker program gives the user the opportunity to combine animations within slide shows, and to make use of many special effects, such as screen wipes. Assembled slide shows can be saved and shown independently of the other *Deluxe Video* programs.

## Critic's corner

● I have two criticisms, but they are not related directly to the *DVideo III* program. The first involves the example videos supplied with the software. They could have been produced in a more professional manner as they do not do the program real justice. In fact, several of the examples are just basic updates of earlier versions, and to a first time user of *DVideo III* they would not impress.

Secondly, and more seriously, Electronic Arts in America offer owners of earlier *DVideo* versions a very good upgrade policy. For the payment of \$50.00U.S. (plus the cost of shipping and handling) they will upgrade owners to the latest version. It seems that *Electronic Arts* authorised Australian distributor, ECP, will not offer such a policy, and any local *DVideo* owners wishing to update their software will have to contend with overseas bank drafts, air mail and customs.

As for *Deluxe Video III*, I have no grumbles concerning the software, as long as your Amiga has plenty of RAM then the program will perform all its tricks with little hassle. If I were to mention all of *Deluxe Video III*'s attributes this review would take up most of this issue. All I can really add is that Mike Posehn has done to *Deluxe Video III* what Dan Silva has managed to do with *Deluxe Paint III*, and that is to turn it into a full-featured software package that will again make the Amiga shine brightly amongst the desktop video stars. This is one software package that will definitely not be

gathering any dust on my software shelves!

● Basic hardware requirements: Amiga 500, 1000, 2000, 2500, 1meg of RAM or more. Two disk drives - hard drive recommended.

● *Deluxe Video III* is a four-disk set distributed by ECP (075) 96 3488. RRP \$164.95.

Dennis Nicholson is the Editor of Graphics-Palette, the graphics/DTV disk magazine for the Amiga. □

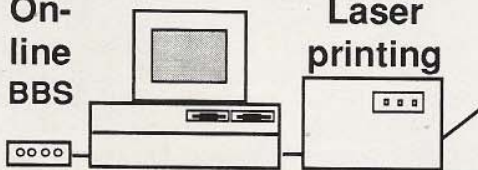
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# Desktop Video - the first of a regular series

by Brett Sullivan

## Vidtech's Scanlock



BEFORE I REVIEW VidTech's genlock, the Scanlock, I will briefly describe what a genlock does.

Desktop Video requires computer graphics to be transferred to videotape. The usual requirement is to either record computer graphics directly to tape, or to combine the graphics with pre-recorded or live video footage to then be recorded to tape.

In either case a genlock is required. A genlock is necessary for any desktop video project as it is impossible to make clear and stable recordings without one. If you try recording Amiga graphics to videotape without a genlock then the taped images will be unstable and contain glitches. This is because the signals from the computer are not synchronised with the signals being produced from the video recorder.

A genlock takes the RGB signals from the Amiga and the appropriate video signals from the reference source (which may be another VCR or video camera which contains the footage on which the computer graphics are to be overlaid) and combines them to form one harmonious video signal. This video signal, which may be a composite signal for most video systems or S-VHS signal for S-VHS systems, allows video recorders to

decode the information and record the imagery properly.

When mixing Amiga graphics with video footage a genlock takes the computer screen output, which normally goes to the monitor, and superimposes it over the live footage (a genlock cannot place the computer graphics behind the video footage). Areas that are black in the computer image become transparent - these are the areas the video footage shows through.

### Scanlock

● There are now quite a range of genlocks available for the Amiga and the Scanlock VSL-1 is the latest genlock released. VidTech, a Florida based company, have realised the potential of the Amiga in Desktop Video and have joined a group of companies building relatively inexpensive genlocks (by TV and video standards) to meet broadcast quality requirements.

The Scanlock is an external genlock that is designed to sit under the computer monitor. It is slightly wider than the monitor but is shorter than the width of the Amiga computers. For those who may be using the Scanlock in a video studio the device is rack mountable but unfortunately is not the standard 19 inch

rack mount width.

The Scanlock can be powered either by the computer or by an external power pack. A500 and A1000 owners will probably find it necessary to use an external power source as these computers will not have enough power to operate the genlock. A switch on the front of the panel determines the power source.

When genlocking, the equipment needed besides the Amiga and the Scanlock is a video recorder, and a video camera or a second video player to provide the reference signal. The Amiga's RGB output is connected to the Scanlock to provide the incoming RGB computer signal. The RGB monitor cable that usually connects the Amiga to its monitor is instead connected to the Scanlock so as to view the Amiga graphics in RGB mode as one normally would. A reference signal is then connected to the Scanlock when needing to superimpose graphics over video footage. To view and record the final output the Amiga's monitor, or another monitor, and the recording VCR are attached to the Scanlock's two outputs. Having two outputs also allows for the imagery to be recorded onto two VCRs simultaneously.

### Front panel

● The front panel of the Scanlock is clearly marked and easy to operate. To the right of the power source switch is an indicator telling which video mode is being used - PAL or S-VHS. Switching between the two is simply done by pressing the flat membrane button as is the case with the other selectors. The next four selectors: Reference, Amiga, Key and Fade, control what final output the Scanlock sends to the video recorder or monitor. Reference will display the reference signal without any Amiga graphics, Amiga will display only the Amiga graphics, Key will superimpose the computer images over the incoming reference video, and Fade will allow the reference or Amiga signal to be faded and dissolved. Amiga graphics may be faded up over video footage and vice-versa. Two horizontal faders, one for the reference signal and the other for the Amiga graphics are used

to control the fades which go from black to one hundred percent image.

It is a good feature that each of the signals can be independently controlled for they allow for more flexible operations. For example, this allows the reference signal to be faded up while the computer graphics may stay at one hundred percent, or the computer graphics can be used as a "transparent wash" over the video footage.

To the right of the faders is another selector allowing for reverse keying. Reverse keying is where the reference video can only be seen through areas that are not black in the computer image. Areas that are black in the computer will be black when superimposed over the reference signal. It is possible to create vignettes and windows simply by using a paint program to fill in the area that is to be transparent when superimposed over the video footage.

On the rear of the Scanlock are the various input and output connectors. Input and Output connections are in standard BNC format for composite PAL signals or are in S-VHS format. There is also room to connect a remote control unit to control the selectors found on the front

panel.

On the side panel are two parameters which can be adjusted to suit specific needs. The horizontal centring position of the Amiga graphics may be adjusted with respect to the reference video. Also, the intensity of the contrast in the graphics may be adjusted

I found the Scanlock to provide a clean image with a minimal amount of bleeding colours. I found the pre-set contrast setting to be a little too high and there was some slight tearing down the left side of the screen. The contrast setting was easily adjusted but the tearing problem could not be fixed. Although the tearing was slight it was noticeable and annoying. I hope this problem is only unique to the particular Scanlock model I was operating.

What is particularly practical is that the unit can be bypassed allowing the Amiga to be used normally. A genlocking configuration may be permanently set with the Scanlock being activated only when needed. The Scanlock also has an internal sync generator which means that when no reference source is connected to the Scanlock it displays the Amiga graphics only. If there is a need to trans-

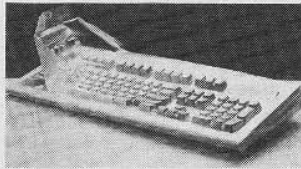
fer computer images without background video footage, a reference source is not absolutely necessary. But to ensure a completely stable image it is recommended that a stationary video camera or blackburst from a video vision mixer be used to provide a steady reference signal. It must be remembered that the quality of the reference signal determines the quality of the genlock's video output.

VidTech have produced a tight and compact genlock which has all the necessary features to suit the more advanced desktop video enthusiast and professional video operator.

The Scanlock is distributed in Australia by MagnaTech (02) 427 0666 and is available at \$1895 including tax. It was pointed out to me at the time of the review that MagnaTech covers warranties for those Scanlocks purchased in Australia but does not cover those that are purchased directly from VidTech in the United States.

The book which I wrote late last year is currently being published by Federal Publishers and will be available early this year. It is titled "Desktop Video" and looks at an introduction to television, video and computer imagery; graphics software; graphics hardware; design; and Desktop Video production. □

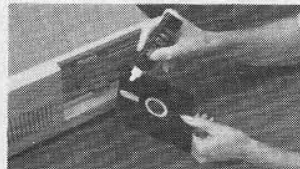
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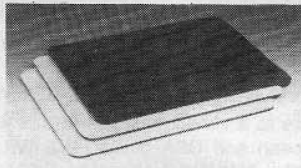
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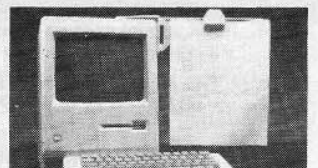
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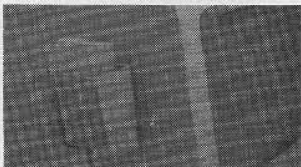
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be configured to operate in several different DMA modes. It is compatible with overscan mode. Fireball is faster than the GVP card.

**Fireball - Controller Only \$299.** The hard card is available by itself however it is most commonly purchased with the drive included. Fireball can have the drive mounted on the card in a H card arrangement, or with the drive separately mounted in the computer.

**Fireball 45 meg \$999 Fireball 90 meg \$1599**

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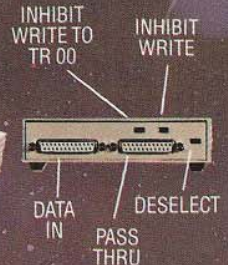
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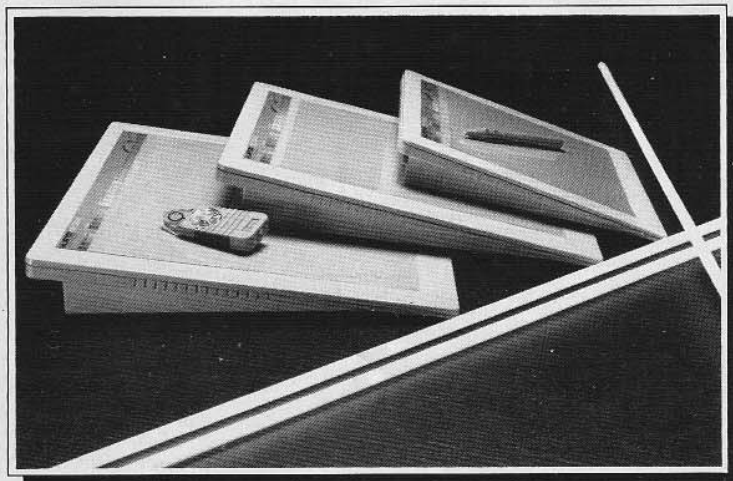
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# The friendly interface Kurta's Graphics Tablet

by Brett Sullivan



FRIENDLY USER INTERFACES have brought computer power to the masses. The user interface is a very important device. It is used to communicate information between the user and the computer.

A mouse is the most common device used to input information for graphics work. For artists and designers it may not be the ideal instrument to use when drawing or designing artwork on computer. A mouse can be difficult to manipulate when drawing freehand curves or adjusting fine picture details. An alternative interface is a graphics tablet, which allows artists and designers to be far more natural in the way they work.

A graphics tablet is a small drawing board with a pen-like attachment that allows a drawing to be made and have it relayed to the screen. The pen glides over the surface of the tablet even though it does not have to actually touch the board. The tip of the pen presses in and performs the functions of the left mouse button. A small button situated where the index finger rests acts as the right mouse button would.

The reason why artists and designers find a tablet easy to work with is largely because it provides absolute positioning compared to a mouse which provides relative positioning. Absolute positioning means that when the pen is removed from the tablet surface and then replaced in another position on the tablet, the screen pointer immediately repositions it-

self to the corresponding new location. Absolute positioning can be similarly compared to the drawing toys that were popular several years ago that allowed for images to be traced and duplicated on another page simultaneously. The relationship, however, between a mouse and the screen pointer is such that if a mouse is picked up and placed elsewhere, the screen pointer does not move.

Another advantage with a graphics tablet is that it allows for finer control when creating images. A mouse usually operates in a 10cm X 10cm area which represents the entire screen whereas a tablet has a larger working area providing for greater precision in the control of the cursor.

The Kurta IS/ONE series of graphics tablets for the Amiga come in three sizes: 22cm X 28cm, 30cm X 30cm and 30cm X 42cm. Accompanying the variety of tablet sizes are a range of pointing devices. Pens are available as either corded or cordless. For those who are going to be using the tablet frequently for serious graphics work, the cordless pen is the preferred choice since it is the closest thing to a real pen and allows for artwork to be created rapidly.

Other possible pointing devices are cursors which are more suited to CAD applications. The range of cursors include 4 button corded and cordless, 12 button corded and 16 button corded.

The computer interface software that

communicates with the tablet is referred to as a driver. The tablet is connected to the computer through the serial port and is then driven by the *Pencraft* driver which interfaces the Kurta tablet with the Amiga. *Pencraft* is on disk and may be loaded at any time or be automatically booted through any startup-sequence. Once in memory, the *Pencraft* driver stays resident until it is removed or the computer is shut down. The tablet will only work if the *Pencraft* driver has been activated.

*Pencraft* is also used to change tablet settings. When the *Pencraft* icon is opened there are four menus to choose from: Project, Tablets, Active Area, Softkey and Help.

Project is simply used to save settings, quit or de-activate *Pencraft*.

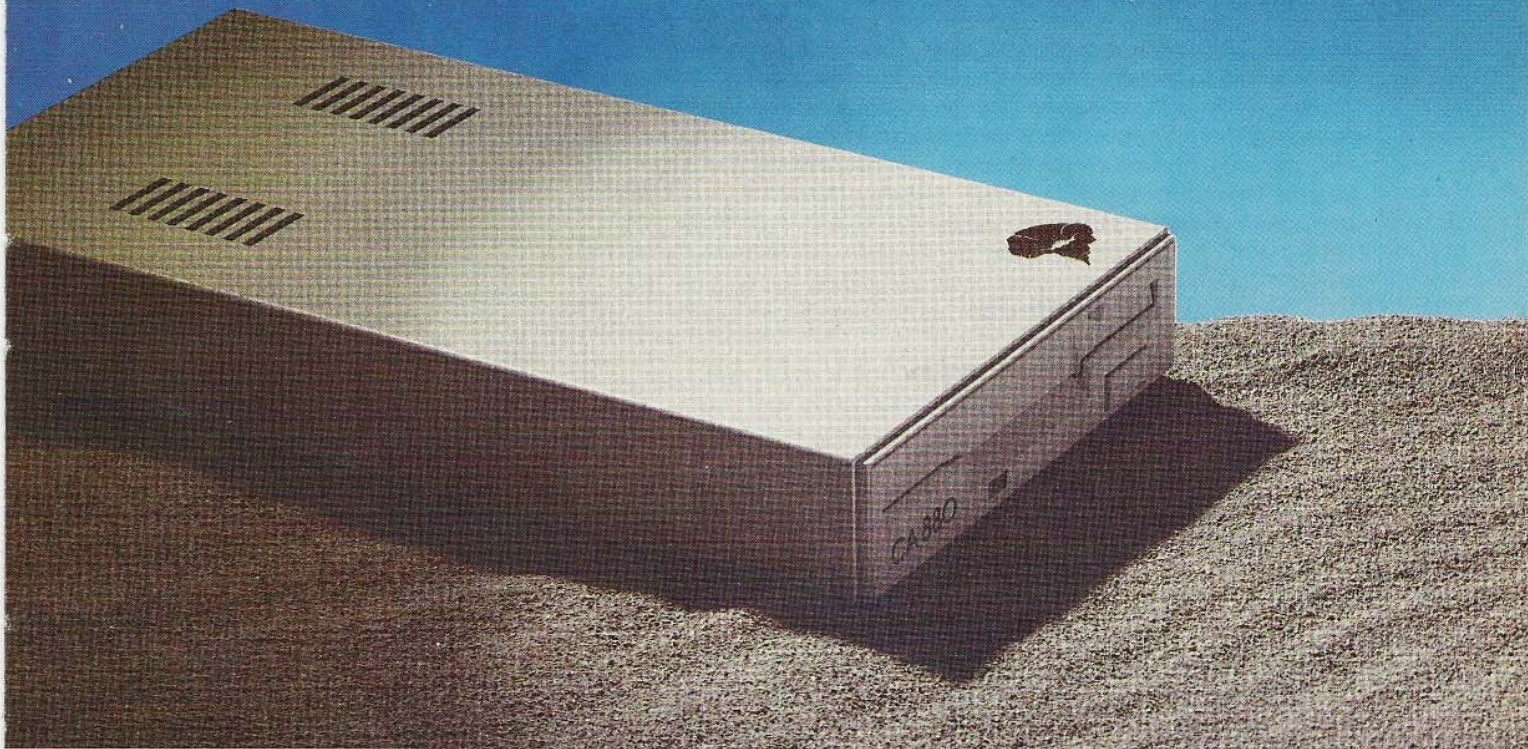
The Tablets menu is used to select configuration choices for the tablet being used eg. size, baud rate etc.

Under the Active Area menu any area of the tablet surface may be mapped to any area of the screen. Defining a large active area allows for fine control of the screen pointer. A small active area requires less hand motion and provides for rapid and coarse control of the pointer - similar to using a mouse. This menu also allows for the Match Aspect Ratio to be changed. Maintaining an aspect ratio similar to the ratio of the computer screen assures that tracing an shape on the tablet will reproduce the shape in similar proportions on the screen. If the Match Aspect Ratio is changed then the shape may appear stretched in width or height. Experimenting with the aspect ratio can produce some interesting results when using paint programs.

Help accesses information concerning configuration settings for the various tablets.

The Kurta range of tablets have programmable function keys at the top of the unit which helps eliminate the need to access the keyboard to input information or perform graphics functions. Defining what tasks these function keys perform is accessed through the Softkey menu. A series of keystrokes are assigned to a function key, and/or to a cursor but-

(continued on page 38)



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ton if desired. By using the function keys the tablet becomes a complete input system. I took *Sculpt-Animate 4D*, which makes use of many keyboard equivalents associated with menu commands, and assigned these keystrokes to the function keys on the tablet.

Keystrokes may also be a combination of two keys pressed at the same time. This is the case with *Sculpt-Animate 4D* where the right Amiga button is pressed in conjunction with another key to activate a tool. While using *Sculpt-Animate 4D* I found that simply pressing the tablet function keys to use different tools was a much quicker method than using keyboard equivalents, particularly since they involved two keys at the same time.

Although a graphics tablet is a far more natural way to create images my initial attempts in using the tablet were clumsy and awkward. This was entirely due to being accustomed to using a mouse. It only took about an hour before I felt comfortable and confident working with the tablet.

I found using a pen much easier to sketch and draw curves than a mouse which produces somewhat jerky and rigid looking curves. The cursor pointing devices proved to be useful for more geometric designs but I found them to be a little too much like a mouse for my liking and preferred using the pen. The flexibility and flowing movements allowed by using the tablet made returning to a mouse a big disappointment!

The only problem I found with the Kurta system is that the current *Pencraft* software does not allow for Overscan, which is an essential graphics mode for any video applications. When in Overscan mode the pen would not move past the normal viewing borders and a mouse was needed to fill in any areas that were overscanned (the mouse can be used when the tablet is not sending any input to the computer). This problem will hopefully be rectified in later versions of *Pencraft*.

I particularly like the idea of using the graphics tablet as an input system. The whole notion of an input system will become increasingly popular as it makes for friendlier user interfaces that save time and increase productivity. The Kurta range of tablets are well suited to meet the needs of anyone serious about working with computer graphics and Desktop Video.

Kurta Graphics Tablets and pointing devices are distributed by Minicom Pty. Ltd. 104-108 Mount Street, North Sydney. (02) 957-6800. □



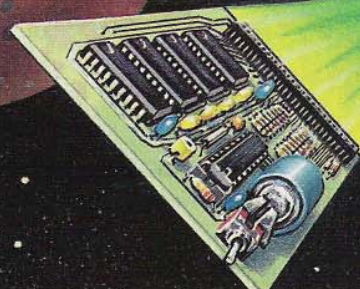
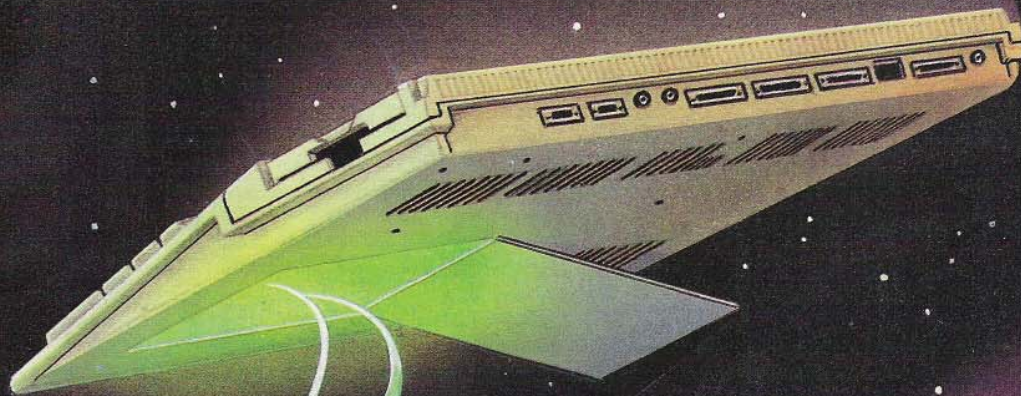


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## STAR LC24-10/STAR FR-10/OKI 182 Turbo

by Eric Holroyd

*In just a few short years there's been some pretty fantastic growth in both printer and computer technology. Printers in particular have become much more sophisticated and the list of capabilities grows with each new model. Here's what I learned when I had the chance recently to evaluate two new printers from Star Micronics and one from OKI. These printers all connect to the Amiga using a Centronics cable and to the C64/128 using a parallel interface such as the one made by Xetec.*

### Star LC24-10

● I KICKED OFF with this brand new 24-pin printer hooked up to the Amiga 1000 and found that it'll let me do almost anything directly from its soft touch front panel. With this system of button combinations I can set the printer in whatever mode I want and there's no need for complicated embedded commands. The style of printing is just one thing that's selected here and can be in any one of four Letter Quality fonts or in fast draft mode.

Five different print pitches of 10, 12, 15, 17, or 20 c.p.i. (characters per inch) may also be set directly from the panel.



Commodore and Amiga Review 42

Font styles on the LC24-10 include Courier, Prestige, Orator and Script (my wife loved this one for "chatty" letters) and there's an optional plug-in card with three additional fonts (Letter Gothic, OCR-B, and Blippo).

Proportional printing is included too and I find it a great benefit to be able to give my letters and papers that "professional finish" by using this feature. It looks so much better than that evenly spaced printing you get from printers without the Proportional feature and which is obviously computer generated and somehow looks more impersonal.

This unit prints quite quickly as the following figures show: In Letter Quality pica pitch (10 c.p.i.) it prints 50 characters per second and in L.Q. elite pitch (12 c.p.i.) it does 60 characters per second. The equivalent figures in Draft mode are 150 c.p.s. and 180 c.p.s. respectively.

There's a "Quiet Mode" which I found great for doing my midnight printouts as it doesn't disturb the household. What it does is make two passes for each line and the print head strikes lighter, thereby making less noise. Obviously it cuts down the printing speed, but you can't have everything, can you?

Continuous paper feed is by the standard Star "push tractor" and there's a single sheet chute supplied with the printer too. The really great feature that most newer Star printers seem

to have now is Paper Parking which lets you switch from fanfold paper to single sheets without having to remove the fanfold from the sprockets.

Front panel controls run the tractor backwards to "park" the edge of the paper in the mouth of the feed ready to be used again later and you can then use the paper chute to feed a single sheet of that special paper in for an important letter.

I had absolutely no trouble in hooking it up to the Amiga with the printer cable and once I'd set the printer to Epson Q in Preferences everything worked like a charm. It's a very user-friendly unit which gave me good results with no trouble. That's just what I look for in any kind of equipment such as cameras, stereo gear, video etc, and I'm sure that the vast majority are non-technical like me so have similar requirements.



Font and RAM cards

On the other hand, the manual is really well laid out for programmers and other high-tech users and gives all the control codes for everything the printer does. For instance: the line spacing can be defined as fine as 1/360 of an inch; printing can be double or even quadruple the normal size; you can perform a "backspace" to overstrike characters; set vertical and horizontal tab positions; have full control over all margins; and a whole lot more. Commands are shown in ASCII, Decimal and Hexadecimal and on re-reading all of this in the manual I felt that this was the easiest printer handbook I'd yet come across.

I liked the Front Panel control system on this printer a lot. A "decal" with all relevant switch combinations came with it and I stuck it next to the controls so that I could see at a glance what switch combi-

nation did what. There's also a handy reference card which explains things in a bit more detail and I referred to both things for a little while until I got used to the unit. As well as the font type, style and size selections mentioned above you can get the printer to stay in Panel Pitch, or Panel Style, or both together if you wish.

This is very handy if you want to use the printer's own fonts and the software you're using defaults to its own settings. By setting the printer in Panel Style and Pitch you can over-ride the software's printer commands and select what you want direct from the panel. Brilliant. As is the forward or reverse Micro Feed which lets you put the paper exactly where you want it just by pressing a combination of panel switches.

Just recently, I bought the January '90 issue of the UK magazine *Commodore Computing International* and was very interested in a "Dear Technical Editor" letter from one of their readers. This chap - an Amiga 500 owner - had bought a Star LC24-10 and wrote that "The fonts available through this printer are better than the fonts available through my Kind-

THIS IS A TEST OF THE STAR LC24-10 PRINTER  
This is using the COURIER font normally

THIS IS A TEST OF THE STAR LC24-10 PRINTER  
This is using the PRESTIGE font normally

Star LC24-10 output

words word processor. Can you please advise me how to print a letter using the printer's fonts rather than the software's fonts?"

Their "Technical Editor" has replied that "You need a new driver for the printer!" Also he's advised the reader to "Contact Star Micronics Technical Help" and given him a phone number to ring. I sincerely hope that the Star UK guys let the "Technical Editor" know that it's very simple indeed to lock the printer in Panel Style and Pitch as I've just described and let him know to catch up on his Technical reading.

Locking in Panel Style has been available for quite a long time and he should have known that. I'm sure the Star people will have correctly advised the reader on how to do what he wants, but it was all

there in his printer manual anyway. This letter is on page 87 of the said magazine, which incidentally is one of my own favourites.

Now, if you like to use packs of single sheet paper as I do you'll be pleased to know that you can get an Automatic Sheet Feeder for this printer. It's simple to use, just stack the paper in the chute and press the print button. I like using this as I can use just about any grade of paper with it, including packs of photocopier paper, and I have a selection of different colours which I like to use for little brochures etc. It's nice to have the choice to use either tractor feed or Automatic Cut Sheet and if your budget will run to it I can heartily recommend it.

Programmers and users with a specific need for specialised fonts and down-

(continued on page 45)

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loaded characters would be interested to know that there's a blank font card available which stores special character sets etc so that they're available just by plugging in the card. There's also a 32k buffer card which is very useful when printing large documents as it holds the data in its own memory so as to give you back control of your computer whilst the printer is doing its stuff.

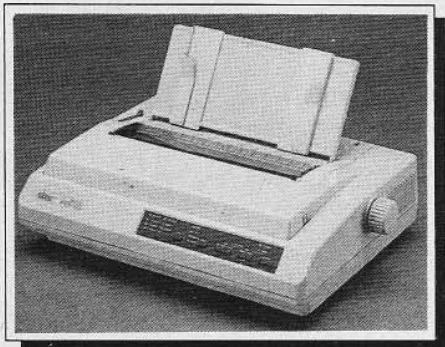
Another useful option is the battery powered RAM card to which you can download data and then remove it from the printer. This is a neat way of carrying data from one computer setup to another, say from the office to home, or home from the user group. The battery has a four year life and the RAM card slips easily into a shirt pocket.

All in all I found this to be an excellent printer with many nice features. It's speedy, versatile and user-friendly and IBM users will be happy to know that the LC24-10 is fully IBM compatible.

- **Best feature:** Solid high-speed NLQ font printing.
- **Worst feature:** Wobbly plastic cover over the paper feed tractor.
- **RRP (including 20% Sales Tax):**  
**Star LC24-10** \$1018.00  
**Font card** \$240.00  
**Blank font card** \$336.00  
**RAM card** \$336.00  
**32k Buffer card** \$276.00  
**Automatic Sheet feeder** \$288.00

## Star FR-10

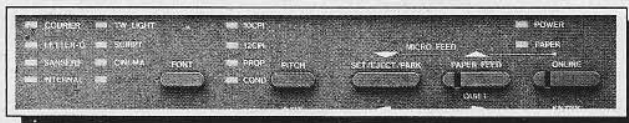
● THIS ONE IS billed as a "High Speed Multi Font printer with IBM and Epson Compatibility". It can be used either as a normal black and white printer, or converts quickly to a colour printer with the supplied colour pack. It's a very high quality unit, obviously designed with heavy duty use in mind as everything about it seems to be that bit sturdier. It also has many features not found in the printers lower down in the price



range.

I found the FR-10 extremely easy to set up and use and once I'd set the printer to "Epson" on my Amiga workbench disk I was off and running. I did some test printouts such as directory and batch file listings to see how it all worked and then tried out the various fonts. Six NLQ fonts (and Draft Mode) are selectable from the front panel: Courier, Tw-light, Letter-gothic, Script, Sans Serif, and Cinema with Orator and Ocf fonts available via ESC codes as explained in the manual. The fonts are very nice and the output is high quality.

Bulkier than the other two units under review, the FR-10 nevertheless just fitted onto my printer stand although it



Control panel

was about twice the size of the OKI 182 Turbo. It impressed me with its ergonomic design and even though there's a Quiet Mode switch to cut down printer noise it had sound-proofing material under the front cover anyway.

The front cover has a transparent section through which you can see the print head and the printed paper comes up through a slot here. There's a very clever "Short Tearoff" feature which feeds up the fanfold paper at the end of a document to let you tear it off and then runs the paper backwards again to line up the top of the sheet with the print head so that you don't waste a sheet. I can't remember how many times I've wished for just such a feature as I don't like wasting an extra sheet of paper every time I write something. In fact I started to collect all those odd sheets on a clipboard to use for phone message paper and it's surprising how many wasted sheets accumulate in a week.

As with the LC24-10 you may also use single sheet paper via the chute supplied and paper parking is a feature here also. Again, there's an Automatic Sheet Feeder available as an option and I can see that it would be a boon to a busy user. My own printer usage is quite high and I'd use all three types of paper feed in a week's work. Fanfold for draft work, automatically fed sheets for letters, and the single sheet chute with the really high grade paper I keep for very special letters. For printing mailing labels it's quite easy to adjust tractor sprockets for narrow or wide label stock.

Paper-handling was superb with this

model and although I'd got used to having a forward and reverse Micro Feed on my older Star NX-10 I was particularly pleased with the way the FR-10 handles this function. Holding down the On Line button whilst pressing the Paper Feed button feeds the paper forwards in 1/216th inch increments whilst the On Line & Set/Eject/Park buttons feed it backwards at the same rate. This is particularly handy for instance, when setting up to print mailing labels and you need to be "spot on" with the first line or you end up printing in the space between the labels.

Print buffering has 32 kilobytes of memory, which means it will hold quite a lot of text and carry on printing for you automatically whilst you get on with

some more work on the computer. This again would be a boon to the busy user and I was surprised on several occasions to regain control of the computer a very long time before the document printing was finished.

There's a function on the FR-10 that I'd not come across before, called Memory Switch Mode. What this basically means is that you can program the printer's own memory to default to a certain range of settings every time you switch it on. For instance, if you use it mainly for printing letters and want it to power up automatically in NLQ and Proportional you may specify that in Memory Switch Mode. Other MSM options include specifying: a particular font as the default; Automatic Sheet Feeder in use; style of printed zeros (slash zero or not); short Tear Off on or off; condensed or Italic print; and several other options.

I'd talked about wasting paper earlier, and whilst I'm not really that much of a Miser Meany I've often wished that I could reset the Automatic Sheet Feeder that I use with the office NX-10. It defaults to 58 lines and so leaves margins at the top and bottom of 4 lines each when using 66 line paper. With 70 line paper the margins are 6 lines each.

Just occasionally I've wished I could



Graphic output

**This is a test of the Star FR-10 printer.  
Current font is 10 cpi CINEMA in Normal Mode**

Text output

have them smaller so as to be able to get a document all on one sheet. With the Memory Switch Mode on this printer I can finally do just that, and even have the printer default to anything from 1 to 6 lines as top and bottom margins. Similarly, defaults for Page Length and Lines per Inch can also be set from a wide range of choices.

Selecting Memory Switch Mode is done by holding down three Front Panel switches together whilst switching the power on. The printer then prints out a "family tree" of questions and answers which you then select and enter into the printer's memory with keystroke sequences. It's harder to explain than it is to do and the manual steps you through it painlessly anyway. If you foul up and don't like the defaults you've set, the original factory settings are listed in the manual and you can return to them then start over.

DIP switches on both the FR-10 and the LC24-10 are easily accessible under a lift up flap under the front printer cover. There are no screws to take out, and all you need is a toothpick (or similar) to change the setting of a DIP switch. These control such things as the selection of Standard, IBM, or International character sets and are fully explained in the manual.

A handy chapter in the manual covers "Troubleshooting and Maintenance". There are six pages of what to look for under three headings: Power Supply; Printing; Paper Feeding. For instance, under "Printing" it says that if fonts or characters aren't being printed via your applications software you should recheck that you did the installation settings properly and do another test. Another one refers to "dots missing at random in the print-out". The possible problem is a slack ribbon which can be re-tensioned by lifting it out and winding it tight again. These things are pretty elementary to experienced users but novices could quite easily incur expensive service bills if they didn't have this section to refer to.

I've mentioned this (and the LC24-10's) manual several times and I must say that they're both good examples of what an instruction book should be. For a start, spiral binding has been used to ensure that the book lies flat on the desk. I always feel that this is a must as you need both hands to type and it's a nuisance

with some manuals when you have to use one hand to hold the page open. Next, the manual starts at the very beginning, ie unpacking the printer and plugging it in.

The various stages of setting up and actually getting a printout follow this and then there's the heavy technical stuff in great detail. A good indexing system meant that I was able to find relevant points quickly so I didn't have to tear out too much more of my rapidly thinning hair to nut something out.

The "heavy technical stuff" includes all those programmer's printer codes for Font Style, Pitch Control, Line Spacing, Margins, Tabs, Graphics, and those special Double & Quad size characters available with both these Star models. Five different test and diagnostic modes are accessed from the front panel, three of them giving printouts to show that all's working OK, the fourth prints a list of Memory Switch settings, and the fifth is a Hexadecimal Dump Mode with all data received by the printer being printed as hex code. This is useful for programmers to know how the printer reacts to certain commands, and is used for installing and debugging printer software.

There are no prizes for guessing correctly that this printer is my favourite of the three under review. My wife says that I have good, but expensive, taste and she's proved right yet again. This is the most expensive of the three printers, but for what I require of a printer in my various activities it's also the best.

● **Best feature:** Its all-round user friendliness.

● **Worst feature:** Original Japanese ribbon didn't print as dark as a re-inked one.

● **RRP** (including 20% Sales Tax):

**Star FR-10** \$1318.00

**Automatic Sheet feeder** \$288.00

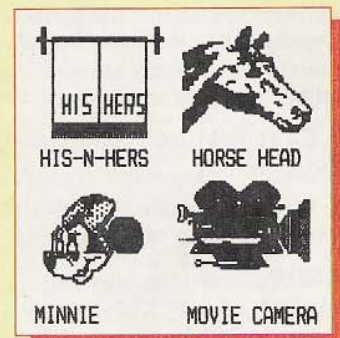
**Pull Tractor** \$96.00

**OKI Microline  
182 Turbo**

● **THIS WAS THE** first time I'd ever used an OKI printer and I was quite impressed with the 182 Turbo. It had the smallest "footprint" of the three printers under review as well as a nice slimline

styling. It seemed to me to be aimed squarely at the home computer user wanting a fairly basic printer that's easy to use.

I decided to hook it up to the office C-128 and used the Xetec Super Graphics Senior interface to do the necessary data translation. After the initial "fiddling about" common to all new printer setups I was soon printing various samples, some of which are reproduced here to show the print quality. The OKI printer could just have easily been connected to the Amiga for these tests, in fact the manual details all the necessary info on making a parallel cable to do that, but I chose to use it with C-64 and C-128 modes so as to try out different word processors and graphics printing packages.



Graphic output

Both IBM and Microline emulation are catered for - depending which your software happens to support best. The DIP switches need to be set differently for these two modes, and once again it's all detailed clearly enough.

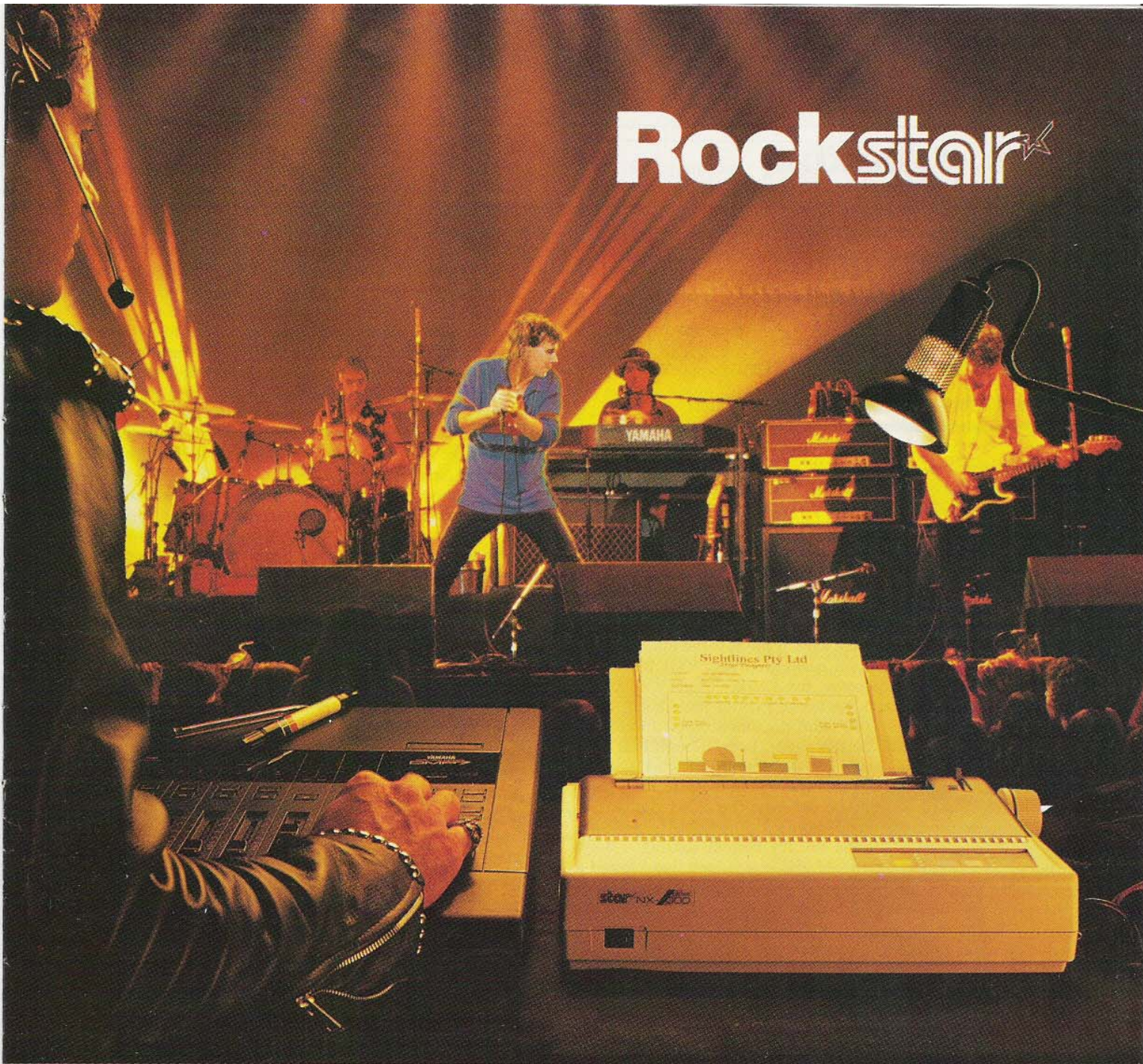
The OKI manual was well laid out, like the others it started off with the very basics of unpacking and setting up before progressing to technicalities and programming. Full marks for all that, but it lacked spiral binding and I kept losing my place due to pages closing. It has sections on BASIC programming and ESCape sequences too, then runs through how to work with four popular word processing packages: *Volkswriter De Luxe*, *Bank Street Writer*, *Apple Works*, and *Word-Star*.

I tried the 182 Turbo out with both *et System 4* and *Fontmaster* on the C-128 and found that the best printer driver to use with the *Fleet System 4* was Panasonic, whilst with *Fontmaster 128* the Rite-an C+ driver turned out to be the one to use. (Both word processors let you define your own custom printer driver if necessary, and I'd have gone on to do that if I couldn't have used one of the long list of drivers supplied with both of

(continued on page 48)



# Rockstar



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* TESTING SUPER AND SUBSCRIPTS H≡
* TESTING BOLDFACE PRINTING
```

Text output

the programs.)

In keeping with the overall compact design of the printer is the ribbon cartridge's small size. It's about as big as a cigarette pack and half as deep, and there's a little "printhead gap" adjustment lever on the side of the ribbon's housing which you set according to the number of thicknesses of paper being printed so as to get the best from the ribbon. It will print through those multipart business forms of up to four thicknesses.

The specifications say that ribbon life is three million characters and the original ribbon performed very well. It's showing no signs of wearing out yet but I haven't kept a check on the exact amount of work it's done. I could have been really scientific and printed a 1,000 word document 3,000 times but I couldn't afford the time or the paper. Even though that may sound a little flippant, that's just the amount of work the ribbon is said to do which is what I was trying to illustrate.

Tractor feed paper may be fed from the either the rear or the bottom of the printer and there's a commercially available printer stand with a suitable slot for bottom feeding. I don't have one so I used the rear feed and it was here that I found a snag. I had occasion to change DIP switch settings for one of the tests I was doing and didn't much like the location of these switches. There's a plastic cover on the back of the printer which is held in place by a screw.

I had to get in with a screwdriver to get the cover off and with fanfold paper feeding in from the rear I soon found that the cover is hidden by the paper. After wrestling with the screwdriver by touch for a while I ended up taking the paper out altogether so as to get at the DIP switches.

Most print and pitch operations are set from the Front Panel and there are buttons for Line or Form Feed, Top Of Form setting, plus Pitch and Mode. Three pitches are selectable: 10, 12, & 17 whilst the Mode button governs Utility (Draft Mode), NLQ, and HSD. This last one is High Speed Draft and is very quick indeed. HSD can be used in all three pitches and also allows underlining but no other special print features. The NLQ is a nice crisp font and allows both 10 and 12 CPI but not 17.

Utility printing lets you do a draft including such print features as italic, emphasising, or underlining. All these things are, of course, available as commands or settings in commercial software (such as the two WPs I mentioned above) but the well laid out manual lists all the necessary commands in ASCII, Decimal, and Hexadecimal if you want to write your own printer programs. These are useful for computer users wishing to "embed" printer commands in, say, word processor documents. The manual also shows Character Charts for both ASCII and IBM Character Sets I & II, plus BLock Graphic and International Characters. Commands to set Tabs, Margins, Paper

Length, Skip over Perforation, Spacing, Line Feeds etc are clearly set out too.

As a test of the OKI's graphic capabilities I used a C-64 program which reads a *Print Shop* data disk then prints the graphics in neat rows for easy reference. Check out the results for yourself here. The other test was via *Fontmaster* and came out very well too, the output from that program being in a sort of graphic font. Again, here's the test printout so that you can see the results.

If you're into programming you might like to design your own logo using "Bit Image Graphics" by following the instructions in the manual. The same procedure is laid down in the manuals for the other two printers and I really must get around to doing it for myself one of these days. I correspond with a guy in New York named Sol who signs his name at the end of a letter with just such a graphic which comes out in a very nice little script style signature.

After having several sessions with the OKI 182 Turbo I felt that it's best summed up as a nice basic printer that does two types of draft printing and one type of Near Letter Quality. It performs well enough and is reasonably quiet. If I were a computer hobbyist shopping around for my first printer I'd certainly put it on my short list.

● **Best feature:** Compact size and styling.

● **Worst feature:** DIP switch positioning.

● **RRP** (including 20% Sales Tax):

**OKI Microline 182 Turbo \$598.80**

Review unit supplied by IPL Datron (02) 698-8211

## Conclusions

● After working with all of these printers I was in something of a quandary on how best to advise readers of my findings. I realised eventually that we all have differing needs as to the various equipment that we use and this is very evident in printer requirements.

A working journalist needs a good fast workhorse that's reliable and versatile for instance, whilst a home computer user who only writes the occasional letter, types recipes for his wife, and mailing labels for the Christmas card list obviously doesn't need something quite as exotic.

Nevertheless, it's always advisable to get the best that you can afford as it pays off in the long run. Imagine the computer user I've just outlined having a couple of teenage students growing up who'll eventually want to use the computer to do school and college assignments on and the printer's workload suddenly becomes a lot heavier.

I hope that my ramblings about these three units help to give you some ideas about what to look for in your next printer. I know which one suits my requirements and I'm going to be dropping very heavy hints about the FR-10 and "less than 300 shopping days to Christmas". □

### Specifications of the three units:

	LC24-10	FR-10	OKI 182 Turbo
<b>NLQ Speed</b>	50cps (10cpi) 60cps (12cpi)	63cps (10cpi) 76cps (12cpi)	40cps
<b>Draft Speed</b>	150cps (10cpi) 180cps (12cpi)	250cps (10cpi) 300cps (12cpi)	155cps * 186cps (10 & 17cpi)** 232cps (12cpi)**
<b>No of Pins</b>	24	9	9
<b>Line Feed Spacing</b>	1/6", 1/8" n/180", n/360"	1/6", 1/8", 7/72" n/72", n/216"	1/6", 1/8", n/144"
<b>Data Buffer</b>	7KB	32KB	---
OKI 182 Turbo Note: * = Utility** = High Speed Draft			

# the expert

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# Assembly Tutorial Part 3

by Oben Candemir

SINCE LAST ISSUE, a lot of people have asked me the question "When are we going to be able to hack into all those copy protected programs?". I don't know how predominant this view (Assembly Language=Hacking) is, but I can assure you that once you know the principles of assembly language programming you have just about complete mastery of the computer and its workings. What you do then is up to you...

Having said that, this month's issue will concern itself mostly with branches, and the different kinds of branches available. We'll explore the new concept of Condition Codes which the 68000 sets according to certain operations. First let's see the assembly equivalent of the GOTO instruction in BASIC.

## BRA - Branch instruction

● You might have realised by now that assembly language instructions look like the word they stand for. This is also the case with BRA. Here we must introduce the concept of labels in a program. Say that I had a program and I wanted to branch elsewhere in the program. In BASIC we'd use the line number of the statement to go where we wanted.

However in Assembly we have LABELS which are simply arbitrarily chosen words which can be used as reference points. Look at the following hypothetical program:

```
Start:
MOVE.L#0,D0
MOVE.L#1,D1
BRASkipNextInstruction
Back:
MOVE.L#$10000,A0
MOVE.L10(A0),A1
SkipNextInstruction:
.....
BRABack
```

You can see how the BRA command redirects the flow of the program to the labels in question. BRA isn't used all too much in programs because it branches unconditionally and a return to where the program once was is not guaranteed. For that reason we often want to modify the effect of an unconditional branch so that it branches only under certain cir-

cumstances. But to understand this we must learn about....

## Condition codes

● Let's say I were to hit someone I was near, the response of that person would be one of anger. This is analogous with the computers responses ie. every action has a response from the computer. Most of the time we know what the primary response will be. For example

```
MOVE.L#0,D0
```

will as we know move a zero into data register d0. However the computer responds to instructions in a secondary way also. It has what's known as a 'Status Register' which at any time contains the results of previous instructions. The status register has 5 different response centres which are called 'flags'. They can be in one of two states ... ON or OFF / 0 or 1. These five flags are:

Status Register>		
Bit Number	Name	Meaning
0	C, Carry	Set during math operations.
1	V, OverFlow	Notifies change of sign.
2	Z, Zero	Set on result of zero.
3	N, Negative	Set when operation negative.
4	X, Extend	Arithmetic operations.

Of these flags C and Z will be mostly used by us as the others are only used when complex math operations are required. You might note that the instruction above 'MOVE.L #0,D0' sets the Z flag, as a zero has been moved into a register. Similarly 'MOVE.L #1,D0' would clear the the Z flag if it was set, or make it remain clear if it was clear already.

This is no good to us if we can't use it in some way & the main use of these flags is to test for certain conditions and branch accordingly. In C if we had wanted to test if something was zero we would write the following instruction.

```
..... if (Dummy0) do {something} .....
```

In assembly we have a way of comparing as well. The instruction CMP -

CoMPare achieves this. For example.

```
CMP#0,D0
```

compares the D0 with the immediate value 0 and sets the Status register accordingly. We can then do something with the results in the SR (status register) by using a conditional branch. Remember the unconditional branch BRA, we now have instructions starting with 'B' and ending in the following to distinguish on what situation they branch. We must remember that some things are done in a peculiar way on the computer. For example the instruction:

```
CMP#25,D0
```

will set the Zero flag if D0 contains a 25. Therefore we could use BEQ to branch if this was so. Why is the Z flag set? Because CMP subtracts the immediate 25 from d0, and sets SR accordingly. Therefore 25-25 = 0 and Z is set! And if d0 had held another value, subtracting 25 would have cleared the Z flag as the value would be non-zero in all cases.

And therefore BNE would have worked here. It is not important that you understand all the workings of the instruction, just so long as you get the macroscopic effects.

Suffix	What does it do?
EQ	Tests for equality.
NE	Tests for inequality.
CC	Test for Carry flag clear - Greater than or equal.
CS	Tests for Carry Set - Lower than
VC	Test for OverFlow flag clear.
VS	Test for OverFlow flag set.
HI	Higher than.
LS	Lower than or Same.
HS	Higher than or Same.
LO	Lower than.
GE	Greater than or Equal to.
LT	Less than.
GT	Greater than.
LE	Less than or Equal to.
PL	Bra if PPlus result - positive.
MI	Bra if MInus - negative result.

Now let us see other instruction used to branch in assembly. The most important of these is obviously the Jump

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**Commodore**

SubRoutine or JSR command.

### JSR and RTS (BSR too)

● Anyone familiar with BASIC will know the GOSUB and RETURN commands. What these do is to temporarily branch out to a subroutine and return to the next instruction prior to jumping once they're through. For example:

```
MOVE.W#VALUE,A0
MOVE.W(A0),D0
CMP.W#12,D0
BEQKeepGoing
BSRMake12
```

```
KeepGoing:
.... Other Instructions .....
```

```
;Subroutine to make D0 equal to 12
```

```
Make12:MOVE.L#12,D0
RTS
```

```
VALUE:DC.W0,12,14,16,0
```

The program can be deciphered as follows. The first instruction places the Address of VALUE into A0. The next moves what's "inside" the address to which A0 points (look over last months for an explanation of this technically called 'indirection' concept) ie. VALUE which is 0. CMP compares d0 with 12. We know that d0 is not equal to 12 so the BEQ instruc-

tion fails to branch to 'KeepGoing'. Now BSR branches to the subroutine 'Make12' and once Make12 is finished it RTS's back to the instruction following the BSR. JSR would have achieved the same effect as BSR. The difference between the BSR & JSR is the distance to which they can jump. BSR is shorter ranged but takes up less bytes in the final code. JSR can jump to anywhere in the computer's allowed memory but has the disadvantage of taking up more bytes than BSR. In general use BSR until the assembler warns you that the label to which you want to branch is 'OUT OF RANGE'.

One other branching instruction exists and that is the JMP instruction. The effect is totally the same as BRA however as with BSR and JSR the range of JMP is greater.

You may wonder what the 'DC.W' is. The DC is supported by most assemblers, it's NOT a 68000 instruction, it simply instructs the assembler to put the data following it into the final executable file. In this way it is called a PSEUDO-INSTRUCTION. The '.W' part means that the assembler will make the instructions word values. For example the code above would be made into the following by the assembler:

```
VALUE:DC.W$0000,$000C,$000E,$0010,$0000
```

So that they are word values. Had there been a '.B' the assembler would have made it:

```
VALUE:DC.B$00,$0C,$0E,$10,$00
```

However, we must remember as in last month's tutorial that Long word and word accesses to memory MUST occur at even addresses. Placing 5 byte values into some code may cause trouble with this for example.

```
MOVE.BData,D0
BRA NextIns
```

```
Data:DC.B$02
```

```
NextIns:
MOVE.L#20,D2
RTS
```

Now, all instructions are on word/long word boundaries in order to be able to be accessed by the BUS. The beginning of the code is alright, it does nothing wrong. However the DC.B in the middle of the code causes the code following to be on an odd address. Therefore disaster occurs and we GURU with error number 00000003 which means ADDRESS ERROR. Try it if you don't believe me! Some assemblers will give you a warning as to this event.

How can we fix it? Most assemblers have an 'EVEN' command which automatically pads the code so that nothing is on an odd address; so placing the pseudo-instruction EVEN (or ALIGN on Assempro/ CNOP 0,2 on Assem) will cure the problem. Alternately the "Data: DC.B \$02" could be placed at the very end of the code which would also combat it provided that no word long word accesses were made to things immediately after it.

That'll be enough material for this time, remember to revise last issues material and experiment with your assembler with the material in this month's issue. Next month our vocabulary will grow and we'll meet all the remaining important instructions of the 68000. After that we'll go on to see how we can open windows and screens and use the Amiga's hardware with the new language we've acquired. □

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# C64/C128 Colour, Graphics and Sound Part II

## Simple graphics

by Greg Perry

ONE OF THE two character sets in all Commodore computers contains 63 special graphics symbols (plus 63 with the colours reversed). These are accessed in two ways. The graphic symbol on the left of the key is obtained with the C= key, and the one on the right with the shift key. (Reverse field characters are obtained by first pressing CTRL and RVS ON keys [RVS] then as above. Press CTRL and RVS OFF [OFF] to turn reverse characters off. Any of these can be drawn on the screen by simply PRINTing them as normal characters inside quotes as with normal strings. The colour of each can be changed with the CTRL or C= and Colour keys as usual.

### Programming CONTROL characters

● Any character INCLUDING CURSOR and Colour controls may be printed within quotes. When a string containing CURSOR or Colour controls is printed, these behave EXACTLY as if typed directly to either move the cursor or change to a new colour. For example:

```
NEW
10 PRINT "[CLR,DOWN 10]" (Remember do
not type the comma.)
20 PRINT "[CYN]HELLO I'M HERE"
RUN
```

See what happens? (RUN/STOP RESTORE for normal colour.)

All of the Commodore range possess this very important feature, unavailable on many other machines: once a quote character ( " ) has been typed, the screen editor actually enters a different mode of operation. This is called the Programmed Cursor Mode (PCM by Commodore) where ANY CURSOR or Colour control will not operate as usual but produces a particular reverse field character representing the desired operation. This allows extremely easy programming of cursor movements and colours. However, once you type a quote and are in PCM you now can't use the cursor to move around the screen!

To escape from programmed cursor mode, type either

- another ' ' : returns to normal mode
- RETURN : enters the screen line into the computer or
- Shifted RETURN : stops PCM and

moves to next line - The line is NOT entered into the computer therefore not changed. Use the cursor to Edit.

This mode is also entered after the INSERT key has been used. For example, if the INSERT key is pressed five times, any colour or cursor controls used for the next five characters will produce their corresponding reverse field code. This is very useful for editing lines. If you forgot to include a clear screen in a PRINT statement, simply position the cursor over the position, press the INSERT key once then the [CLR] key, and the required "reverse heart" character will appear. (Make sure it's inside quotes!)

### Programming screen positions

● Part of the "user friendliness" of the C64 is its logical and simple on-screen editing. This extends to simple graphics and screen positioning using the programmed cursor mode. Characters are printed at the current cursor position. This can easily be controlled to allow printing anywhere on the screen at will.

It can be done with one of three methods. The traditional method consists of using two strings of cursor controls (see Lines 120 and 130 in program SCREEN POSITION1). We then select the appropriate number of cursor movements to move to the desired screen position using the string function LEFT\$. The following program illustrates this screen positioning.

```
Program : SCREEN POSITION1
10 REM (C) GREG PERRY, BRISBANE 1984
100 REM SCREEN POSITION
110 N$="HELLO[SPACE]M[SPACE]HERE"
120 H$="[RIGHT40]"
130 V$="[HOME,DOWN39]"
140 REM SELECT RANDOM HORIZ AND
VERT
150 PRINT "[CLR,SPACE]SELECT
[SPACE]SCREEN[SPACE]POSITION"
160 INPUT "ROW,[SPACE]COL":R,C
170 PRINT LEFT$(V$,R); LEFT$(H$,C);
180 PRINT N$
190 FOR J=1 TO 1000: NEXT
200 GOTO 140
210 END
```

**Exercise:** Try changing the string N\$ to include a colour control by  
110 N\$="[CYN]HELLO I'M HERE"

**Exercise:** Try other strings and colours.

It is now possible to draw anything on the screen at any particular position.

The second method of positioning the cursor is fool the C64 by changing two of the operating system's memory pointers at locations 211 and 214.

The pointer at location 211 is used to place the cursor anywhere on a given line between column 0 and column 39. Larger values are not recommended. To use

```
POKE 211,column
```

Location 214 is the NEXT screen line number from where the cursor is currently positioned. It is used to position the cursor to any line, EXCEPT the top line. To use

```
POKE 214,L:PRINT
```

where L is the line number less one. The top line (line 0) cannot be reached since it is impossible to POKE a location with -1.

N.B. : A POKE 214 MUST BE FOLLOWED IMMEDIATELY by a PRINT statement.

In the above program, REPLACE Line 170 with

```
170 POKE 214,V:PRINT:POKE 211,H
and see what difference it makes. The only minor trap when using this method is that the value in location 214 is the line number plus 1, but overall it is the most efficient. It will be used from here on.

```

This screen positioning routine is very useful for formatting screen outputs. Some examples are

● A complete screen of information can be formatted then INPUTs positioned on specific lines by POKE 214,L:PRINT: POKE 211,C:INPUT\$ where L is the line no.-1, and C the column. (INPUTs should be positioned three characters to the left of the desired position to allow for the "?".)

● Screen lines 22-24 can be reserved for help or error messages

● By PEEKing locations 214 and 211 to find the current cursor position, it is possible to move to another position (say line 22), print a message then return to the original line and column.

● If you are printing a long list of items which will scroll off the screen, by PEEKing 214 (the line no) you can check whether you would print past line 22 (say). If so, jump to a wait routine then clear the screen and continue printing.

(continued on page 58)



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**Exercise:** Write a subroutine to print a help message on line 22 of the screen then return to the top.

**Exercise:** Write a routine to print the numbers 1 to 100 on the screen, one on each line. Check if you are about to print past line 20 and, if so, go to a wait subroutine, then clear screen and continue.

There is a third method of screen positioning which uses one of the C64's KERNAL routines. (The KERNAL (sic) is the set of machine code subroutines which perform the main operations of the computer.) The routine is called "PLOT" and is used by

```
POKE 781,line
POKE 782,column
SYS 65520
```

Add this to the above program and try it out. DO NOT USE line numbers greater than 24, the C64 may crash!

## Line Drawing

● To draw lines, we select the line character from the graphics set and print it with the corresponding cursor controls. for example, a horizontal line

```
FOR I=1 TO 40:PRINT"[C]";NEXT
```

A vertical is as easy, although is more involved. The line PRINT"[-,DOWN,LEFT]"

(Remember [-] means to hold down the shift key then press the "-" key)

prints a vertical bar and moves the cursor to directly under the line. So we repeat the sequence 20 times as

```
FOR I=1 TO 20:PRINT"[-,DOWN,LEFT]";NEXT:PRINT
```

Diagonals are achieved by printing the character then moving down one line as

```
FOR I=1 TO 20:PRINT"[M,DOWN]";NEXT:PRINT
```

This type of simple graphics is shown in the following routine which draws a border and a message. POKES to 214 and 211 are used to position the messages on the centre of the screen (Line 260). It also uses colour changes.

NOTE: you cannot simply PRINT in the last column (number 39) without expanding onto the next line, therefore the border is one short on right hand side. We will see how to access this last column position later in the chapter.

```
Program : SIMPLE BORDER
10 REM (C) GREG PERRY, BRISBANE, 1984
100 REM BORDER
110 BC=PEEK(53280): REM SAVE BORDER COLOUR
120 POKE 53280,2: REM BORDER TO RED
130 PRINT "[CLR]";
140 PRINT "[<A>]"; FOR I=1 TO 37: PRINT "[<R>]"; NEXT : PRINT "[<S>]"
150 FOR I=1 TO 22: PRINT "[<Q>]"; TAB(38)"[<W>]"; NEXT
160 PRINT "[<Z>]"; FOR I=1 TO 37: PRINT "[<E>]"; NEXT : PRINT "[<X>]"
170 REM NOW POSITION CURSOR FOR MESSAGE
180 H=14:V=10: GOSUB 250
190 PRINT "A.[SPACE]BORDER"
200 H=12:V=12: GOSUB 250
210 PRINT "38*23[SPACE]NOT[SPACE]OUT"
220 FOR T=1 TO 2000: NEXT
230 POKE 53280,BC: REM RESET BORDER COLOUR
240 END
250 REM POSITION CURSOR
260 POKE 214,V: PRINT : POKE 211,H
270 RETURN
```

**Exercise:** Change the printed graphics border to different colour.

**Exercise:** Change the message position and colour. □

(Extract from *Graphics and Sound on the C64*, (c) Dr Greg Perry, Brisbane, 1986.)

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# Advanced BASIC

by Nick Van Heeswyk

LEARNING ADVANCED basic is not only programming, it is also necessary that you know what error messages mean. They are actually meant to help you rather than hinder progress. When you look up an error message in your manual, you usually get a hard to understand definition. This month I will try to help you with what the message really means.

**Bad Data:** The program had expected numbers for your data, but instead you had placed string data (letters); from an OPENed file.

**Bad Subscript:** The program tried to reference an element of an array whose subscript was outside the dimensions of the array. Eg: Say if you made a DIMension (A\$) of 2 by 2 and in the next line wrote A\$(3,4)="HELLO", then you would get this error because it's out of the dimensions of the array.

**Can't Continue:** When you try to CONTINUE the program and it does not work, the reasons could be.

- The program had not been run yet.
- It stopped because of a programming error.
- You stopped the program and made an alteration.

**Device Not Present:** The relevant I/O device isn't present. Eg: You tried to load a program from drive 9 but you do not have a drive nine. Or you tried to load from your normal drive and it isn't plugged in.

**Extra Ignored:** Too many data items have been put in from an Input statement. Eg: Type in 10 INPUT "NAME";A\$ and run it. Put in about 5 lines of letters and you will get this error message due to too much data being entered.

**File not found:** On tape you have tried to load a program and it came to the end of the tape without finding the program you were looking for. On disk, no file you mentioned exists.

**File not open:** You tried an I/O command without opening a file first.

**Formula too Complex:** A string expression is too puzzling, or an arithmetic expression is too complex. Avoiding - If it's a string break it up into parts. For arithmetic use parentheses. Be careful and try to avoid this error because it could destroy your program. (This occurred to me a few times)

**Illegal Direct:** The command attempted in direct mode but it can only be used in program mode.

**Illegal Quantity:** A number in a program goes above its limit. Eg POKEing a value greater than 255. Sometimes when you write a program and you get this error say in line 110, this is where it went over the limit and not necessarily the line needing correcting. These can be hard to fix.

**Next Without For:** You may have too many statements than needed, or you have forgotten a FOR statement. Eg: If you just type in "NEXT" you will get this error due to no FOR statement.

**Out of Data:** A READ statement has run out of data. Eg Your reading sprite data has 63 bytes, but if you make it read 64 bytes this error will occur because there's not enough data.

**Out of Memory:** No more RAM (random access memory) left for programs or variables. Also caused by too many nested FOR loops and/or GO-SUBS. In this case you have free memory but no stack left. You may have inadvertently changed the top of memory pointer.

**Overflow:** The result of a calculation is over 1.70141884E+38.

**Redim'd Array:** An array name appears in more than one DIM statement, or has been implicitly and explicitly DIMinished.

**Redo From Start:** An input statement received the wrong kind of data. Eg: Type in 10 INPUT"NAME";A\$ if you type in numbers this error appears or vice versa. The program still continues until the right data is entered.

**Return Without Gosub:** You

have a RETURN in your program without a corresponding Gosub.

**String Too Long:** Strings can be 255 characters long only.

**Syntax:** Basic does not recognise this statement.

**Type Mismatch:** Numbers used instead of Data, or vice versa.

**Undef'd Function:** Your defined function was called but not yet defined, with a DEF FN statement.

**Undef'd Statement:** An attempt was made to go to a non-existing line. Eg: Type "GOTO20", this error will appear because there is no line 20.

I hope these definitions of error messages help you when correcting your next error.

Before ending this month's article, I will show you how to get a Directory without losing your program. Just include it wherever it will not run into your program, then run that line for it to work. If you change numbers, do not forget to change the gosubs and the goto statement.

```

10 OPEN 1,8,0, "$"
20 GET #1, X$, X$
30 GET #1, X$, X$, X$, X$
40 IF ST THEN CLOSE 1: GOTO 90
50 GET #1, X$: IF X$=" "THENPRINT:
GOTO30
60 IFX$=CHR$(34) THEN P=NOT P
70 IF P THEN PRINT X$;
80 GOTO 50
90 OPEN 10,8,0, "$$"
100 FOR J = 1 TO 35: GET# 10,
X$:NEXT
110 GET# 10, Y$:CLOSE 10
120 BF = ASC (X$+CHR$(0) ) +
256*ASC (Y$+CHR$(0) )
130 PRINT BF "BLOCKS FREE":
RETURN

```

After running this program, once finished Return Without Gosub will appear - this means the program is executed. Make sure when you are entering this program to have the right spacing and everything or it might not work. □

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# The Mega Entertainment Section

Edited by Phil Campbell

## That's Entertainment

A round-up of this month's entertainment news and views.

### Megazone MegaZZZZZZ

● Yes folks, our only competition has changed its name again. Remember *Megacom*, the mag that came out every now and then? Changing their name to *Megacom* seemed to help a little, but not for long. Now it's *Megazone* - maybe this time the name will stick. *Megazone* is a nice looking magazine - plenty of colour, glossy paper and all that jazz. But the fact is, they're backed heavily by Ozisoft and Questor. Independent opinions, honest reviews? Maybe.

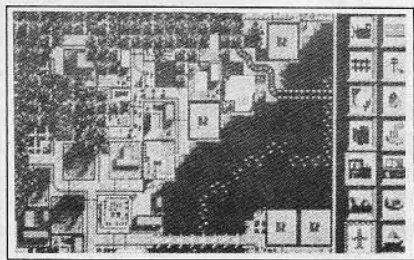
We'll have to wait and see.

### C-64 CD compilation on hold

● Last minute technical hitches have left Mindscape's exciting CD compilation sitting on the shelf. I've seen the package - a standard CD, a cable that joins the headphone output of your CD player to your joystick port, and a standard C-64 disk with loader software. Heaps of games, quick loading and low price all make this a very desirable product. So hurry it up, guys!

### Simcity terrain editor

● Regular readers will know that *SimCity* is my favourite game - winner of the coveted Amiga Annual Game of the Year Award and a number of other minor overseas awards... like Game of the Year in almost every foreign mag I can think of. It's nice when the big guys agree. *SimCity* puts you in charge of your very own town - design it, subdivide it, control tax rates and all sorts of other fun things. Sounds boring, but when you ac-



tually see your city spring to life on the screen it's a real buzz.

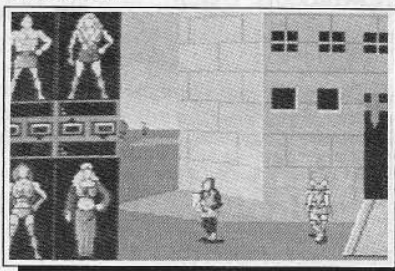
Now for the good news - Dataflow have just released a terrain editor that lets you control features that were fixed in the original game. Now you can create copies of actual cities by setting out the landscape and waterways as they are in real life.

A number of other features make this a worthwhile addition to *SimCity* - though it's a little expensive at \$39.95.

### New West Phaser game from Pacronics

● *Quickshot*, a six-pack shooting gallery game, has just been released for owners of the *West Phaser* light gun. Pick off ducks, balloons, clay pipes and all the usual stuff - lots of fun if you've got the gun.

### Infogrames release two new games through Questor



● Quality French software house Infogrames have released two new games through Questor. I met the suave French-accented guys from Infogrames last time they were in Australia, and I was very impressed by the high class look and feel of their software. *Full Metal Planete* and *Drakkhen* keep up the old standard. The first is a strategy game in which you must dominate and mine an ore-rich planet - not my style of game, but somebody down at the Realm end of things will have a good look at it soon. *Drakkhen* is a classy role-playing game with top

graphics and beautiful animated fight sequences. Worth a look!

### Pacronics release Amos

● *Amos*, the long awaited game creation system for your Amiga, has just been released by Pacronics. The package allows you to produce your own games with full stereo sound, parallax scrolling and stacks of other professional features. There's a sprite editor that allows you to create gigantic images and even grab sprites from your favourite commercial games, IFF and HAM images can be loaded as backgrounds, and you can display up to 400 hardware sprites on a single screen. The COPPER list can be directly modified giving complete screen control. All disk functions can be easily accessed. BOBS, SPRITES, even whole screens can be animated easily with simple BASIC-like commands, and up to 54 animation sequences can be displayed at once.



### Police probe petty pirates

● You might think that copying a few games is a bit of harmless fun. Cheaper than buying the real thing, too. Police recently raided a small time Sydney software pirate, confiscating his computer equipment and launching a full scale prosecution. This guy simply copied games and advertised them in the classified ads at \$5 a disk. Harmless? Not according to industry sources. Questor's Tim Allison is keenly helping police with their investigations - so watch it!

### Sport Sim Special next month

● Next month we'll be reviewing a pile of the most popular sporting simulations for both C-64 and Amiga. Did you know that soccer-sims are by far the most popular type of game-type in the UK? Amazing but true. We'll take a look at computer soccer, tennis, ping pong... you name it, we've got it. Stay tuned! □



## Commodore 64 hints and tips

● A great selection of hints and tips this month. First off, thanks to Ray Leech of Bomaderry NSW for the following bunch of pokes for the C-64.

### Super Pipeline II

● If you've got an Expert Cartridge, try this - POKE 33106, 173.

### Drop Zone

● Another one for Expert Cartridge users - POKE 3060, 173.

### Mermaid Madness

Load and reset, then  
 ● POKE 17274,169  
 ● POKE 17275,0  
 ● POKE 17276,234  
 and SYS 16384 to re-start the game with infinite energy.

### New Zealand Story

● Just press the following keys all at

once during the title screen - "TRY CHEATING" - without the quote marks, of course. The border should change to a grey colour and you should then have infinite lives.

● Glenn Robinson of North Ringwood, Vic, sent in three pages crammed full of useful stuff. Thanks, Glen! Try some of these...

GAME	POKE	SYS	EFFECT
Westbank	12713,165	4100	Unltd lives
Scooby Doo Trust	7450,96	2560	Unltd lives
	6139,234		
	6140,234		
	6141,234	2304	Unltd lives
XOR	8503,160	9547	Unltd time
Draconus	9926,173		
	37638,10	15360	Unltd lives
IO	25117,254	24586	Unltd lives

● Robert Cristafio of 198a Hamilton St, Queens Park WA 6107 says he's hap-

py to help anyone who needs C-64 pokes. Just send him your request with a stamped self-addressed envelope and he'll send you back the pokes you need. Meanwhile, he's sent us a whole heap of helpful hints like the ones below ...

### Commando

● POKE 14631,0  
 ● Poke 14632,96 then SYS 2128 for increased speed

### Cosmic Causeway

● POKE 14978,234  
 ● POKE 14979,234 then SYS 8608 - not sure what it will do, but it's worth a try.

### Outrun

● To stop sprite collisions, POKE 44049,96 then SYS 38045.  
 ● For infinite time, POKE 34711,234 then POKE 34712,234 then POKE 34713,234 and SYS 38045. □

## Amiga Hints and tips

### Amazing Space Ace Solution Continued

● Yes, folks, here is part 2 of our world scoop *Space Ace* solution provided by Geoff Suttor of Deniliquin NSW. Last time we completed scenes 1 and 2. Now read on for ...

#### Scene 3

● Go DOWN to avoid being fried by the rays, then go UP straight away to run to your space ship.

#### Scene 4

● Go UP when the ship gets close to the space station to avoid crashing.

#### Scene 5

● Press FIRE straight away, or you'll be done like a dinner.

#### Scene 6

● Go RIGHT immediately, then when Dexter falls over go UP to jump to safety.

#### Scene 7

● When the platform goes down, go RIGHT and Dexter will jump on the platform when it comes back up, then go RIGHT straight away when he lands on the platform.

#### Scene 8

● While Dexter is still jumping go DOWN then RIGHT straight away.

● That should keep you SPACE ACE

fans happy for another month. Even with the hints, it's far from easy - just keep practising until you get the timing right.

### It Came from the Desert

● Keir Sooby of Darlington WA has been hard at work on *It Came from the Desert*, the latest Cinemaware title from Mindscape. Read on ...

### General Hints

● Don't ask Biff for the red sample. Fires are very hard to put out!

● Don't bother investigating the headless cow. You'll just run out of ammo and end up in hospital, not a good idea at this early stage of the game.

● Get evidence analysed as soon as you collect it.

● Collect all the evidence and present it to the Mayor as soon as you can.

● Don't get romantically involved with Jackie. If you do you'll end up in hospital suffering from exhaustion.

● As Friday the 15th draws nearer, make a few phone calls before you go out for the day. Dusty and the Sargeant have quite a few tips.

● Get rid of Ice and the Hellcats early in the game. It will save you a lot of trouble later.

### Action Sequences

● **Car Sequence** - Accelerate towards the Hellcats car. When they are

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close to you push the joystick in the same direction as they approach from - eg if they come from the left, push left.

● **Bug Sequence** - Aim for their antennae. If you miss during the first sequence, push the gun to the top of the screen and try again.

● **Knife Sequence** - quite easy, really. A combination of the fake and the swipe will wrap this one up.

● **Hospital Escape** - find the wheelchair for extra speed. Go down in the lift. The door is on the wall at the bottom of the screen.

**Evidence**

● **Liquids** - Get them when Neptune Hall is attacked, or from the Quarry Workers.

● **Plaster Cast** - The farmer at the South of the town will offer to show you

ant tracks after his property is attacked.

● **Sound Recordings** - get them from the Sargeant after he discovers the audio tape.

● **Tissue Samples** - Can be picked up after any battle with the ants.

● Thanks to all readers who have sent in their hints and tips - keep them rolling in to PO Box 23, Maclean NSW 2463.

● Jason Strudwick of Junee NSW sent in the following Amiga Tips ...

**Empire Strikes Back**

● On the title screen, hold down the HELP key and type XIFARGROTKEV. Now by pressing L, C or D during the game you can make Luke, C3PO or Darth Vader appear. Also, the number

keys will now produce sound effects.

**Thunderblade**

● When the Helicopter picture appears type CRASH. The screen should flash, and now whenever you press the HELP key you'll move to the next level.

**Falcon**

● Pressing CTRL and X together gives you 500 extra cannon rounds and nine sidewinders.

**Arkanoid**

● Instead of pressing F1 or F2 for a 1 or 2 player game, press F3 or F4 for the same effect with different screens.

**Arkanoid II**

● Press CAPS LOCK and type DAL- EY on the title screen. □

**Letters to the editor**

Dear Phil,

● I look forward to your hints and tips each month and find some really helpful ones, especially when I get stuck. One problem - the Robocop tip in the January edition (POKE 4416,0 and SYS 32768) doesn't seem to work. Can you please help me with this? I have included some hints of my own, and will send some more next month.

Ray Leech  
Bomaderry NSW

Ed: Thanks for the tips, and sorry the Robocop POKE didn't work! Try this instead. When the highscore table starts flashing, type "SUEDE-HEAD" to take you to level 2. Enter level 3 with the word "DISAPPOINTED." Hope this helps ease the pain.

Dear Sir,

● I would like to inform you that your cheats-for C-64 Robocop (July 89) only work on the first load. I know that typing DISAPPOINTED skips to the final level of the game, but as I can't complete the drug factory level I don't get to see the fight with ED-209 in the OCP Building. Punching the walls doesn't help, and waggling the joystick doesn't work either. Could somebody please help me get past the drug factory?

A Moy  
Bathurst NSW

Ed: Another one? Try the solution I've suggested above. Also, if you hold down the keys F,G,H and J while pressing the joystick in the direction you're facing you'll move to the top of the screen out of firing range. What am I doing? This stuff should be in the Hints and Tips section! Oh, well...

G'day Phil,

● I'm just responding to the request of

the devotee who needs a copy of the C-64 version of Vegas Jackpot (ACAR Feb). I have an original copy of the game lying in my top drawer which I am willing to give away.

A few months back I was playing an Amiga Public Domain adventure game called Moria. When I completed it a message came up saying "MORIA v4.0 OUT SOON." I'm still waiting. Any idea where I can get a copy of the game?

Richard Gower  
39 Ferrett Circuit  
Kambah, ACT 2902

Ed: Thanks for your help with Vegas Jackpot. Ken Simpson, our resident PD expert, says that MORIA 4.0 is not yet available. We'll keep you posted.

Dear Ed,

● While playing Batman - The Caped Crusader we have run into a problem in both the PENGUIN and JOKER games. After many months we have managed to get to 71% and 63% respectively. Putting it simply ... help! If anyone has mastered these very enigmatic games, could they please write in and give us and other readers having problems a helping hand ... or two. This would be much appreciated.

Alastair Edgington  
Michael McGoldrick  
Nunawading, Vic

Ed: OK, guys, we'll see what we can do. If anybody can help out, please let us know.

Dear Sir,

● I have been thinking about making a game like RVF Honda. But instead of being on a racing motor bike, you would be on a dirt bike. RVF Honda is made by MicroStyle. If you don't make games please give me the

addresses of companies that do. The dirt bike game is on a dirt track. Yours truly,

Kobi Bradbury  
Mona Vale, NSW

Ed: We don't make games. We make magazines. But let me ask you a few questions. Are you going to write the program yourself? Have you started it yet? Do you have any idea how long it might take you? Or do you just want to suggest the idea to a software company and then let them do the work? Unfortunately, you'll find that the idea has already been used. Codemasters have produced a C-64 game called MOTO-X SIMULATOR - it's on their new CD compilation.

I've also seen a program called DIRT BIKE. Anyway, don't give up, especially if you're keen to write your own programs. If you've written a good game, send us a copy. We might even review it, which will certainly make you famous - though probably not rich.

Dear Ed,

● A few issues back I read the little snippet on the shoot-em-up Flying Shark. I've always loved playing this game in the arcades, and it would be great if you could review it for me. I've seen it on the C-64 and to tell you the truth it doesn't look that great, but I'm sure the Amiga will put that right. Congratulations on a fantastic entertainment section.

Keir Sooby  
Darlington WA

Ed: You think the Amiga version will put it right? Think again, Keir. The Amiga version stinks. One of our regular writers has been trying to work up enough enthusiasm to review Flying Shark for months - he just can't think of anything nice to say! Bad luck.

Dear Ed,

● Please include my high score for Bubble Bobble on the Amiga of 1,118,590 in your next high score table. Also, thanks everybody at

ACAR for the best (and cheapest) Commodore/Amiga magazine in Australia.

**Bradley Bennett**  
Taree NSW

*Ed: Sorry, Brad - can't put you on the high score table - look closely and you'll see that Vanessa van der Heyden rules the roost with 1,200,460. Keep trying, and thanks for the compliments on the mag. Keep on reading, and we'll keep improving.*

Dear Ed,

● I'm writing to you hoping that you can help me. I have looked everywhere for a cheat for *Alien Syndrome* that gives infinite lives and time. Can you please find a cheat for me that does this?

**Paul Kabzinski**  
11 Braemar Ave  
Morphettvale  
SA 5162

*Ed: Well, the first thing you should do is try out Paul M's Hints and Tips service at the address above. By the way, you didn't mention what sort of computer you've got. Make sure you specify whether it's Amiga or Commodore 64. If all else fails, perhaps there's a reader out there who can help?* □

# HALL OF FAME

## Amiga

Arkanoid - 976,548 Kamikaze Andy  
Bubble Bobble - 1,200,460 Vanessa van der Heyden  
Continental Circus - 290,000 Phil Campbell  
Crazy Cars - 34,920,680! Daniel Harrison  
Denaris - 53,900 Peter Evans  
Dragon Ninja - 105,030 R Zagami  
Double Dragon - 116,204 R Zagami  
Gee Bee Air Rally - 307,466 Kamikaze Andy  
Hybris - 1,618,452 Matthew Mantle  
ISS - 1,420,450 G Smyth  
Karate Kid II - 48,799 David McLeish (age 8)  
Leathemeck - 83,300 Owen Webster  
Major Motion - 50,658 Owen Webster  
Menace - 996,481 Kamikaze Andy  
Mindwalker - 306,214 P Schumacher  
Mousetrap - 64,817 Matthew Mantle  
Operation Wolf - 344,800 John Boyle  
Outrun - 8,710,989 Daniel Harrison  
Offshore Warrior - 626,345 Jacob Booth  
Pacmania - 661,390 Ralph Holvast  
Pioneer Plague - 35,412 Keir Sooby  
POW - 106,065 R Zagami  
Rampage - 111,600 Kamikaze Andy  
Sidewinder - 385,800 Ian Malcolm  
Silkworm - 913,700 A J Dunstall (Heli)/474,800 T Mason  
(Jeep) All 11 Levels completed.  
Speedball - 10,335 GS and PS  
Starwars - 2,296,786 Ian Malcolm  
Sword of Sodan - 364,750 Kamikaze Andy  
Test Drive - 103,981 Daniel Harrison

Test Drive 2 - 183,128 Daniel Harrison  
Tetrix - Level 100 Luke Tattersall  
Typhoon - 54,255 Owen Webster  
Whirligig - 7,428 Jonathan Scowen  
Xenon II - 378,909 Kamikaze Andy

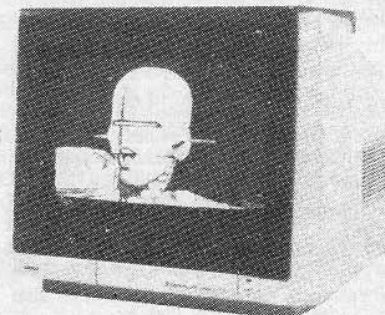
## Commodore 64

Bangkok Knights - 36,800 Nick Van Heeswyk  
Bomb Jack - 344,560 J Jacobs  
Bubble Bobble - 1,009,857 Kishore Ladbey  
Buggy Boy - 118,750 Paul Millward  
Fast Break - 136 to 9 Chris Byrne  
Giana Sisters - 69816 Nick Van Heeswyk  
Handball Maradona - Level M Nick Van Heeswyk  
Hawkeye - 49,300 Chris Byrne  
Ikari Warriors 93,000 Paul Millward  
Int. Karate - 139,300 Paul Millward  
Last Ninja II - Completed 34.2 sec Nick Van Heeswyk  
Operation Wolf 168,789 Kishore Ladbey  
Outrun - 6,438,787 Kishore Ladbey  
Paperboy - 4,650 Chris Byrne  
Que-dex - 639 Chris Byrne  
R-type - 548,310 Nick Van Heeswyk  
Robocop - 82,250 Tim Lockwood  
Salamander - 235,300 Paul Millward  
Street Fighter - 127,050 Chris Byrne (clocked)  
Super Cycle - 136,500 Kishore Ladbey  
Thundercats - 57,500 Chris Byrne  
Target Renegade - 330,450 Chris Byrne (clocked)  
Wonder Boy - 237,650 Kishore Ladbey

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by Greg Munro



*If you like fast action and good graphics in the tradition of Cybernoid and Cybernoid II, then you'll enjoy Slayer.*

SLAYER IS ONE of the latest programs on offer from Hewson, relative newcomers to games production, who are rapidly establishing themselves in this field by churning out lots of high quality space shoot-em-ups.

My first effort lasted about twenty seconds. My geriatric reflexes aren't what they used to be. Come to think of it they probably never were. Besides my lack of skill, the premature destruction of my last ship revealed something else. When I tried to start a new game, nothing happened. I had to reboot. I went back to the instruction sheet, which consists of about seven sentences, some of which have nothing to do with playing the game. Most appallingly crass were the first two, which raved, "You are the Slayer, you deal in death. It's you or them so go out there and kick some butts - before they frazzle yours with their photon lasers." They even bothered to provide German and French translations of this drivel. What nonsense!

The only useful sentence I could find said, "You are advised to disconnect all hardware from your computer." This annoyed me slightly. Why can't people go to the extra bit of trouble to write games that don't require you to disconnect your external drive(s) and other peripherals? I disconnected everything and tried again. Sure enough, this time it worked properly. But it did keep the internal drive light going the whole time the game is in progress, a practice I dislike. To remove the disk when you finish playing, you

need to warm boot and whip it out before your drive starts reading it again, a potentially dangerous practice.

The above comments notwithstanding, *Slayer* is still a good game, at least if you like space shoot-em-ups. And contrary to our beloved Entertainment Editor's experience in January's preview, it didn't disable the auto-fire on my joystick (better get a Quickshot Turbo II, Phil!). Which is just as well, because you certainly need it.

*Slayer* is a horizontally scrolling run-the-gauntlet type game. You pilot your spaceship through a deadly alley of crazy space plumbing that shoots green balls and laser bolts at you. Some of the gun emplacements and other bits and pieces are very reminiscent of *Cybernoid II*. After the first lot of horrible obstacles, you enter a chamber shaped sort of like a sideways "8" or infinity sign with the middle bar missing (or like the shape of a peanut if you like). Around the edge of this rolls a train of what look like ball bearings, doing a figure eight. I'm not sure yet what these things are, but I assume they're like the crawling beetle things in *Cybernoid II*, so I'm staying well clear of them. Next, along with more gun emplacements, you suddenly find three wedge shaped ships or missiles coming at you horizontally. Unlike the green balls, these can be destroyed.

I honestly can't think of much more to say about *Slayer*. It's a simple, straightforward fast and furious action game that you just load and play.

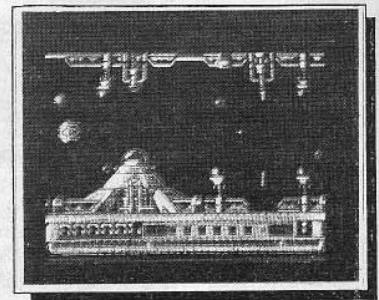
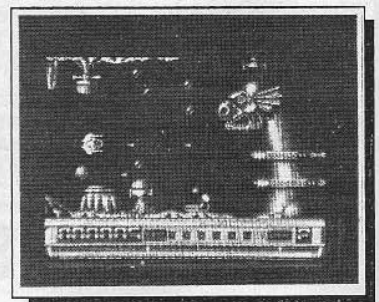
Unlike *Cybernoid II* or *Custodian*, there isn't a whole pile of Function key commands to learn. Control is entirely by joystick, except for the space bar which pauses the game (as long as you keep holding it down) and the <ESC> key which does the obvious. Often the simplest games are the best to play. *Slayer* is just the game for when you feel like a bit of totally mindless recreation - no digital processing required at all, just put your mind in analog mode and away you go!

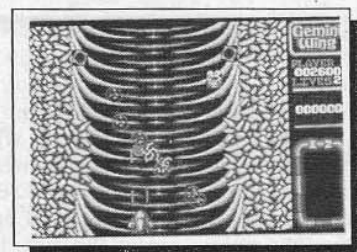
Our expert panel (of one) gave *Slayer* the following scores on the totally biased and arbitrary Munrometer scale:

- Graphics 7/10
- Sound and music 6/10,
- Playability 8/10
- Instructions 5/10
- Value for money 6/10
- Overall score 6.5.

An above average game.

Review copy from Pactronics. RRP Amiga \$49.95, C64 tape \$19.95 (with Budget Blasters 4 game pack). □





# Gemini Wing

*Top-Gun Mick Hellstrom checks out the exciting Gemini Wing, and decides that reading the manual can be a very good idea . . .*

AS THE NAME may or may not suggest, *Gemini Wing* is about a small flying plane that flies around the all too familiar "blast-em-before-they-blast-you" scrolling landscape. "Aha!" I thought as I quickly shoved the disk in and waited expectantly for the game to boot, "another shoot-em-up arcade game." I started playing . . . unfortunately for me, I failed to read the directions before I started, which would have been a jolly good idea. I soon found myself surrounded by dozens of "aliens" flying around. I just had time to wonder if I would survive. I didn't . . . At this point I decided to read the manual.

"Diskette ins Laufwerk A legen. Das Spiel ladet sich und läuft," it instructed me carefully. After pondering on this a while I decided to turn to the English translation. Apparently, the futuristic earth and the general alien populace weren't really getting along that well, and unfortunately due to a totally foreseen mistake a headline was released in a newspaper

called the SoonDay Script.

"Die Mutant Alien Scum" was the headline of the newspaper. For some odd reason, the aliens were offended. Instead of suing for libel, they launched an all-out attack - which explains why I'm boarding the Gemini Wing fighter and setting out to kill the mutant alien scum.

I also discovered that the game can be played by two people. The ships can be controlled by either two joysticks or a joystick and the keyboard. To control the ship from the keyboard the "ergonomic" configuration used is: Q for up, A for down, O for left, P for right, and the space bar for fire.

When I tried this I found it even more impossible, and started to think that I was finally losing my game playing skills.

Whenever the fire button is pressed two laser shots emit from the space ship, and rapid fire basically is determined by how fast you can pump the trigger. Also built into the Gemini Wing fighter are things called gunballs which look like small billiard balls that follow you in a snake like fashion behind you. When you run the game you start off with three gunballs, which kept me amused for a while the first time I played it trying to shake them off. To fire a gunball all you have to do is hold down the fire button for about a second, and whatever gunball is directly behind you will be fired.

Quite simple, you say! Well, wait till you play the game!

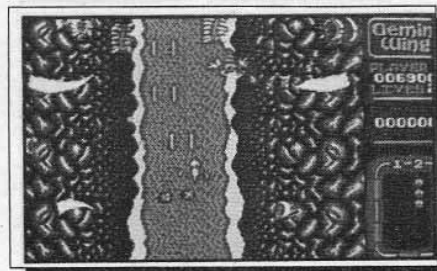
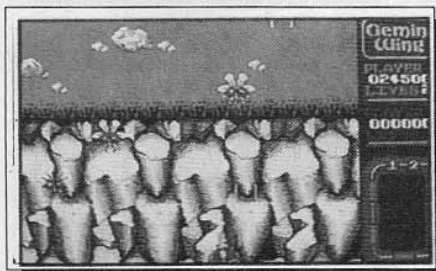
For a while, in the one player mode, I found my scores resembled some sort of random pattern. As I got used to the game they started to level off. At one point I managed to reach a score of 230,000 (to the uneducated this is a high score!).

After getting a bit sick of single-handed combat I decided to grab the nearest person ambling around to test the game out with two people. Fortunately for me I chose the right person, so I managed to see some of the higher levels. They were hard - except for the last level, which was impossible!

After spending about an hour on the last level we gave up. Apart from that the game worked really well with two players. The one thing I couldn't figure out is how many times you have to get hit before losing a life, it seemed to oscillate between one and three hits.

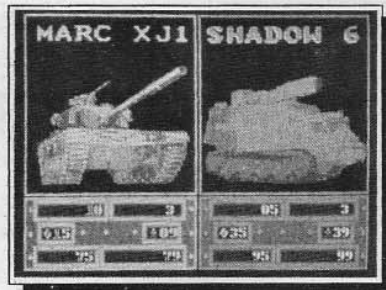
I found *Gemini Wing* a good game to play. You could even call it addictive. In fact, I think I might just "leap back into the control seat of my craft, warp to a vertically-scrolling etherworld and continue the good fight" as the manual suggests I do.

Review copy from Mindscape International (02) 899 2277. RRP Amiga \$54.95, C64 cassette \$29.95, disk \$49.95. □



# FIRE POWER

by Tony Smith



AUSTRALIA POST SHOWED me the durability of a floppy disk recently when my review copy of *Firepower* came neatly folded in half and placed in my P.O.Box. I had visions of cutting disk covers open and finding creases across the disk. Fortunately, the disk was intact, the cover was a bit kinked and the disk was tight in the cover and hard to turn.

The first attempt to load failed, but a little careful exploration found a fast loader on the disk and it worked like a charm. *Firepower* soon loaded and offered instructions - a feature lacking on many packages. Several pages of docs soon followed, explaining the game and a few clues to help you gain good scores.

A tank selection screen is next with a choice of three tanks, each choice offering different speeds, hit points and capacity for carrying rescued men.

Player selection is next, with the choice of one player or two players being the available options. The view for a two player game is a split screen with each tank shown with a small amount of surrounding area detailed. One player games are played on a much larger screen with the view for both games be-

ing a top view.

The mission is to steal the enemy flag from his fortress. While you are looking for the flag, there are several smaller sub-plots going on. Any stranded and captured prisoners can be rescued and taken to friendly Red Cross stations for liberation, fuel depots can be destroyed to fill your tanks and hinder the enemy. Attacking helicopters can be shot down and survivors can be run down for bonus points and ugly smears of blood on the screen.

The controls of the tank are superior to most of the tank simulators on the market, where the stick points is where the tank goes, except if the stick is moved opposite to the way the tank faces, then it moves backwards. This feature is useful when the way is blocked by rubble and the tank must be reversed out of the obstruction.

Roads lead from the garage to a very large map comprising your own fortress, areas of bush and an enemy fortress, heavily defended and as large as yours. Sometimes a tank will become hopelessly wedged on an obstacle, forcing you to abandon it. A quick press of the F5 key and your tank self-destructs, preventing

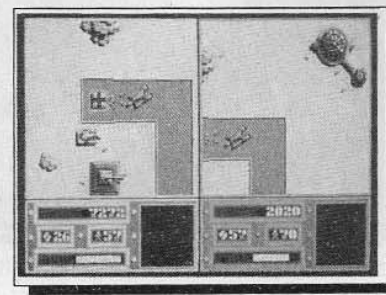
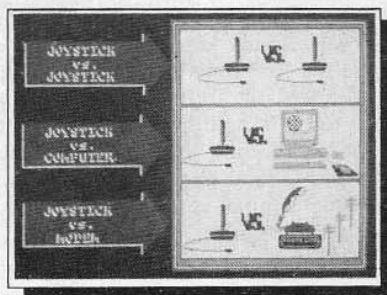
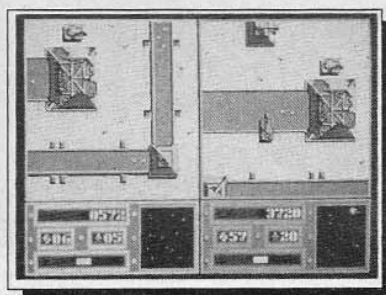
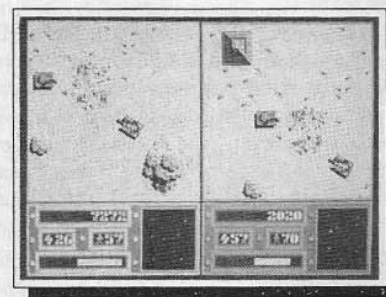
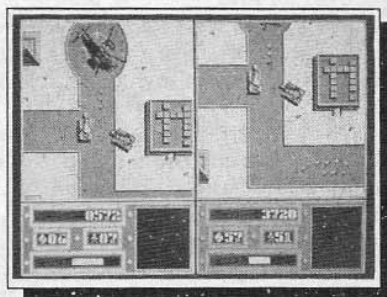
the enemy from stealing your technology and giving you a brand new tank back at the garage.

Heading west from your base leads you quickly to the enemy fortress, blast the gate and in you go! Guard towers can be destroyed with a few shots, but remember, they can only shoot in eight directions, allowing you to sneak up from unusual angles to pop 'em off. Enemy helicopters attack constantly, luckily there is a radar screen to give early warning of attacks and to show the enemy flag if it is near.

There is plenty to keep itchy trigger fingers happy and enough area to keep most map makers busy, map making would be a good idea if you are going to be really good at this game.

The two player function gives a completely different slant to the game and would have to equal *Pitstop II* in playability. When the two tanks are approaching each other with the helicopters attacking, the firebutton practically glowed hot. *Firepower* from Microillusions - look out for it.

Review copy from Questor (02) 662 7944. RRP Amiga \$39.95. □



# Garfield

## WINTER'S TAIL

by Greg Munro



THIS CHARACTER NEEDS no introduction. His dry humour has captured fans around the world. Loved by cat-lovers and cat-haters alike, he appears on car windows (or with his head slammed in the boot!) from Minneapolis to Mar-rickville.

Bored with his successes in other media, this infamous, fat, lazy, cynical feline has made his latest commercial venture, in the world of the personal computer.

*Garfield: Winter's Tail* (or: A Midsupper Night's Dream!) is an amusing, G-rated game with excellent graphics and music and good gameplay, that should appeal to people of any age.

The game begins in the kitchen. The fridge door is still open from Garfield's latest gastronomic exploits. Garfield, exhausted from a hard day's eating, lies sleeping in his box. As cool blasts from the open fridge waft over him, he dreams of the Alps - Italian Lasagne for lunch and Swiss chocolate for dessert! A long ski run deposits him in a Lasagne Factory, where he eats madly to regain his strength before entering the Chocolate Factory. Here he discovers the mythical "Chicken That Eats The Chocolate Eggs", and sets out to catch it. Unfortunately the Chicken escapes across the Frozen Lake to the Swiss Village, leaving Garfield a trail of chocolate footprints to follow (and eat!).

As he sleeps, you can see what Garfield is dreaming about in the "dream bubble" above his head. It shows the top

of the Alps. By moving the joystick left and right you can change the picture in the dream bubble to two other parts of the dream - the Chocolate Factory and the Lake. The fire button loads the desired scenario. The game is designed so that if you want to complete it you must start at the Ski Slope and go all the way through each section to reach the Swiss Village and the fabled Chicken. But by choosing one of the other two main sections, you can sample the different sections of the game, and play your favourite section as much as you like. This is a very "player-friendly" game design, allowing access to higher sections whilst still retaining the challenge of winning by skill.

The ski slope is very challenging. It takes a while to get the hang of avoiding trees, logs and other obstacles by veering or jumping. Using ski jumps correctly is also hard. At the bottom corner of the screen is a rather unusual energy meter in the form of a Garfield head. As his energy runs out, the eyes, and then the head, droop lower and lower, and the music (which is excellent!) begins to go sour, like a gramophone on the wrong speed. Garfield's energy is increased in different ways on different levels.

On the Ski Slope it's by grabbing food from unwary spectators, using the famous flying cavernous mouth method. Unfortunately your doggy nemesis, Odie, is also schussing down the slope, ready to grab the goodies first.

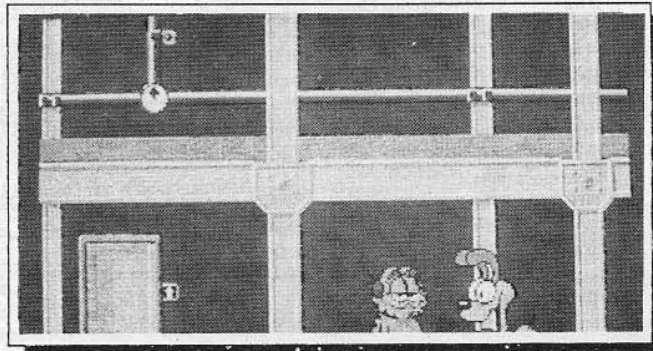
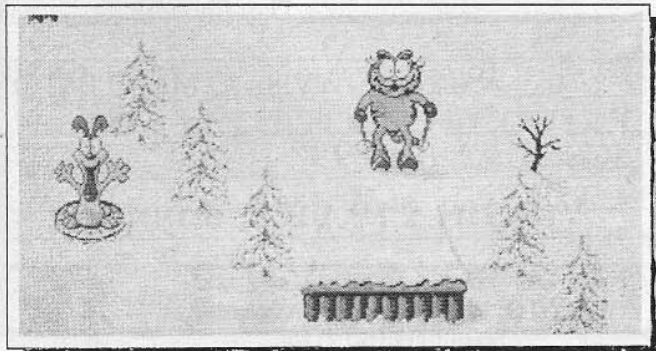
In fact Odie is a real pain in the bum in every section, trying to undermine Garfield's efforts to reach the Chicken.

The Chocolate Factory is a maze of red piping and different floor levels connected by elevator, escalator and fire-poles. The pipes carry liquid chocolate to mechanical chickens that lay chocolate eggs. Garfield's task is to switch all the valves throughout the complex so that every chicken receives a supply of chocolate. Only then will access be granted to the floor where The Chicken That Eats The Chocolate Eggs lives. Garfield's actions in this section are hilarious, including kicking Odie off the screen (or missing and kicking himself in the face!).

Unfortunately, The Chicken escapes across the Lake, and Garfield must follow on skates. This section is very, very fast, with no margin for error, as Garfield attempts to avoid hitting objects or falling in the water, which will result in him waking up with a start, back in the kitchen.

It's refreshing to see an innovative, witty, well written game that doesn't deal in death and destruction yet is still fun to play. *Garfield* would be an excellent game for a family to play together, especially working out the Chocolate Factory puzzle. I give it eight out of ten on the Munrometer!

Review copy from Pactivonics (02) 748 4700. RRP Amiga \$49.95, C64 disk \$29.95, tape \$19.50. □



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Calling all cars! Phil Campbell is hot on the trail of *Chase HQ*, latest arcade conversion from Ocean. Fasten your seatbelt and come for the ride of your life ...

THE WAIL OF a siren pierces the Miami dusk. Peak hour is almost over as a sleek white convertible weaves a crazy pattern through the city traffic. An undercover police car is in pursuit - a turbo-charged Porsche, engine whining, driver straining to stay on the target's tail.

Minutes before, a message had crackled through the police radio. It was Nancy, the dispatcher at Chase Headquarters - "We've got an emergency here - Ralph, the Idaho Slasher, is fleeing towards the suburbs." That's Ralph in the car up ahead. The chase is on in earnest.

The driver of the police car is me. I'm playing *Chase HQ*, a car racing game with a distinctly different approach. There's a lot more to it than pounding around a racing circuit. This time, you've got something constructive to do - cleaning up the

city. Your task is to chase and apprehend a series of dastardly criminals, and your only weapon is your turbo-boosted Porsche.

*Chase HQ* was an instant hit in the video arcades. The coin-op version always attracted customers eager to try their hand at nabbing a few bad-guys. With a console featuring built-in steering wheel and gear shift, most punters didn't hesitate to feed dollar coins down the hungry slot. I even considered it myself.

Unfortunately, though, by the time I actually got around to trying out the arcade machine it had disappeared from the local amusement parlour. Pensioned off, perhaps, having grown just a little bit long in the tooth.

This means I am unable to compare the home computer conversion with the

genuine article. But I can guarantee that the Amiga version I played is a heck of a lot of fun. The action is fast, the graphics are good and the sound effects are first rate.

As I hurtle down the highway I can almost feel the wind in my face - city scenery rushes past as alternating grey stripes on the road flash towards me leaving me in no doubt that I'm travelling very, very fast. The road forks, and I find myself careening towards a construction zone - I crash through the traffic barriers and press on.

A tunnel looms ahead. As I enter, the first thing I notice is the sound of my engine reverberating from the walls. A nice touch. It sounds so real I can almost feel myself on the good old Cahill Expressway.

Suddenly, daylight again. Wicked Ralph's convertible lies dead ahead. I can tell, because there's a sign hanging in the sky above his car which distinctly reads "Criminal Here." Corny? Yep. Unrealistic? Yep. But it sure does help you to sort out the bad guys from the rest of the cars on the road. If only it was so easy in real life.

Now here comes the fun part. The only way you're going to catch Ralph, aka The Idaho Slasher, is to ram him off the road. I know, I know, it sounds a little uncouth - probably why I enjoy it. Pull in behind him, hit the turbo button and WHAM. Ouch. Wham again. And again. Ralph puts on a burst of speed, but by now you'll notice small tongues of flame licking from the rear end of his car.

All the while, the game clock ticks downwards - usually, you will find your time expires around the same time as you are making the approach for your final whammy. Very frustrating, but it sure keeps you coming back for another crack. Success is all the sweeter on the 57th attempt - you will be rewarded with an automatic arrest sequence, complete with digitised audio.

*Chase HQ* is very playable, very addictive, and a whole lot of fun. Distributed by Ozisoft (ph 02 313 6444).

RRP Amiga \$49.95, C64 cassette \$26.95, disk \$35.95. □



AMIGA

# Castle Warrior

AMIGA

*With sword and shield firmly in hand, Greg Munro sets off to save the King.*

PACIFICA, THE LAND of Peace, is in turmoil. The evil wizard Zandor has infiltrated the castle of King Edred the Good and poisoned the king's food. The king will die, unless someone can find Zandor and force a cure from him.

You, Edred the Brave, son of Edred, have been given this task. You have one day to find the antidote. You are the *Castle Warrior*.

After loading the credits and an evil picture of Zandor, you get to choose one or two players, and sound effects or music. The music is good, but the sound effects are limited: the swoosh of a sword, footsteps, and a few noises as Edred jumps and ducks.

There are six levels to complete, each with different joystick commands: The Corridor of Death; The Dragon Olisos; The Monster Jibba; The Confrontation With Zandor; and The Triumphant Return. Best results are obtained with a joystick having eight distinct direction slots. With my Turbo II I found it a little hard to get some of the diagonal movement commands. Nevertheless, with a little practice, I was soon able to make Edred jump around and take his sword to the nasties coming at him out of the gloomy Corridor of Death.

The Corridor stretches out in simulated 3D in front of Edred, who stands with his back to you. As he walks forward, square tiles on the floor give an impression of depth and help you gauge how far away are the evil bat-like creatures flying out of the murk. They come at you at different heights and spread right across the corridor. You can duck around or over or under some of them, but others must be killed with the sword before they hit you and do damage. As well as the bats, you must avoid or destroy the huge clawed arms protruding from the walls at regular intervals like something out of a bad dream, just waiting to reach

out and maul you.

When the nasties are hit they disappear in a puff of grey smoke. When Edred has been hit several times, he disintegrates into a pile of armour in the middle of the corridor. Fortunately, however, the programmers have generously provided six lives for you to play with.

After the bats and arms, Edred encounters a huge Golden Cobra, more bats and arms and a Green Giant. Both Cobra and Giant spit orange fireballs. Edred can only destroy them by deflecting these fireballs back at them with his sword. This is very difficult, and usually results in the loss of a man.

If he survives all this, and another round of bats and arms, you get to enter Level Two, and confront the dragon Olisos, who is guarding the entrance to the subterranean river. Olisos is big, mean and red, and has very long arms, with knifelike claws that reach over the river to rake at you. Olisos also spits fireballs, but he can't be killed by deflecting them. Instead, you must hit him with a spear, which is not easy when you're dodging claws and fireballs!

I haven't managed to do it yet, so I can't tell you what negotiating the underground river is like, let alone the Monster Jibba or Zandor himself.

*Castle Warrior* is what might be described as a *Dark Castle* clone in 3D. The concept is good, but unfortunately the execution doesn't do justice to the idea. *Castle Warrior* could have been a brilliant game, but it has a sort of unfinished feel. Graphics are okay, though they contain little colour, mostly dull greys and purples to give atmosphere. Sound FX are totally unremarkable. Worse, the two-player game sometimes ignores the second joystick port altogether ... fine if you make sure you get the joystick in port one, but otherwise a poor piece of programming.

One thing really annoyed me. Maybe I'm just being a technophobic electromechanical illiterate, but I instinctively distrust games that use my hardware in extra-normal ways. *Castle Warrior* keeps the drive light on and the disc spinning all through the game, even when the disc is not being accessed. The thought that something in my disk drive is probably wearing out quicker than necessary is not a good incentive to keep playing - even more worrying is the fact that it only takes an accidental press on the disc release button and your copy of *Castle Warrior* is probably trashed for keeps!

Review copy from Mindscape International (02) 899 2277. RRP Amiga \$69.95. □



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# OPERATION: CLEANSTREETS

*Andrew Baartz does his bit to clean up the city with a quick look at the latest in Beat-em-ups ...*

RARELY HAS A computer game left me feeling as if I've just had a work-out at the gym. *Operation: Cleanstreets* is a killer. I mean, if you're after a bit of an adrenal-in surge, a lather of sweat and premature aging of your joystick - this is for you!

The cynics might call it senseless violence, but we all know better than that. We're out there fighting for truth, justice and the American way. It's a mean and dirty job, but someone's got to do it. "And what job is it exactly?" I hear you ask ...

The Mayor has been hassling the Police Commissioner. "Our fair city's streets must be made safe once more," he said, "Roughnecks and hooligans are running rampant. Drug pushers ply their evil trade with impunity. And our police department seems powerless to stop it." That's where you come in.

You're "Cleanup Harry" (as opposed to "Dirty Harry" I suppose), an undercover cop with a reputation throughout the underworld. You've been assigned the mission of cleaning up the city - single handed. It seems like too much for just one cop. But then, there's only one cop like you!

Tracking down the pushers is the easy part. They're waiting for you. They'll never surrender without a struggle. And without a gun, you have to outfight them every step of the way. Kick-boxing, dodg-

ing and a lot of solid punching. Never let your guard down. And remember, as soon as you clean up one level, there's an even tougher one waiting for you - five in all!

As I was assigned my first mission I felt like a bit of a hypocrite. There I was, sipping my strong black brewed coffee and nibbling on a chocolate biscuit, being told to crack the "Caffeine" ring. I love caffeine. I took the mission anyway.

Down in the ghettos a cop is shown no mercy. Criminals try and run you down in the streets. They even throw things at you from first floor windows. My first encounter was with a punk wielding a chain . . . I wasted him! I stripped him of his drugs and went looking for a fire to burn the evil substance. Destroying the drugs will refresh my energy level, ready for another brawl (no - there's no marijuana to burn, I'm afraid).

Before I could get any further, I was hit by a knife. Although wounded I pursued and fought my attacker. I discovered that a few punches to the stomach and chest, followed by a quick kick in the head usually knocked him down. A powerful combination! Streetfighting is no activity for a gentleman, so I didn't hesitate to kick him while he was down - or at least as he tried to get up!

Down at the pier is a woman with a

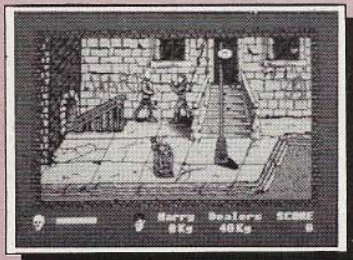
whip. I have to confess - I kicked her in the guts! But like I said, it's a dirty job and no place for a gentleman. Nor a lady. Anyhow, this dame is tough - she puts up just as good a fight as the guys.

A couple of Ninjas in Chinatown are a bit of a worry. The blokes in the martial arts school aren't particularly cooperative, either. Their Master is a real pain with that sword of his. But my favourite is the "nasty" with the chainsaw. Very tasteful!

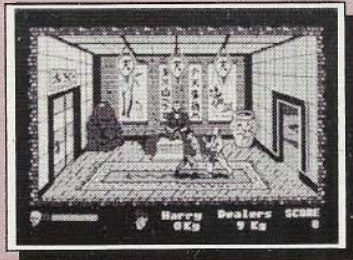
After the caffeine ring comes the nicotine ring, then the cocaine, the heroin and finally the arcadoine ring. As the profitability of the drugs increases, so does the toughness and number of pushers that you face. Dodging is essential.

*Operation Cleanstreets* is a pacey little game, it's pretty straightforward and has everything you need to occupy you for hours. There is a keyboard option, but I can't wait to fix my joystick, and to play it again!

Review copy from Dataflow (02) 331 6153. RRP Amiga \$64.95. □



AMIGA



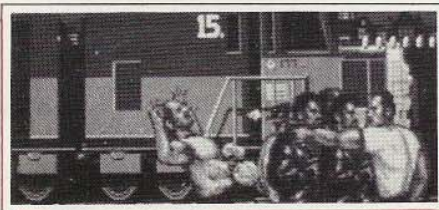


*Muscle man Ken Simpson plays the part of Arnie Schwarzenegger in Ocean's latest film conversion and finds very few thrills. Check out his "no holds barred" report ...*

THE HEAT IS on ... and the chase is in full cry as East and West join forces to hunt down a Soviet drug dealer. Two detectives - one Russian, one American - face the worst of the Chicago underworld. Street fights, the "cleanheads" gang, gunfire. You name it, they face it. If you've seen big Arnie in the movie, you'll know what I mean.

The game is *Red Heat*, and you play the part of muscle bound Ivan Danko, Moscow's top homicide detective. Your task is to track down Viktor Rostavili, the head of an international drug trafficking ring. This guy is a bad dude, and there are plenty of bad "hench-dudes" to fight off before you reach him.

On booting the game you are met



with some high class, driving music. As the intro screens come up, it's obvious that the standard of graphics is good. The game begins, and the impression remains. This is one of the first games I've played where you can actually recognise the main character. You are quite recognisably Arnold Schwarzenegger, strolling along through a Russian Sauna. Even your muscles have muscles, and they ripple as you walk.

First impressions are certainly good. But now for the bad news. All I can say is that the gameplay is simply inadequate. Movements are very limited. Joystick control is clumsy and you can't do anything except keep walking in the direction you are going. You can't turn, you can't explore. You just walk along punching and head-butting your way through the scenery.

Occasionally you get to pick up things, which is the closest to a thrill that you're gonna get. Most of the objects will help you a little, but some don't. All you can do is pick them up and try them out.

Of course there are always the bonus stages. Intermittently a different screen will pop up with no warning, and no instructions and just a picture of a hand on a joystick with a "fuel gauge" down the centre. I eventually worked out that the faster you pressed your fire button, the higher the fuel gauge went, I guess giving you extra energy.

The next scene is the hospital - again

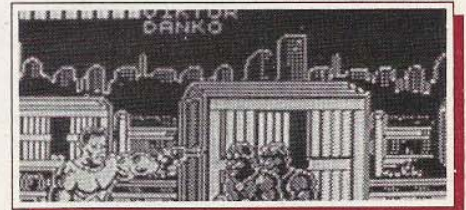
quite good graphics and with the added interest of having a gun in your hand, but only a very limited number of bullets. Here again the joystick control was poorly designed in that the normal shooting position was also the normal punching position, so very quickly I ran out of bullets before I really realised it. Not to mention being kicked and punched to death by the nurses. I know NSW hospitals are bad but none are this bad!

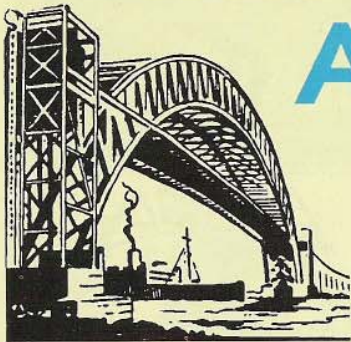
I know this sounds all awfully negative, and it could all be just sour grapes because I couldn't get past the second level and so I never found the "climactic confrontation with Viktor himself". I don't think so though. Like many of the movie conversions, they have taken an almost non-existent plot from the movie and tried to turn it into a computer game and it just hasn't worked this time.

Game control is both average, and overly violent. The hyper-realism of the graphics emphasises the fact that you are being encouraged to kick, punch and ultimately kill people. Sometimes games can be just a little too real, and I certainly won't be letting my kids play this one.

All in all, *Red Heat* is pretty lukewarm stuff. My advice is to steer clear. There are better ways of spending your money.

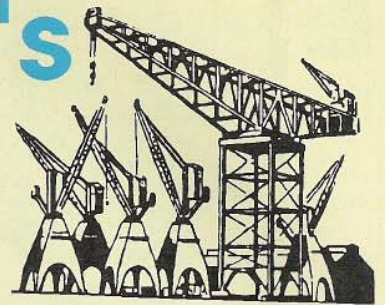
Review copy from Ozisoft (02) 313 6444. RRP Amiga \$49.95, C64 disk \$35.95, cassette \$26.95. □





# Adventurer's Realm

by Michael Spiteri



HELLO EVERYONE, and welcome to the Realm - Australia's only adventure column dedicated to helping and bringing together Amiga and C64 adventurers.

If you are stuck in an adventure, can help in an adventure, provide general hints, or just would like to chat about adventures, or you may want a few free hint sheets, then just write to the following address:

**Adventurers Realm:** PO Box 351, Pakenham Vic 3810

If wargame simulations are your field of fun, then wargame supremo **Barry Bolitho** will be only too glad to help you out in any way he can. Just mark your letter "Wargame Section"

Finally **Kamikaze Andy** is alive and well in his Dungeon to answer all your queries on Role Playing Games (Ultima, Bards Tale, etc). Note: Andy does not have hint sheets! His address is:

**The Realm's Dungeon:** 44 Hawkesbury Drive Willeton WA 6155

## Free hint sheets

● Four free hint sheets per person (so select four and if you want more you have to write again). No charge, however you MUST send in a stamped addressed envelope or you will not receive any hint sheets.

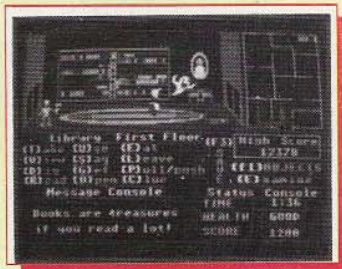
- Bards Tale 1,2,3
- Zork 1,2,3
- Hitchhikers Guide
- Hampstead
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- Adventureland
- Pirate Adventure
- Borrowed Time
- The Pawn
- Deja Vu
- Dracula
- Fish

## Psycho

For the Commodore Amiga  
Distributed by Pactronics  
RRP Amiga \$49.95

IT HAD TO happen, an adventure based on the all time classic movie, *Psycho*. Is this game going to be an all time classic as well? Read on ...

A great opening featuring chilling (and gory) digitised graphics and excellent sound gives a promising impression to this game, it's just when you start playing it the frustration occurs. Unfortunately the biggest problem the player faces in this adventure is actual playability.



You have to use a joystick or cursor keys to move our little detective across the screen, and getting from point A to point B seems to take ages, and you can be forgiven for falling asleep during this process.

Commands are entered by pressing a single key, and a handful of these exists such as view, search, read, take, leave, use, dig, eat, fire, open, pull, push (yep, that's almost all of them!).

The screen is divided into five sections. The location window displays a rather badly drawn picture of where you are. Your character is also shown looking through a magnifying glass. The next section of the screen is the command console which just basically lists all the commands. There is a message console that displays any clues or messages that might appear. The status console shows what time it is and what your health and score are. Finally the inventory displays the objects you are carrying.

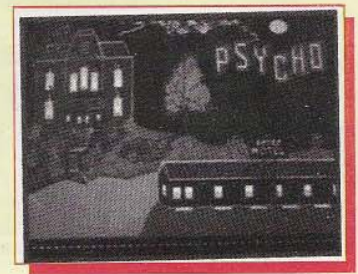
The plot? Well, you play a detective whose job it is to track down a missing shipment of jewels, and the curator,

which going to be the instructions in the game, is in the old Bates house.

After managing successfully to destroy the old staircase, I got as far as the living room, where I was constantly bitten by a spooky dog. It took me ages to get from one end of the living room to the other, and by then this adventurer had enough.

Not so good graphics, not so good sound during gameplay. Documentation was brief, playability was well, need I say more. Not my cup of tea, there is a long possibility that it might be yours, but I doubt it.

- Rating out of 100 - 45
- Verdict: Guilty of boredom. □



# Starflight

by Greg Munro

CAPTAIN'S LOG, ISS Bellett II: Stardate 06.03-07-4620.

Safely disembarked! Science Officer Erik Urvan Spockroach's sensors failed to reveal that *Starflight* could be a health hazard to undisciplined games addicts. Twenty hours of play in three days no wonder I can't see straight! Damage report from Engineer Wally Medaps indicates eyes 50% operational, muscles knotted and aching from tension, blood caffeine over limit. My brain hurts!

But at least I'm back in the Real World. Here (in the kitchen) there are no vicious Gazurtoids to fight, nor snivelling Spemin to duple with. I don't have to worry about the Terrain Vehicle running out of fuel on Titania F70/102/2. There's just reviews to write, and a car as dead as an Uhlek's breakfast.

*Starflight* is a huge and somewhat complex game, kind of a cross between *Bard's Tale*, *Jinxter*, and *Elite*. It should become a classic Sci-Fi adventure quest. As with most games of this type, *Starflight* may not appeal to those who prefer good old non-cerebral fast and furious arcade play. It requires patience, planning, puzzling, and (shock, horror!) thorough reading of the manual.

*Starflight* uses mouse and/or keyboard. Screen updates are quick, with almost no disc accessing during play. As well as text windows, animated and still graphics are used. For an adventure quest game, the graphics are superb, though with few sound FX. Up to five games may be saved, and gameplay can be paused. The original disc can be backed up, as copyright protection is achieved by a password system like that of *FA18 Interceptor*.

The game's ethos is thinly disguised *Star Trek*. You captain an ISS starship, with a crew of Science Officer, Navigator, Engineer, Communications, and Doctor. Your mission? To boldly go where only the programmers have gone before, gathering non-sentient lifeforms, mineral wealth, and information from alien encounters, and to "keep from getting brutally

killed!"

*Starflight* begins at the Interstel Starport, orbiting the third planet of Starsystem F/125/100. Trading, equipping the ship, crew training, and scanning messages from Interstel all take place here. Potential crew must be created and named, trained to whatever level you can afford, and assigned positions. There is a choice of various species (species?) each with different abilities. The plant race Elowan, for example, are good communications officers.

Within a starsystem, you can travel to and orbit planets, or land and explore in the ATV, gathering specimens, minerals and information. Interstel pays a bonus for planets successfully registered as potential colonies. And fines you for choosing unsuitable ones!

Interstellar travel involves using the star-map provided with the game (also available onscreen from your Navigator) to explore the known galaxy. You can go the long way, or discover the location of "Continuum Fluxes" which take you instantaneously to distant parts, saving valuable Endurium fuel.

Alien encounters and combat occur anywhere in space. Combat and space travel are shown in an animated interactive picture. You control your ship and fire weapons using mouse or keys. Valuable information may be gained from aliens. Diplomacy and Combat occur in real time and involve rapid decisions. "Do you serve Layton?" demands a menacing android alien. Layton? Which Layton? What do I say? It only takes two seconds to be blasted into atoms if you're caught with your shields down.

Communications mode is accompanied by a text window; an excellent still graphic of the alien (like *Bard's Tale*, but better); and a list of diplomatic options, including whether you will adopt a Friendly, Hostile, or Obsequious (ie grovelling) posture. You learn which races respond best to which posture.

Exploring and encountering aliens is fun in itself, but added to this is the overall quest

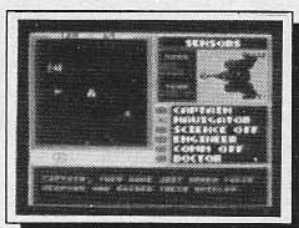
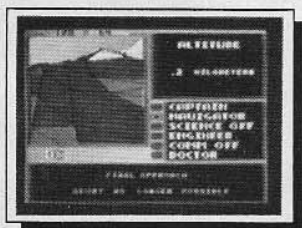
objective of saving the New Empire from destruction. Discovering how to achieve this is like doing a huge 4D jigsaw puzzle! The amount of information is staggering.

Every planet has different characteristics, displayed by both writing and pix: orbit number; size; mass; gravity; biological and mineral density; composition and density of Atmosphere, Hydrosphere and Lithosphere; global weather; and temperature range. Planets are contoured with colours representing different altitudes and surfaces. You may land at any latitude and longitude. There are up to 8 planets per star; 240 star systems (and 36 "Nebulae" which may conceal more stars); 7 spectral types of stars; 5 types of planet.

There are 5 classes each of lasers, missiles, armour, shields, and engines for your ship; 22 mineral elements of various value; dozens of lifeforms; about 10 alien races; an unknown number of ruins, artifacts and messages; . . . and one solution. If my maths are right, (they're usually not) 240 stars x 4 planets per star (average) x 32400 grid references per planet = around 30 million places to look for clues in this universe-on-a-disc! That's why you need to talk to aliens.

*Starflight* is very impressive, probably the best interactive adventure game I've seen. But I wonder if I could sue Electronic Arts for ruining my eyesight...?

● Review copy from ECP (075) 963 488. □



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## Problems, Problems and More Problems (or the Troubled Adventurers Department)

● **David Marjanovic** of Revesby in NSW is stuck in two games.

First up in *Space Quest I*

1. How does he read the cartridge on the astral bodies?

2. On Planet Kerona how does he get past the laser beams?

3. How does he kill Orat?

The in the game *Manhunter*, David has completed the first day but ran out of time in ascertaining the culprit. On the second day he has visited the inn and obtained the card, but what next?

● **Shelley DuVal** is stuck in the game *Blacksilver*. She would like any help in finding the Kings Staff.

A game called *The Book of the Dead* has reared its ugly head a few times in the Realm now. This time Les Torok of Sandy Bay is stuck in it. A particular cavern (in the dark) and an unexplorable pyramid, as well as a just as difficult is-

land are causing problems.

Speaking of games rearing ugly heads, *African Safari* pops up every so often to annoy someone. This someone being **Richard McNair** of Illawong in NSW. Richard wants to know how to stop losing the monkey after boarding the canoe. Also in *Maniac Mansion*, how do you play the game meteor mess after Dr Fred has played it. Also is there any way of blowing up the man-eating plant or opening the safe?

● **Peter Judd** of Bendigo is still having *Ultima* troubles. He writes; "I still need to know the axiom to get into the Codex Chamber (level 8 of the Abyss). The answer printed in the Jan 90 edition (Infinity) was wrong."

● **Mark Bilney** is having problems in three games.

1. **Ring of Power** - Cannot get past pirate or the giant.

2. **Aztec Tomb** - How do you get the cord to climb the tree?

3. **The Pay Off** - How do you put on the gloves, and get the picture?

● **Jerry Kushnir** is stuck in *Leisure Suit Larry* (Part 2, I think). He is stuck on the airplane and cannot find a way to get out or make the pilot land.

● **The Beaver** is stuck in *Venom*. What do you do with the food, berries, and thong? How do you stop being killed after examining Beris? How do you get through the locked door inside the inn?

● **Stuart George** of Springvale in Victoria is stuck in *Tusker*. How do you complete level 2? Do you give the key or watch to the man sitting down in the hut or to the man jumping up and down? In *Mystery Island*, how do you open the oak chest?

● **Walter Brank** is stuck in a few games. In *The Pawn*, he still cannot cross the red line. In *Jinxter*, how does he freeze the oil bottle? In *Maniac Mansion*, how does he open the safe and operator the chainsaw. □

## Help Help, and More Help (or the Smart Adventurers Department)

● HINTS AND TIPS have been pouring in, and thanks to all who have gone to the trouble of submitting help for troubled adventurers. Listed below are hints that couldn't be published last month due to lack of space, as well as a whole caseful of new hints.

● **Game:** *King Solomons Mines* (Mountain Valley Software)

● **For:** R.S.Warren

● **From:** P.Bevan

● **Help:** From the anthill go north, north, north then west, west.

● **Game:** *King Solomons Mines* (Softgold)

● **For:** R.S.Warren?

● **From:** Dorothy Millard

● **Help:** Get the water canteen. You won't find the mound until you drink from the canteen. There is however, a bug in the program. Do not try to fill or drink from the canteen in Part 1, otherwise when you arrive in part two, it will be empty. Just leave it alone.

● **Game:** *Book of the Dead*

● **For:** Meaghan Russell

● **From:** Les Torok

● **Help:** There is a rope at the southern end. Go down this if you are not carrying anything.

● **Game:** *Wasteland*

● **For:** David Campbell

● **From:** Fire Grenadier Dumpy (!)

● **Problem:** Stuck in 4th level of Base Cochise

● **Help:** 1. Get hold of a survival guide.

2. In the security electronics room you will find a machine that will allow you to reduce the frequency of security units being released.

3. In the Robots Maint Room, blow up the computer that controls the conveyor belt.

4. Use special suits to enter the Reactor Core room. Go to the glass and blow it up. Inside you will find a large computer. Install a plasma couple there.

5. To complete destruction sequence, send 1 person with blackstar key into the reactor room. Another person with the nova key to the Robot Maint Room. Another person with pulsar key to go to security room. Another person with quasar key in OSHA room. Turn the keys blackstar, nova, pulsar, quasar. Run colour sequence nuclear room - red, security - yellow, osha - green, robot maint - blue. Then go to the escape pod.

● **Game:** *Frankenstein*

● **For:** Mitchell Rashbrook

● **From:** David McKinney

● **Help:** Go north from the frozen body, aim gun at body, fire it and return to find the ice axe. To escape the ice labyrinth, move north from where you find the ice pick, and find where the ice has not properly formed, high above. Cut a hole in the wall with the pick, climb up and rest. Continue to do this until you are too tired to go further, then drop the pick, climb up and get out.

● **Game:** *Kings Quest III*

● **For:** Lesley Robinson

● **From:** David McKinney

● **Help:** If you look behind a book in the wizard's study and pull the lever you find there, you may have some trouble with a cat.

● **Game:** *Starglider II*

● **For:** Ben Kovalik

● **From:** David McKinney (Ben should be made a Zorker for sneaking this arcade game problem in)

● **Help:** The energy abe launcher launches energy cubes. The professor is supposed to give them to you but I finished the game without them.

● **Game:** *Kings Quest III*

● **For:** Lesley Robinson

● **From:** Clare Molony & Brendan Burns

● **Help:** Cat hair definitely does not come from dogs. Get cat will let you get your hands on the malevolent creature, but only if you are close enough. Approach from the rear or you will suffer for it. And be careful afterwards, for this particular animal is vengeful and capable of bringing about your end.

● **Game:** *Shadowgate*

● **For:** Barbie Hitchemor

● **From:** David Marjanovic

● **Help:** Use the key from the skeleton. To get this key go behind the waterfall, operate yourself on the rock and take the pouch. Go to the pedestal room and operate the white gem on the hole in the wall. Take the crystal and operate it on the lake.

● **Game:** *DejaVu*

● **For:** Stuart Johnson



● **From:** David Marjanovic & Brendan Burns

● **Help:** To get rid of the gun go to the lowest level of the sewers and drop the gun and any other incriminating evidence. In respect to the secret passage examine the wine bottles and operate the bottle not highlighted.

● **Game:** *Case of the Mad Mummy*

● **For:** Sean O'Byrne

● **From:** Dorothy Millard

● **Help:** The wardrobe must be unlocked from the outside, but can only be opened from the inside, then you must GO DOOR.

● **Game:** *Zak McKracken*

● **For:** Dave Pittaway

● **From:** Dorothy Millard

● **Help:** Use the tree branch to get the nest and put it into the fire pit. Use the branch in the fire pit and light a fire using the lighter.

● **Game:** *Sydney Affair*

● **For:** Craig 'Striker' Wright

● **From:** Dorothy Millard

● **Help:** The briefcase key is in the body's right trouser pocket, the wallet in the left hand jacket pocket, the diary and photo in the briefcase. The bullet hole is in the wall three spaces left of the door.

● **Game:** *Dracula Pt1*

● **For:** Terri Fogarty

● **From:** Dorothy Millard

● **Help:** Eat only the lamp stew and drink water to survive the night.

● **Game:** *Not A Penny More Not A Penny Less*

● **For:** Big Diskette in Sky

● **From:** Dorothy Millard

● **Help:** To get started, examine folder and telephone numbers, then ring stockbroker and examine Robin.

● **Game:** *Ultima II*

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## Adventurer's Realm

● **For:** Bradley Wenman  
 ● **From:** Peter Judd  
 ● **Help:** Go to Planet X (9,9,9), then to the castle. Find Father Antos and receive his blessing. Return to A.D., go to the town and offer 900GP to the Old Man near the sign A Tree.

● **Game:** *Ultima IV*  
 ● **For:** Stinger  
 ● **From:** Peter Judd  
 ● **Help:** The candle of love is in the village cove. (A,B) (B,G). The blue stone is in deceit level 7.

### Realm's Clever Contacts

● THE FOLLOWING people have offered their services in helping out fellow adventurers (and also being pen pals). Always enclose a stamped addressed envelope when writing to a Clever Contacts. This list will be updated every few months and displayed for all to see. Finally, a big thank you to all the Clever Contacts.

#### Brad Roberts

43 Olearia St  
 Everton Park  
 QLD 4053

● **Help offered:** *Bard's Tale III, Chrono Quest, Hulk, Zorks, Infidel, Deadline, Starcross, Rigels Revenge, Asylum, Dallas Quest, Mindshadow, Uninvited.*

#### Michael Jones

C/O Vison BBS  
 BBS=(03) 569 4442  
 Voice=(03) 563 2125

#### Dorothy Millard

12 Venetian Crt  
 Croydon  
 Vic 3136

● **Help offered:** Too many games to mention!

#### Andrew Hansen

4 Stevens St  
 Pennant Hills

● **Game:** *Fish*  
 ● **For:** Mark Healy  
 ● **From:** Zaun Bhana  
 ● **Help:** To retrieve the gargoyle, find some card and something to stand on. If you don't want to get nabbed by the hippies, turn off the light when you go past them. Find a dry route after casting.

#### ● **Game:** *Mortville Manor*

● **For:** Noel McAskill  
 ● **From:** Zaun Bhana  
 ● **Help:** Attic: Search the top right draw-

NSW 2120

● **Help offered:** *Bards series, Ultima I,III,IV, Zork 1,2*

#### Brendan Burns

8 Nelson St  
 Ormiston  
 QLD 4160

● **Help offered:** *Lord of Rings, Hobbit, Zork 2,3, Wishbringer, Kings Quest III, Deja Vu, Dracula, Hitchhikers Guide*

#### A.Stivala

6 Schey Pl  
 Spence  
 ACT 2615

● **Help offered:** *Trinity, Hitchhikers, Hobbit, Castle of Terror, Maniac Mansion, Lord of Time, King Solomons Mines.*

#### David Lear

7 Glenalvon Dve  
 Flagstaff Hill  
 SA 5159

● **Help offered:** *Boggit, NeverEnding-Story, Dracula, Eureka Prehistoric, Subunk, Mindshadow, Wizard of Oz, Zork2*

Note to Clever Contacts: If you get sent a problem that you cannot work out, please send to me here at the Realm. □

### General Hints & Tips

(Supplied by Mitchell Rashbrook, Heathridge WA)

● **Asylum:** Hack the phone for a mag-

er and get the wooden rod. Crypt: To enter the crypt, put the ring in the hole on top of Madonna's orb and turn it. Search to find the wooden object (in the body).

● **Game:** *Dracula 1*  
 ● **For:** Terri Fogarty  
 ● **From:** Zaun Bhana

● **Help:** From the labyrinth entrance go S.S, take lamp, go N.E. To deal with the dog, stand on the table, examine it, and throw what you find. Before climbing down to Dracula's room-wait. □

net.

● **Ballyhoo:** A little helium gives you a little voice.

● **Hitchhikers:** To get babel fish, put gown on hook, cover drain with towel, put satchel next to panel, put junk mail on satchel, then press button.

● **Pawn:** Water is the elixir of life and snow melts at low altitudes.

● **Zork 3:** Give bread to old man. Hello Sailor is the greeting for a seaman.

● **Corruption:** Use card to break into Bill's office.

● **Guild of Thieves:** Use mirror to solve wax problem.

● **Beyond Zork:** To rescue minx, rubout footprint.

● **Shadowgate:** Heavy weight will break the bridge. □

### Questor Adventurer of the Month

● QUESTOR HAVE kindly donated a prize of the a latest software package for the adventurer of the month. This month's winner is Zaun Bhana of Palmerston in Northern Territory. Among other hints and tips, Zaun sent me the complete solution to *Mortville Manor*. Congratulations Zaun, your free game should be in the mail shortly, courtesy of Questor, distributors of fine quality software. □

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# Just The Facts:

## What Makes Digi-Paint 3 the Ultimate Paint Program?



"Finding the best paint program for your Amiga can be confusing, but once you have the facts it's simple."

Laura Longfellow  
Sales Manager  
NewTek Inc.

### "Why is Digi-Paint 3 better than DeluxePaint III™?"

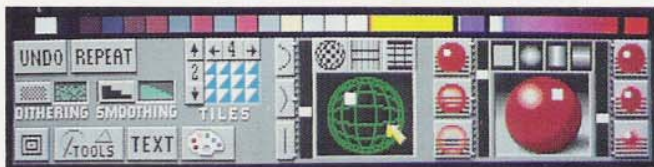
Digi-Paint 3 works in the Amiga's powerful Hold And Modify (HAM) mode, which allows you to paint using all 4096 colors simultaneously. By comparison, Deluxe Paint III (by Electronic Arts) operates in less sophisticated modes, restricting you to a maximum of only 64 colors. Advanced features available in Digi-Paint 3—including Colorizing, Variable Transparency, Shading, Lighten, Darken and Range Painting—are simply not possible in Deluxe Paint III due to its 64 color limitation. AMIGAWORLD warns, "Competitors may want to head back to the drawing board, because Digi-Paint 3 is hard to beat!"



### "What makes Digi-Paint 3 better than other HAM paint programs?"

Digi-Paint 3 is the only Amiga paint program written in 100% assembly language. Although challenging to program (taking up to 10 times longer than other computer languages), it's the only way to achieve the incredible speed found in Digi-Paint 3. AMIGAWORLD calls it "the fastest HAM paint program yet" and AMIGA SENTRY estimates it's, "6-10 times faster" than the nearest contender.

Other advanced features found *only* in Digi-Paint 3 include: anti-aliased texture mapping, anti-aliased fonts, ARexx support, 1024 x 1024 super bitmaps with auto-scrolling and dithering to 30 bits per pixel (over a billion colors internally, giving you tens of thousands of apparent colors). COMPUTER SHOPPER magazine reports "Digi-Paint 3 is without a doubt the most advanced HAM paint program to date!"



### "But is Digi-Paint 3 easy to use?"

I've learned that no matter how powerful a program is, if it's not friendly it's not worth my time. We designed Digi-Paint 3 with all users in mind—from the beginner just starting out with computers, to the "power user" who demands the most advanced features possible. The spiral-bound manual contains a step-by-step Guided Tour, 11 hands-on tutorials, a color coded reference card, and almost one hundred example photos.

Digi-Paint 3's intuitive user interface was created by Digi-View designer (and NewTek Founder) Tim Jenison and renowned Amiga artist Jim Sachs. It features innovative "Dashboard" controls which AMIGAWORLD regards as "a joy to use" and "very easy to learn and understand". INFO MAGAZINE says the new interface "looks great and works logically".



### "What is the Transfer 24 program included with Digi-Paint 3?"

Transfer 24 is a separate program disk included in the Digi-Paint 3 package, allowing you to alter any picture's brightness, color saturation, contrast, hue and sharpness, almost as easily as adjusting the controls on your television set. Transfer 24 also lets you modify the size, palette, and resolution of any picture. These powerful features, known as "Image Processing", give you incredible control over your final artwork. You can also save your image in any of the Amiga's 24 resolution modes (up to 768x480) making it compatible with all Amiga graphics software. AX MAGAZINE notes that "Transfer 24 gives you even more options as to the final appearance of your work". AMIGAWORLD declares, "Transfer 24 is great for making overall changes."

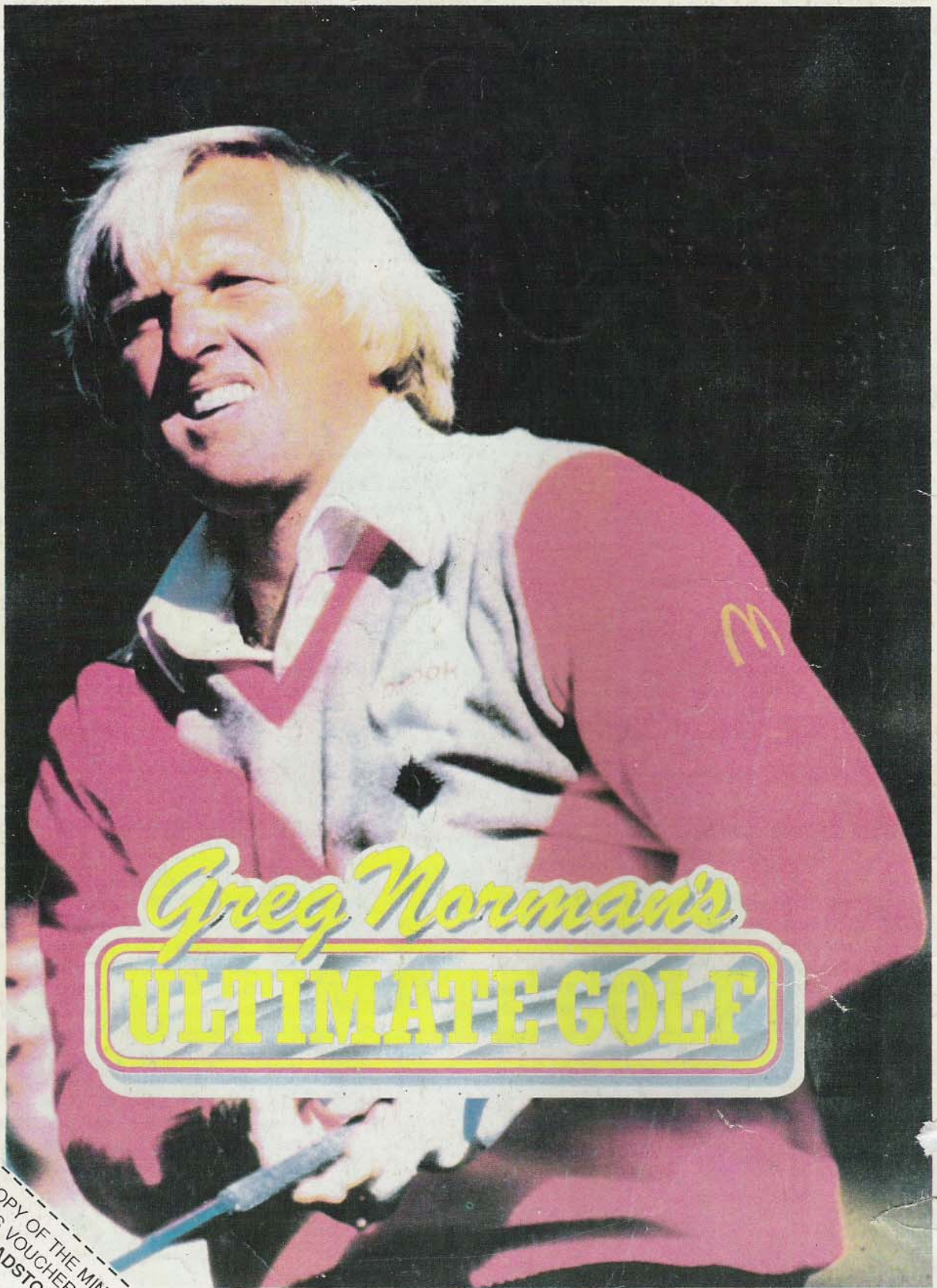
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