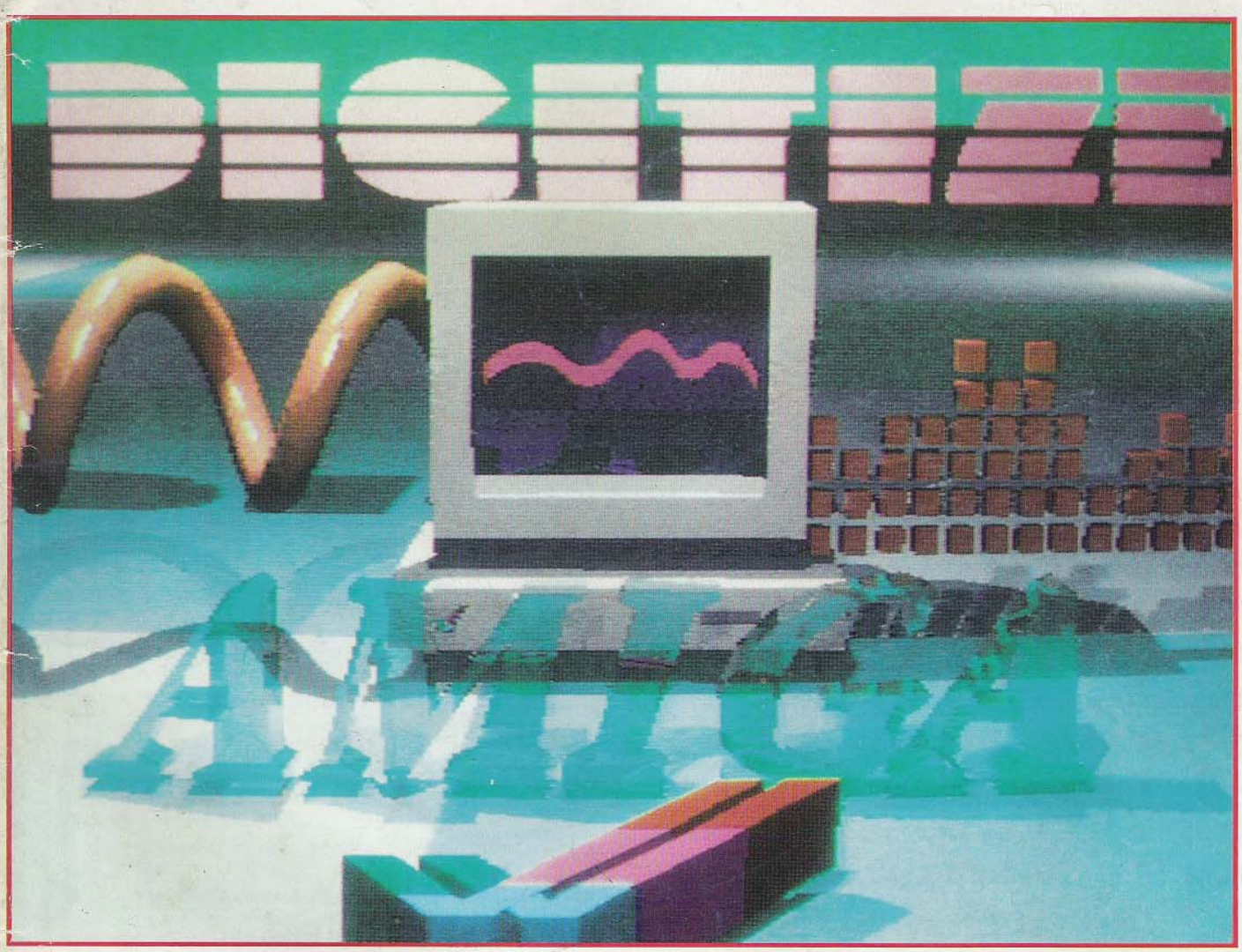
Vol 7 No 6

The Australian COMMODORE and AMIGA REVIEW

June $3.50*



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The Australian COMMODORE and Amiga Review

VOL. 7 NO. 6 JUNE 1990

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Editorial

INFLATION IS at the highest in three years, an exclusive real estate agent in Sydney has just gone down the proverbial tube, the serious side of the PC market is tight and in a mere matter of weeks, Commodore will be launching one of the most impressive new computing platforms since Apple kicked off the famed LISA. Not ideal conditions, but then, there never is an ideal time for anything.

No doubt, this will be a challenging project for Commodore marketing. However, the indicators are looking good. Our premier issue of *Professional Amiga User* will contain a complete review - based we hope on an extensive hands-on evaluation, as will *ACAR*. Both different, but both complementary.

Byte magazine, the *Sydney Morning Herald* and *Sun-Herald* have all run major stories on the Amiga 3000. All were very complimentary - the *Byte* story is especially well balanced, with some critique of the lack of 8 or 24 bit colour support.

At the opposite end of the scale, the trusty old Commodore 64 is alive and well. With the economy travelling in the direction it is, we wonder if it may indeed enjoy a new burst of life as economy computing comes back into vogue. Probably its single greatest enemy are the dreaded game consoles.

Commodore will need some really smart advertising to overcome the misconception that these overrated time wasters represent a realistic alternative to home computing. I suggest we all start lobbying now to make sure people realise that a games console has about the same life span as a pet rock.

We should all extol the virtues of computing as opposed to game playing. After all, that's what the *Australian Commodore and Amiga Review* is all about - going beyond just playing games.

We have had good response to our request for C64 columnists, as this issue will attest. What we're after now is people to write about interesting things they're doing with their computer. Be it running a small business, to producing some unusual graphics, we're sure our readers would like to read about it. Why not bash out a thousand words or so, save it as an ASCII file on disk and send it to our new editorial address:

Editorial
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Andrew Farrell

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See Up-Date column P3 for details on demo disks and printouts.

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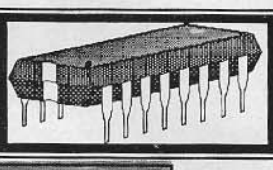

MS-DOS PCs in home or office?

● Commodore Computers isn't totally dedicated to the Amiga after all! They have just announced the release of four low priced MS-DOS PC based packs, which include free on-site installation, in an attempt to capture the home and small business markets. The pack prices are lower than the normal prices of their computers and monitors - which effectively makes the pack components of software, blank diskettes, computer training course and installation free.

Pat Byrne, Commodore Australia Managing Director said, and quite correctly we believe, "Installing a PC is a difficult and time consuming exercise, which is why we're including installation in the package, we believe it is the first time a major computer manufacturer has offered this service outside the corporate area and we're sure it will be very well accepted."

Commodore packs are based on their proven PC10-III and PC30-III computers, which are perceived as most suitable for the solutions being offered.

The PC Student Pack contains a dual floppy disk drive PC10-III, a colour monitor, *Bank Street Writer* (word processing software), *Type!* (touch typing tutorial), and the games *Where in Europe is Carmen Sandiego?* and *Karateka*. The software and the accessories in the PC Student Pack would normally retail for more than $500.

In the PC Home Pack, there is a choice of a dual drive floppy disk drive system or a hard disk system. Software supplied is *First Choice* (integrated software) *Typing Tutor* (touch typing tutorial), and the game *Sim City Simulation*, along with the blank diskettes, training tape and installation. Software and accessories are valued at more than $500.

The PC Home Pack Dual Floppy Disk System sells for $1799, while the Hard Disk system sells for $2499. Both PC Business Packs contain a 40MN PC30-III computer with EGA monitor, and both will retail for $3299.

The first pack, the PC Business Admin Pack, also contains *Quattro Pro* (a professional spreadsheet), and *Sprint* (word processing software). These software packages and accessories normally retail for over $1100.

The PC Business Account Pack, contains *Sybiz Bookworker* (accounting software), and *Sidekick Plus*, (a desktop planner/diary/manager). The software and accessories in this package normally retail for over $1200.

Commodore's PC Solution Packs will be available from April at Commodore Speciality Dealers and major department stores.

We wonder how well the dealers in question will cope with the massive job of installing all the machines sold?

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Dataflow Software Guide

● Already regarded as the "Bible" of educational and productivity software in Australia, the 1990 Dataflow Software Guide is destined to become a reference in its own right. For a start, it's bigger. Much bigger, at 160 pages (up from 102 pages last year). In fact, here at *ACAR* we've sold our coffee table and we're now using the giant Dataflow catalogue instead.

It contains software from people such as Broderbund, Claris, Davidson, Word Perfect, DLM, Unicorn and many others - in fact, over 30 of the world's leading international software publishers. Every package is fully illustrated, and a detailed description is given. Unlike most listings, the price of each package is also shown along with the various machine types.

It is very up-to-date (for example, it contains the new Broderbund *Typestyler* package which was released only a few weeks ago in this country).

Dataflow was founded on education software and this important field still represents a significant proportion of the new Dataflow Software Guide. However, productivity, entertainment and resource material is now greatly increased, as is the range of machine types represented.

A welcome innovation is a pictorial key which shows what type(s) of computers the software operates on without having to search the text. The Dataflow Software Guide is available from Dataflow at PO Box 525, Kings Cross NSW 2011.

It was a refreshing change to see the increasing number of Amiga and Commodore titles in this year's directory. Could we have a dining table size version next year, please?

Commodore in the Media

● I have spotted a Commodore 64 and a A500 in *Neighbours*" writes a Mr G. Osborne.

Also, in a video called *Blindside*, the motel owner keeps a database on his Amiga 1000, A Mr C. Newell of Thornlie W.A. noticed. In the film *Hiding Out*, a 128 is seen running a spreadsheet; B. Meyer, Portsmith, Qld. The spotting are diminishing, surely everyone isn't all spotted out?

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Ausgraph 90

● Ausgraph 90 takes place from 10-14 September 1990 and will include an Art Show at the Conference venue - Melbourne's new World Congress Centre - as well as several concurrent exhibitions at leading Melbourne Galleries and a two week season of Computer Animation at the Victorian State Film Theatre.

Ausgraph plan their most ambitous program to date. In the past Ausgraph has been perceived as the preserve of the computer and engineering people. They want to change that and demonstrate that artists and designers and film and videomakers have as much to offer in this new and exciting area. Computer Graphics in the next decade will rapidly spread into the creative visual domain and it's important that the practitioners get involved at the earliest opportunity.

Plans to date include :

● A joint show with the Victorian State Film Theatre which will comprise a two week season of computer animated film and video including three 70-90 minute programs: Australian Computer Animation which will include a juried Open Section and prize for non-commercial works; an international retrospective The Best of The Best, and an international State of the Art Section.

● A joint show with the Modern Image Makers Association (MIMA) which will emphasis both low technology and interactive installations and artworks.

● A joint show with the Australian Sculpture Triennial which will comprise recent works by leading international practioners; and

● The established juried Art Show which offers prizes for Artistic Merit; Technical Merit; Business Graphics; and School Students.

In order to broaden the shows and to bring them to the attention of the widest audience they are reworking the entry conditions that may have been associated with previous Ausgraph Art and Video Shows;

● Anything (within reason) goes;

● Nothing is too simple, too complex or too old to be considered; and

● Any relevant piece(s) of new technology may have been used.

For further details contact Ausgraph 90 Conference Secretariat, P.O. Box 29, Parkville Vic 3052. ❑

Update

WELL, I HAVE arrived back safely, you will be happy to know. I have come back with some fabulous new products, some already in stock and some on the way. Already in stock are the new Amiga hand-held scanners, one of which is COLOUR. These scanners, which are made in Europe, are absolutely brilliant; and some of our reproductions that we have already scanned are SPECTACULAR! If you would like a demo disk with some of these scanned pictures, please ring us at Pactronics and we will gladly send them out to you. (In NSW phone: (02) 748 4700, and from other states our toll free no. is ph: 008 227 456.) Before you phone, please check our advertisement in this magazine (p.3) which will give specifications and prices.

One of the new games that has just arrived for the Commodore 64 is SECURITY ALERT. This is a fully animated spy game in which you intrigue and steal your way through 15 buildings and up to 1400 different rooms, picking locks, avoiding infrared beams, etc. This is one of the new multi-perspective games which will hold your interest for ages. N.B. We will not be cited as a co-respondent in any divorce cases arising out of excessive time spent at the computer.

RENAISSANCE is another brilliant compilation on the Amiga that you should look out for, together with SHERMAN M4 - tank game; TENNIS CUP - now in stock; and we have just received fresh stocks of TURBO CUP - the great racing game with the FREE PORSCHE miniature.

By the way, we have just finalised an arrangement with Myers/Grace Bros. group of stores which will mean you will be able to find a very wide range of our products, software and books, in all their stores throughout the country; and for those of you with no access to a nearby retailer, we recommend COMPUTER SPOT on Ph: 008 25 2130 for your mail order requirements of our products. ❑

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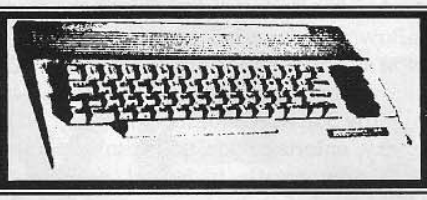

Euphony Music Collections 5 and 6

● *Euphony* fans will be pleased to know two collections, each over one hour long, have been released. You can connect your monitor to your stereo or Midi keyboard and listen in. Collection 5 comprises 21 sonatas by Domenico Scarlatti edited by A. Fratelli. Collection 6 includes the Brandenburg Concerto No. 4, the Goldberg variations on themes by Bach, pieces by Liszt, Chopin, four ragtime pieces, Plaisir d'Amour and more.

Euphony 3.0 or 3.01 is required. For more information write to TCO Software, P.O. Box 81504, Fairbanks, AK 99708. Tel 907-479-4898.

Abacus software for C64/128

● Here's an update on some of the better Abacus software for the C64 which is available:

Assembler/Monitor Language Package

● This package is a complete machine language tool for the Commodore computer. It features a full 6510 macro assembler with many options.

The Assembler supports not only user-defined macros, but also allows the user to define floating point constants in machine language programs. Includes fast macro assembler capabilities that support conditional assembly; full screen editing of source program; assembles to any location in memory, disk or tape; symbol table listing/write to disk; and source file chaining capabilities.

The monitor's functions include hunt, disassemble code, transfer blocks of data, compare blocks of data, access to other memory banks, single step execution, and quick trace with breakpoints. The monitor can coexist with the assembler. Both Assembler and Monitor are written in machine language.

Forth Language Package

● The Forth language is easier to use than assembly language and faster than BASIC. Forth allows the user to write programs that are more compact and efficient. In addition to Forth's extensive built-in vocabulary, users can create new words to fit their needs.

Forth Language Package is based on the Forth '79 standard with portions of Forth '83. Forth contains a number of very useful words with which SID (Sound Interface Device) and the VIC (Video Interface Controller) can be addressed.

The package also has an extended vocabulary to support graphics and sound, a built-in full screen editor, a complete Forth assembler, and detailed handbook and complete documentation.

SpeedTerm - terminal software

● As a group, Commodore owners are one of the largest users of online communication services, such as CompuServ, The Source, Delphi and GEnie. *SpeedTerm* was designed to handle the communication needs of this rapidly growing base of Commodore owners who access these services. C128 and C64 programs are packaged together.

SpeedTerm sets a high standard in economical telecomputing software. It is a completely command driven program that is easy to learn and use, yet provides great power and flexibility.

Even though *SpeedTerm* is simple in design, it packs numerous features. For instance, it supports both Xmodem and Punter file transfer protocols so that large files can be uploaded and downloaded without error.

In addition to these popular file transfer protocols, SpeedTerm includes partial DEC VT52 terminal emulation. As well as the standard options, it manages a large 45K capture buffer and permits user defined function keys. *SpeedTerm* understands more than 30 powerful commands.

SpeedTerm is compatible with most of the inexpensive modems for the 64 and 128, and if properly interfaced, will function with all Hayes compatible RS-232 modems. *SpeedTerm* includes a versatile capture buffer which can be used to both send and receive ASCII text files, or to record an online session.

The complete *SpeedTerm* package includes a 70 page manual with easy-to-understand tutorial.

Modems: Commodore 1600, 1650, 1660, Hayes and Hayes compatibles. Requirements for *SpeedTerm 64* are a Commodore 64 with 1541/MSD or 1571 disk drive and a 40 column monitor. Requirements for *SpeedTerm 128* are Commodore 128, a 1541/MSD or 1571 disk drive and a 40/80 column monitor.

Fortran 64

● Fortran was the first high level language to obtain widespread use. It is commonly used for solving problems in mathematics, science and engineering.

It is capable of generating relocatable machine code and includes Linker/Loader and program to sequential file translator. Subroutines and functions can be compiled separately from main, and free-field statement entry allows indention of structures and also allows for low overhead by linking only the systems routines required. Can be used on Commodore 128 in C64 mode.

Cobol for the C64 or C128

● Cobol is the most widely used commercial programming language in use today. The Cobol 64 and Cobol 128 packages let users learn the Cobol language using their 64 or 128. The Cobol language uses English-like-sentences which makes it easier to learn.

Since Cobol 64 and Cobol 128 are designed with ease of use in mind, it's perfect for the beginner, and since Cobol is common to many different computers, every aspect of Cobol learned on the 64/128 is valid for larger system versions.

Cobol software includes a syntax checking editor, a compiler, an interpreter and symbolic debugging aids. Cobol 128 works with either a 40 or 80 column monitor and because of the increased memory runs much faster than the C64 version.

Some of the features are fast compiler/interpreter to transform source into executable program, symbolic debugging tools, supports use of ANSI COBOL '74 and includes a crunch function to reduce the memory size of your programs.

Cobol 64 requires a C64 with 1541 or 1571 disk drive, and Cobol 128 requires a C128 with a 1541 or 1571 disk drive and supports a 40 or 80 column monitor. Works with most popular dot-matrix printers.

All the above Abacus products are available from Pactronics on (02) 748 4700 or Computermate Products Pty. Ltd. on (02) 457 8388. ❑

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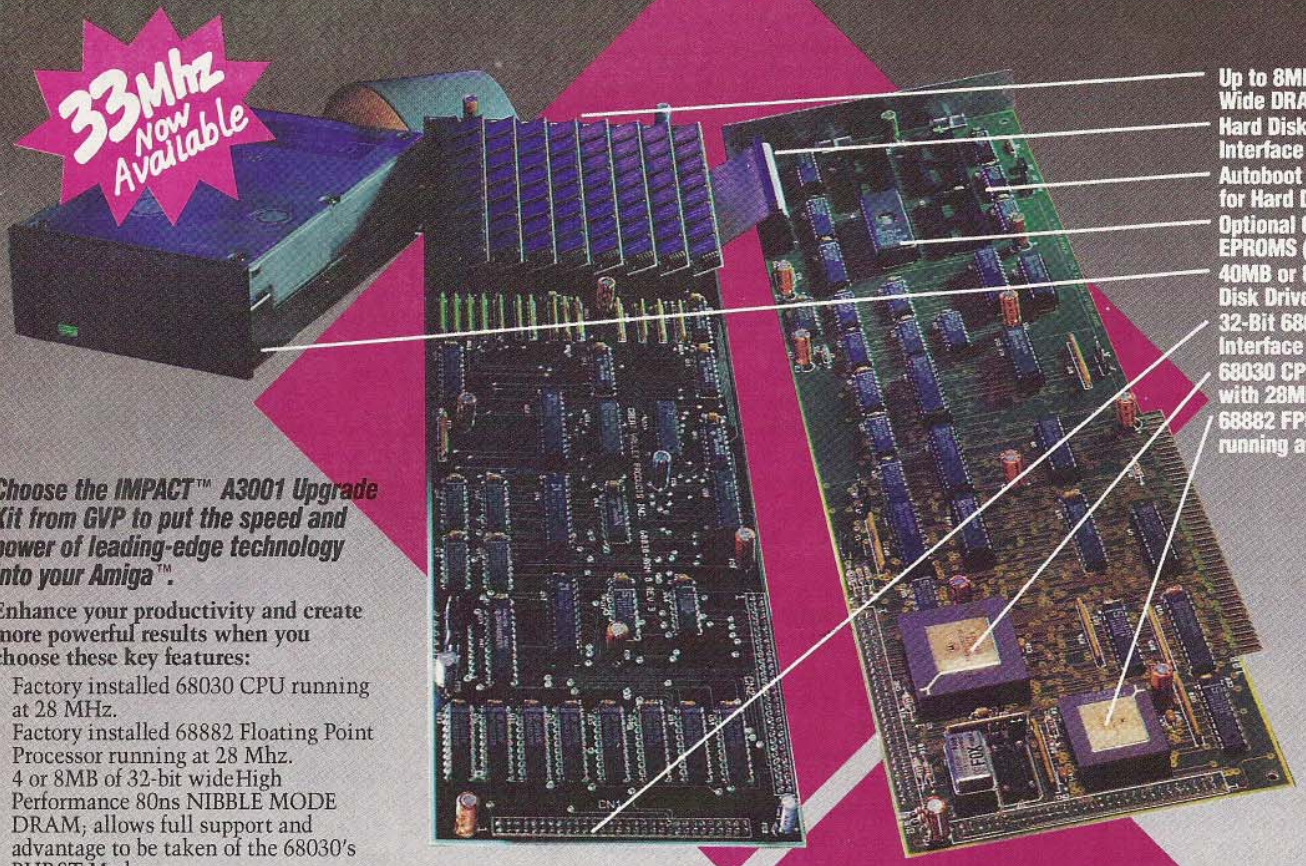

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With Hard Disk Installed All Five Amiga Expansion Slots Left Free	✔	NO
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Notepad

Preview

M.A.S.T Infinity Machine

● Hot on the trail of GVP's announcement of a 75Mhz, 68040 board to be released real soon now, along with a faster version of their existing 68030 board, comes the Infinity Machine from M.A.S.T.

An Australian based company, M.A.S.T have developed the Infinity for the Amiga 500 or 1000. The board will be available at several option levels. It will run with a 68030 processor at either 25 or 50 Mhz. A high speed SCSI Interface includes provision for dual port SCSI interface for use with disk arrays. For extra speed, there's a 128K controlled Cache RAM.

For those on a budget the board will also accept a 16MHz 68000. Ray tracing freaks will no doubt want to bolt in the 68882 Maths Coprocessor. For A1000 fans there's a Kickstart ROM socket. If Kickstart is left in RAM it is transferred automatically to 32 bit memory.

The Infinity Machine comes complete with power supply, and connects to the external expansion port in a case similar to the Tiny Tiger.

The Infinity Machine is the result of a design philosophy at M.A.S.T to provide a 68030 subsystem for the Amiga that was both affordable by the majority of Amiga 1000 and 500 owners and yet able to be configured as one of the fastest 68030 systems available, for those users requiring the extremes in processing power.

As many of the engineers at M.A.S.T are A1000 owners, Infinity was originally conceived out of frustration at the lack of support for what many feel was still the best Amiga. Infinity is designed to grow with advances in technology.

In 1990 M.A.S.T will release the Infinity Video Machine, which among other features includes 32 bit access to the Amiga Chip RAM. It will also enable A1000 owners to have 1 meg of display RAM and to use the new custom chips and can be purchased in just about any configuration desired, and expanded by the user as required.

Base module

● The base machine includes all the logic to support the add on modules, plus a SCSI interface and the board is packaged in a case similar to the Tiny Tiger SCSI Drive. An optional power supply is available, although this should not be necessary on the base module.

All data transfers within the Infinity Machine are DMA, and controlled by a single chip that handles all DMA address generation. To avoid problems with the high speed DMA channel between the Infinity Machine and the 32 bit chip RAM on the Infinity Video Machine, data transfers into the Amiga chip memory are under programmed I/O.

As most Infinity's will be fitted with at least a 16MHz 68000, data transfers between the hard drive and Amiga display RAM will still be faster than DMA in a conventional Amiga. Within the Infinity, bus bandwidth depends on memory and CPU speed. Using 80nsec RAM in an interleaved configuration, burst data transfers of 64meg/sec are possible.

Memory

● The memory in the Infinity Machine is of two types. One is PICOMEG DYNAMIC RAM MODULES.

These are available as 2 meg modules and can be purchased with 1 or 2 meg of RAM installed. The memory on the module can be jumper selected to function as 16 or 32 bit memory and is available with 70, 80 and 100ns access times.

The decision as to which speed is applicable to you will depend on the clock speed of the CPU installed in the system. Infinity's fitted with 50 or 33 MHz CPU's should use 70ns RAM, 25 or 20 MHz systems should use 80nsec chips. A 16MHz 68000 or 68030 can use 100ns modules.

Picomegs modules include a custom logic device to enable correct operation of the system. For maximum efficiency, the Picomegs should be arranged as interleaved RAM. This requires a minimum of two modules each populated to 1 meg. The Infinity can be used as a stand alone external memory module.

Another type is 128K Static Controlled RAM Cache. The M.A.S.T Controlled Cache is an area of high speed static RAM located outside the normal Amiga address space. It uses memory with a 25ns access memory and is designed so that there is no logic delay between the CPU and RAM.

Because the 68030 has its own caching facility, it was felt pointless to complete the logic of the Infinity with a second external cache. The controlled cache is an area of memory dedicated to certain critical areas where speed is essential - that part of the code can now be written to run in the controlled cache, where it won't be subject to flushing or the hit and miss process of a standard cache.

This memory is outside the normal Amiga Autoconfigure space. Logic on the Infinity permits any program to interrogate the availability of cache RAM. It is also compatible with the multitasking environment of the Amiga.

To facilitate improved software performance, a DMA system is designed into the Infinity allowing block transfers of data between dynamic working RAM and the controlled cache at a sustained rate of 64 megabytes/sec. The MMU on board the 68030 has obvious benefits in this area. A software protocol for access

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to this memory is included in a ROM provided with the Controlled Cache Module.

Microprocessor selection

● While most users will be buying the Infinity Machine for ultimate use as a 68030 system, M.A.S.T has designed the Infinity to operate with a 16MHz 68000. This is supplied on a special module that fits into the 68030 socket on the Infinity. Any of the currently available 68030 chips can be installed in Infinity.

Burst cache fill mode of the 68030 has been implemented in this design, and works with any dynamic RAM in the system (cache is not enabled for the Controlled Cache area). The interleaved memory provided for in the design is ideal for use with the 68030 cache 70ns. RAM allows a 33MHz CPU to load its cache with 16 bytes in 7 clock cycles.

All CPU's run at their rated speed - Infinity logic is independent of the clock speed of the Amiga. When the Infinity needs to access the Amiga chips or display RAM, autosyncing circuitry aligns the two clocks for a smooth transfer of data. The 68000 inside the Amiga can be left in place. A switch on the Infinity Machine selects between the CPU in the Amiga and that in the Infinity.

Kickstart

● A socket is provided inside the Infinity allowing a Kickstart ROM to be plugged in - great for A1000 owners.

Kickstart is automatically loaded into 32 bit memory after the system boots - this allows what is the most frequently accessed area of code to be executed as fast as possible.

For further information contact M.A.S.T. on (02) 281 7411. ❑

Notepad

New Workbench fixes A590 hassles

● A spate of problems with A590 hard drives and the file requestors from productivity software such as *Excellence!* has been fixed with an upgrade of Workbench to 1.3.2.

Here the official good oil on the subjects from Commodore:-

To maximize performance and compatibility between hard drives and software, make sure that you are using the most up-to-date version of the fastfilesystem. To check that you are using the correct version, look at the file size of the fastfilesystem that you are using.

On 2090 and 2090A controllers, check the 1:fastfilesystem file. On A590 and 2091 controllers, check the fastfilesystem under the Add/Update Filesystem option in HDToolBox (see the updating instructions below). Updating the fastfilesystem does not require that you alter the partition in any way. You do not have to reformat the drive. This is a non-destructive update.

For 2090 and 2090A controllers, copy the fastfilesystem handler to the 1:logical device that is active at the time you mount the fastfilesystem partitions. You may wish to copy this file to all your 1 directories.

If you have updated your operating system (currently 1.3.2), then this is already done for you. As a word of caution, make sure that if you have separate boot: and workbench: partitions, that the boot: partition is also updated.

For A590 and 2091 owners, the fastfilesystem is also stored in the first two cylinders of the drive. This allows you to boot off a fastfilesystem partition. To update the automounting partitions, you must use the HDToolBox program found in the System drawer on the hard drive (and also on the install disk).

Update your on-disk information as above then run the HDToolBox program. Once in the HDToolBox program select the partition drive option. Select the Advanced Options gadget to get access to the Add/Update Filesystem option and then select this option. Select the Update Filesystem gadget then click on OK to update fastfilesystem. You should notice the file size number change. The current size is 12248 bytes.

Select Okay to return to the previous window until you are in the opening screen. The Save Changes gadget should no longer be ghosted. Select this gadget then Exit.

If you do not wish to save the changes (eg you were just checking the file version and file size of the fastfilesystem) select Exit without selecting the Save Changes gadget. Turn off the computer, wait for 10 seconds then turn the unit back on. Your system should now be updated to the latest version of fastfilesystem.

Two versions of the fastfile system are:

● Version V34.85 (8/10/88) 12204 bytes

● Version V36.03 (5/9/89) 12248 bytes

Your version may be different. Make sure that you are using the most up-to-date version for best results. To see the version number of a file on disk, use type 1:fastfilesystem opt h in a CLI. The number and date will appear in the first few lines of the listing.

Fireball A2000 SCSI Controller

● M.A.S.T is now shipping its Fireball A2000 SCSI Controller, a new high performance board which can also be used as a single slot HARD CARD. The Fireball is a true DMA controller, which incorporated M.A.S.T's unique Word-Lock DMA. For sustained transfer rates in a multi-tasking environment, DMA outperforms the alternatives.

The Fireball transfers data at above 650 kbytes per second sustained. Superfast transfer rates are independent of the number of tasks operating, which is impossble with all non-DMA controllers. While Fireball is moving data to and from the hard disk at high speed, the CPU is given plenty of bandwidth to continue multi-tasking. Fireball automatically slows down when accessing CHIP RAM, to prevent any problems with overscan.

Fireball includes Autoboot ROMS, which can be disabled by a switch on the board. Fireball has three Status LEDs to indicate autoconfigure, board select, and DMA access. The software supplied with Fireball includes standard Amiga protocol calls to permit easy interfacing of drivers for other SCSI devices. It is also compatible with the SYQUEST removable drive - ideal for heavy colour separation DTP requirements.

M.A.S.T is currently bundling Fujitsu Hard Drives with the Fireball. They feature access times of 9-12 msecs, and have onboard RAM Cache. The Fujitsu drives come with an optional 5 year warranty. For further information call M.A.S.T (02) 281 7411.

New Tiny Tiger

● The newest version of Tiny Tiger, the hard drive for any Amiga, is now in production.

The Tiny Tiger II is the only fully portable hard drive system on the Amiga market. It plugs into the parallel port, using MAST's unique parallel port SCSI interface in a cable. This gives the user the flexibility to use either the parallel port, or any standard bus-based SCSI controller on the market.

Tiny Tiger II may be used stand alone, or daisy chained to existing systems. By building the SCSI controller outside

of the base unit, the Tiny Tiger II is also able to be used on the Macintosh and the IBM.

The drive comes in a slim-line, beige case. The front panel displays SCSI Address and Status of Parity, Write-Protect, Drive Select, Drive Termination and Auto Power. All software and cabling are included and it comes with its own robust power supply.

The Tiny Tiger II is sold with a selection of different capacity high-performance Fujitsu 3.5" SCSI hard drives. They range in size from 45MB, through 90MB, 136MB to 182MB. These drives have a 9-12msec access. For further information call M.A.S.T (02) 281 7411.

Magellan Expert System Tool

● Emerald Intelligence has announced a new price for the Magellan expert system development tool for the Amiga. Emerald has also reduced the price on Magellan packaged with the Interface Toolkit from Computermate Products (02) 457 8388.

Yet another file utility D.U.D.E

● D.U.D.E. combines the power of CLI and the simplicity of Workbench with up to 12 directory windows visible at once to enable manipulation of files conveniently.

The program is designed to use a minimum amount of RAM to maximize multitasking efficiency, and includes a hard disk backup function. Every aspect of the program can be customized to your needs and preferences.

From Computermate Products (02) 457 8388 for $79.95.

Master Tracks Pro

● *Master Tracks Pro* is a new MIDI sequencer that combines complete graphical editing with realtime and steptime input, song editing, step editing, and SMPTE synchronization in an extremely easy to use program.

Also included is a system exclusive librarian, remote control from your Midi keyboard, writes standard "Midi file" format and can export files to Encore for printing of your sequences in standard music notation.

Real Time recording features include 64 multi-channel tracks with Midi channel, program number, memo, record, play, mute, solo, independent track loop and automatic punch in/out, as well as 240 clocks per quarter note resolution and the ability to record multiple tracks on multiple channels. Playback on 32 different channels of Midi with two independent Midi ports and more.

Supports all SMPTE formats and display SMPTE time and set sequence start time, and fit time to SMPTE time values. Also features a song editor which graphically displays track data over time.

Keyboard mapper lets you assign sequencer features to a Midi keyboard. Remote control of record, play, stop, pause, fast forward, rewind buttons and select event durations when step inputting without taking your hands off the Midi keyboard.

Computermate Products, on (02) 457 8388 for $549.00 RRP.

Barney Bear Goes to School

● Free Spirit Software has released *Barney Bear Goes to School*, a new Amiga educational game for children ages 3 - 8.

Barney Bear Goes to School is an educational game designed for young children, with an emphasis on fun and surprises. The program begins with a short interactive story in which the child helps Barney Bear wake up and get ready for school. The computer will prompt the player with questions to continue the story, while other objects on the screen may be active and will respond with speech, sounds or music.

Then it's off to the school room. Here the room itself is a menu of activities for children to choose from. There are educational elements, such as the alphabet, the numbers, shapes and colours, as well as letter and number games, toys that make sounds and a painting easel. The painting easel is a fill-in-the-colours painting activity that includes over a dozen pictures, a 16 colour palette and colour cycling.

Barney Bear Goes to School is available now for the Amiga, 1 MB of memory is required. A delightful program that young children are sure to enjoy.

Available from Briwall (062) 880 131.

Scene Generator

● Now you can create your own fractal worlds with Scene Generator from Natural Graphics. An easy to use menu interface gives you instant access to all of Scene Generators capabilities.

Some features include preview mode to generate a picture in seconds, complete control of all colours, save pictures in IFF format, overscan and non-overscan save modes, nine lighting angles. Requires 512K and Workbench 1.2 or 1.3

Available from Computermate Products on (02) 457 8388 for $59.95 RRP. ❑

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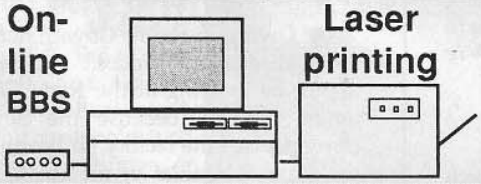

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LETTERS TO THE EDITOR

Desktop video queries

● I have been a reader of your magazine for over a year now and I feel I must congratulate you. Its constant blend of humour, entertainment and the technicalities of computing make it a pleasure to read. It is good to know that the Australian Amiga is in safe hands.

Reading through your article on desktop video in the *1990 ACAR Annual*, I noticed a comment that the Amiga 1000 can title videos through its colour composite port, unlike the 500/2000. As I am extremely interested in this application (desktop video) I would be most grateful if you could give me information concerning this.

Unfortunately, Western Australia isn't particularly rife with helpful dealers, so I must turn to you for information.

● What cables are necessary to hook the 1000 up to a video?

● Will I need a genlock, or is it possible to go directly through the composite port? (I wouldn't be doing very fancy titling.)

● What software would I need? (Again, nothing fancy.)

Keir Sooby
Darlington WA

Ed: *Connect the RCA composite out to the RCA or BNC type video in on your VCR - Tandy or Dick Smith should be able to help. You won't need a genlock unless you want to superimpose graphics - use Deluxe Paint for starters!*

GEOS and RAM expanders

● I read with interest the March issue of the *Australian Commodore Review* regarding the C64. Several years ago while doing part time studies, I needed a computer with an easy to use word processor. I purchased a C64 with GEOS after reading a review in *Australian Personal Computer* and I have been using GEOS since quite happily.

Eric Holroyd's article, The Benefits of Adding Extras to your C64/128, highlighted the 1764 RAM Expansion Unit which is not available through retail outlets in Australia. I was very fortunate to obtain one through an importer last year. As with the C128 and REU already reviewed in the July 1988 issue, the REU transforms the C64 and GEOS into another realm, where everything is available instantaneously! This is quite a contrast to GEOS being operated on a 1541 only!

There is one aspect regarding the power supply that needs to be clarified. The REU normally is supplied with an upgraded power supply. However, this is not an absolute necessity for C64-C models. I have used the REU now for almost 12 months just using the original power supply and have experienced no problems whatsoever. This should simplify importation of the units but no-one has decided to take advantage of the potential market for this device, particularly when they are advertised for only $US120 in American magazines.

I am pleased that the magazine will have a GEOS column to explore the possibilities of this very user friendly software.

Theo Wintels
Kealba Vic

Yet another user group

● Our group would very much like to be included within your list, so that any interested parties in our area would know where to contact us.

Our name and address for meetings are as follows:

Southern Districts Commodore Users Club
House behind Salvation Army Hall
Elizabeth Rd
Morphett Vale 5162

● **Contact 1:** Robert Cloosterman (President).

● **Contact 2:** Terry Pitt.

Our meetings are held every third Wednesday of the month. If there is any correspondence to be entered into regarding the group, please contact:

Mrs J. Easton
U8/27 Hilliers Rd
Morphett Vale SA 5162.

And another

● We run the Foothills Commodore Users Group for the south of the river area in the Perth metor area.

We operate on Thursday night 7-9.30pm at the Hartfield Recreation Centre, Hale Rd, Forrestfield. The group has been running for 18 weeks and is for Amiga, C64 and 128 users who wish to swap info or we help with problems where possible.

Contacts:
John Cherry 4532431
Arthur Holstein 4545377
or the
Kalamunda Shire.

J.M. Cherry
Forrestfield WA.

And indeed another ... Sydcom moves

● Owing to recent Government fiscal directives, Sydcom will no longer be meeting at the Ryde Catering College, because the new charges place the facility far beyond the financial range of an amateur enthusiast group.

The new club details are:
Sydcom,
Sydney Commodore User's Group,
PO Box 1542, Sydney 2001.
(02) 819 7189 **Ian Langton**
2nd Friday e/m, 7.30-10 pm
Intensive Language Centre, Sydney
Cnr Cleveland & Chalmers Sts

Workshops, monthly newsletter.

Letters ● Letters ● Letters ● Letters

ProWrite problems

● Your correspondent who complained about *Kindwords* (Letters, March) need not feel victimised by this particular program, as it is common to most (if not all) graphics intensive WYSIWIG word processors. Here's my 41c worth.

When working with long documents, I have had similar printing problems with *ProWrite (2.0)*. Part of the former page was printed on the next, meaning the perforations and page breaks no longer coincided, which was completely unacceptable. I worked around the problem by printing each page separately, meaning I had to keep coming back every four minutes to send off the next page!

The only thing I can suggest is to keep your files short (less than about 25K). If you want a long document, do what I've been doing since the problem reared its head, and split it into smaller modules. An inelegant, but workable solution.

Mr Edington should not conclude that *Kindwords* is pathetic from this episode, as another WP will still suffer from the same problems. Incidentally it is not possible to load an ascii file (with no font data) of more than 50K into either *ProWrite, Kindwords, Excellence!* or *Pen Pal* using my 1 meg A500.

Peter Deane
Waratah, NSW

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Videoscape 3D V 2.0

by Peter Ward

AEGIS DEVELOPMENT were amongst the forerunners in recognizing the Amiga to be THE animation and video computer of the decade, and have heavily supported the Amiga through the release of programs such as *Animator, Draw, Animagic, Audiomaster* and *Video Titler*.

Videoscape 3D was among the first three dimensional modeling and animation programs. Unfortunately, being an early release, it had its problems. No H.A.M. support, nil phong shading. (A shading technique which makes 3D objects appear to have smoothly rounded surfaces even though they are composed of flat polygons.) Complex motions were difficult to describe, too few light sources could be specified, the interface was anything but elegant and there was no support for PAL sized screens.

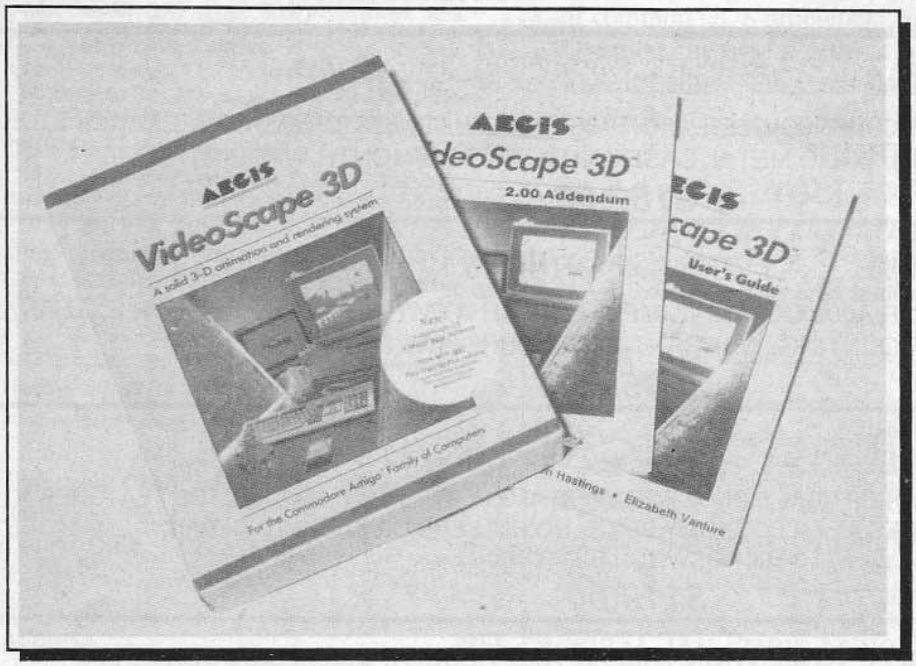
Videoscape 3D version 2.0 is a major rework of the initial version, with (nearly) all of the above problems being addressed.

This is not to say that I still don't have some major gripes. The first being the manual. It now comes in two parts, being the original version plus a Version 2.0 Addendum. It would have been better to completely re-write and index the original manual, as I continually found myself first reading the original, then discovering on a subsequent check of the supplement, that my first impressions were incorrect. Aegis do suggest that you completely read the original manual, then read the supplement. Due to the large amount of information contained in both manuals, the learning curve for *Videoscape 2.0* is a steep one.

Unfortunately the user interface is still anything but intuitive, in fact some aspects of the program have no, or at best very cryptic, menu selections, so you really have no option but to sift slowly through the manual information.

The program is perhaps best described as the "thinking man's alternative to three dimensional animation". Simply put, a basic knowledge of linear algebra does not hurt in helping to understand to use this program!

I am pleased to say, however, after doing all of the required reading, *Videoscape 2.0* evolves into an impressive rendering and animation product.



The package consists of the main program plus several modules: an "Easy Geometry Generator" (EGG) "Object Composition Tool" (OCT) and "SHOWANIM", the latter being a freely distributable player program for your creations. Also included is "Designer 3D" written by Colin French. It is an enhanced version of the public domain program "ROT". I frankly did not like the Designer 3D interface at all: it should have remained in the public domain.

A much better object creation tool is *Modeler 3D*, also produced by Aegis, and the objects from which are directly exportable to *Videoscape*, but more on that later. The EGG utility as its name implies allows very easy creation of basic objects, such as boxes, spheres, cones as well as more complex features such as a tiled plane, fractal terrain and distant mountain rings.

Using EGG is relatively straight forward, with a CLI type interface being accessed through an icon in the *Videoscape* window. At various prompts the user decides on object type, size, colour and surface texture. After creating your object OCT must be called upon to place it within the *Videoscape 3D* universe. Using OCT allows both positional and dimensional transformations, so for example, having first created a box with EGG, you can then clone it using OCT, placing the clone at a new location, and perhaps vary the height of the box, in so doing slowly build up a city skyline for example.

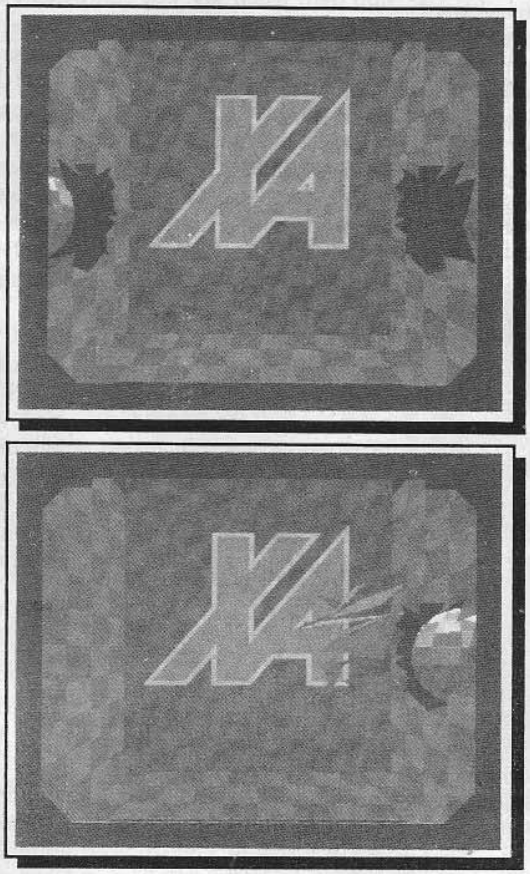
A particularly powerful OCT routine is to metamorphose or "morph" your original object from one shape to another over a series of frames. When using this option, care must be taken to ensure that polygons do not "twist" into their final shapes, as, quoting from the manual: "strange things can happen". The program has also a "non-linear morph" option, which produces a more natural motion as objects change shape.

It is in the object rendering modes that *Videoscape 2.0* has seen a vast improvement over its predecessor. H.A.M. is now supported and can be used with "Phong" shading, the direct consequence of which is the ability to render smoothly shaded objects which can also have a new "chrome" like surface. HAM animations require a considerable amount of memory, with a minimum of two megabytes being necessary before even a two frame animation can be rendered!

Extra Halfbright is also supported allowing a 64 colour palette. Indeed the palette itself is now user adjustable, though the method of adjustment is rather clumsy. This involves loading a ".pic" file from the *Videoscape* disk into a paint program (eg *DpaintIII*) modifying the palette, saving it as an IFF picture file, then loading the picture thus saved via a Load New Palette menu item in *Videoscape*, which will extract the palette information and discard the picture information from the saved file. Did I say "rather clumsy"? I was perhaps being too kind.

The range of object colour codes has also been increased with the addition of several new colours, an object outline mode, object transparency and a new "shadow" mode, which creates polygons which have no intrinsic colour, but darken the surface they cover, much in the same way a shadow does.

The rendering capabilities of *Videoscape 2.0* have been further enhanced by being able to specify multiple light sources (up to four) with the ability to also vary the intensity of each.



Two frames of animation produced using **VideoScape 3D**

COMPUTERMATE products (australia) pty. ltd.

presents

From the author of 'Galileo'

The basics. Space and time. From an ice-age antler minutely etched with lunar phases to the inconceivably detailed information patterns transmitted by the Hubble Space Telescope, man has sought answers to basic questions about the universe in astronomy.

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Hierarchical motion is yet another important addition to *Videoscape 2.0*. In version 1.0 a motion path such as a propellor on a moving aeroplane was near enough impossible to describe. Version 2.0 has introduced "parent-child" type motion heirachies, with the motion of the child object depending upon that of the previous generation. As a result, quite complex motion files can be described, for example a satellite in orbit around the moon, orbiting the earth, orbiting the sun ... I'm sure you get the idea!

The number of independently moving objects and key frames has now been increased to 50. The program will (only) recognize a maximum of 4 megabytes of memory for object rendering purposes (32,000 detail polygons), though additional memory beyond this will allow recording of larger animations.

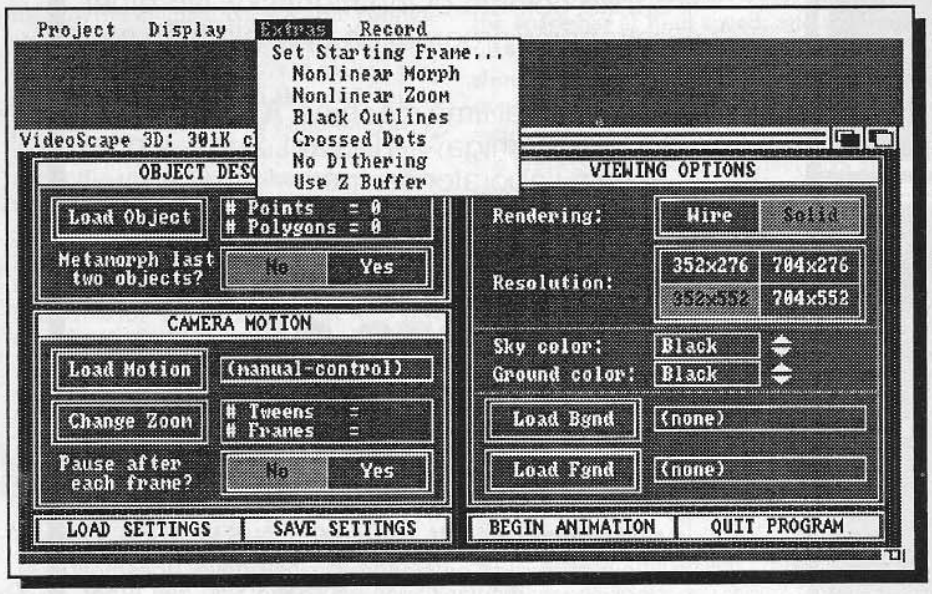
Describing an object motion when using *Videoscape 2.0* is anything but intuitive. You have to read the manual a few times to get a feel for three dimensional co-ordinate systems, and the manual suggests that perhaps you plot a few relevant co-ordinates on a piece or two of graph paper. Fact of the matter is, using graph paper is almost essential, as trying to visualize how your animations will appear using a "tri-view" environment beforehand is simply not possible in *Videoscape 2.0*

If you have done all of the above correctly, you will end up writing a specifically formatted motion file. This file requires the object's initial X-Y-Z coordinates, its H-P-B reference, and the number of key frames between its second (and subsequent) X-Y-Z and H-P-B reference. By the way, "H-P-B" are the heading, pitch and bank angles of your object.

While going through the motions, pardon the pun, of learning how to use *Videoscape 2.0*, I could not help but think is was all about as clear as mud on several occasions!

Do be not too dismayed however, as anyone with a High School education in basic Euclidean geometry and a pad and pencil can sort out what is required, but really, suggesting you utilize a pad and pencil to use some computer software ... who are we kidding, guys? I might add that you need to go through a similar routine to write camera motion files.

To save a lot of drama in creating objects and their motion files, Aegis have thankfully created *Modeler 3D*. Frankly, you'd have to be crazy try to use *Videoscape 2.0* without it. Using *Modeler 3D* allows you to plot on a computer screen, instead of graph paper, the motion of your object or camera. Objects can be easily created and modified, then ported across to *Videoscape 2.0*. which has been designed specifically to accept *Modeler 3D* objects and motions. The combined programs are reminiscent of the elegant *Sculpt-4D* interface, and really should not be sold without the other.



An alternative to creating a RAM animation file, is to save each frame of your animation as an IFF image. The program is further enhanced by having the ability to output to a single frame video controller, via the serial port, and hence record the single "frames" of your animation on videotape.

On first reading in the manual, about the ability of the program to perform this manoeuvre, I thought "Apart from the pro's, who needs it?". Fact of the matter is, as soon as you start to move even moderately large objects around, the animation player program, "SHOWANIM", runs at only about three or four frames per second. Hardly the ten frame per second minimum required to display animations smoothly.

While the ANIM format is generally accepted to be the "standard" one has to question its level of performance, especially when one considers Byte by Byte's "MOVIE" and Antic's "RIFF" format playback speeds for large objects.

So far you may be getting the impression that, when say, one compares *Videoscape* version 2.0 with *Turbo Silver* or *Sculpt 4D*, why bother with *Videoscape 2.0* given its remaining shortcomings? The answer is SPEED. Some very respectable three dimensional animations can be made in minutes or at least not too long a portion of the day when HAM rendering is employed. The last (albeit rather complex) image I rendered using *Sculpt* in Photo mode took two days for a single frame!

So the user interface is not all that good, you have to spend a good deal of time with the manual and you really do need to buy *Modeler 3D* to save time writing motion files. When you finally do all of that *Videoscape 2.0* begins to delight you, especially when you can see your animations forming in almost "real-time" when compared to other three dimensional animation software.

While not as strong as competing programs in numerous areas, the ability to gratify the user with "instant" three dimensional animations makes *Videoscape 3D* version 2.0 a worthy addition to your software library.

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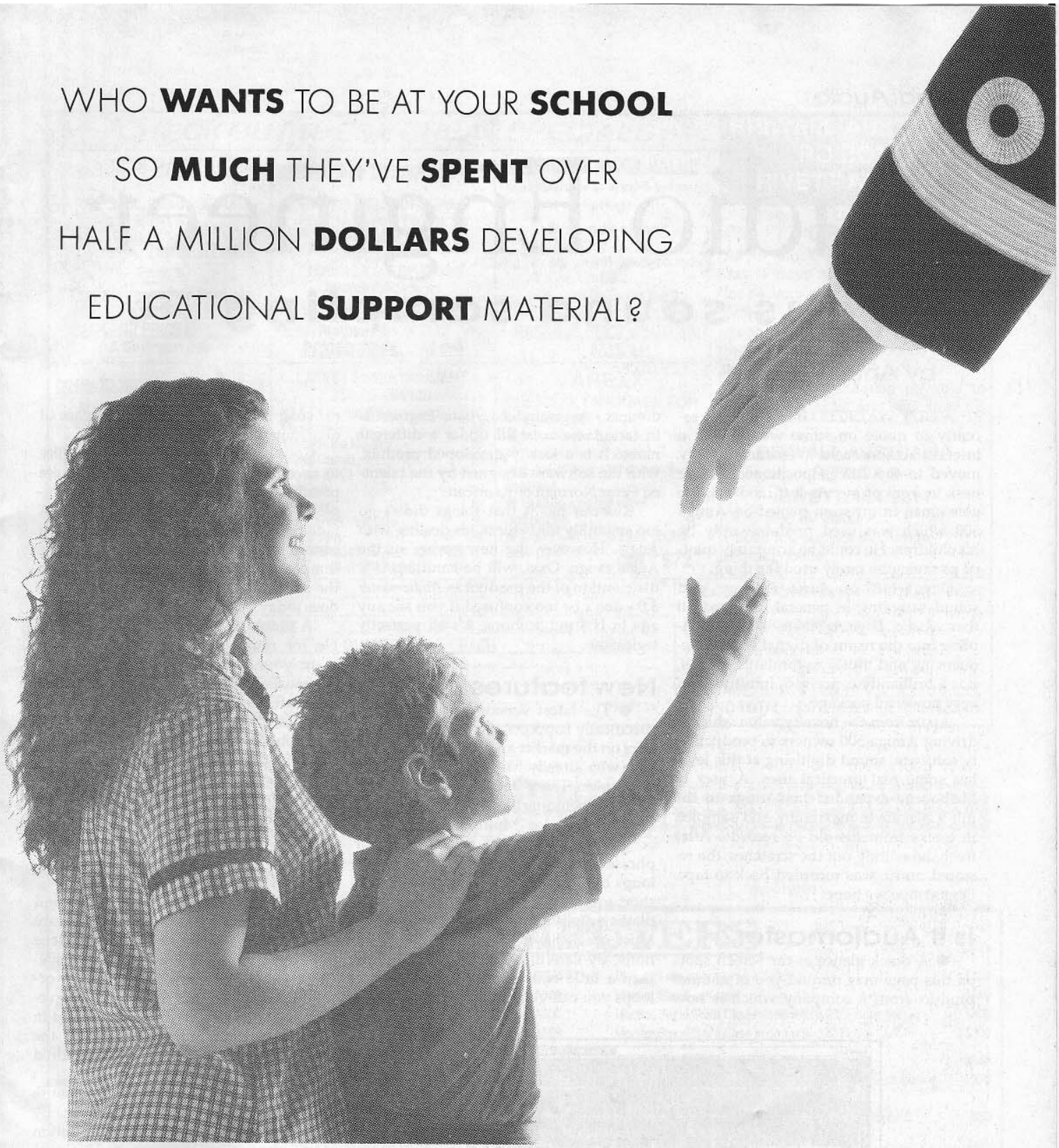

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Audio Engineer

Serious sound sampling

by Andrew Farrell

A GUY WALTZED into my office recently to quote on some work. After a brief discussion, the conversation quickly moved to the Amiga positioned on the desk in front of me. As it turned out, the gentleman in question owned an Amiga 500 which was used predominantly by his children. He could be accurately quoted as saying he rarely used the thing.

One whiff of *Audio Engineer* and sound sampling in general, changed all that. *Audio Engineer* takes sound sampling into the realm of digital editing, sequencing and music restoration. In brief, it is a brilliantly conceived, intuitive, and very powerful package.

Apart from the novelty value which is driving Amiga 500 owners to productivity software, sound digitising at this level has some real practical uses. A user in Melbourne expanded his Amiga to the full 9 Megabyte maximum, and sampled in tracks from his old 78 records. After freehand editing out the scratches, the restored music was recorded back to tape. Digital tape we hope!

Is it Audiomaster?

● A quick glance at the screen shots on this page may remind you of another product from a company which is now defunct - Aegis. Indeed, *Audio Engineer* is in fact *Audiomaster III* under a different name. It is a locally developed product, with the software designed by the talented Peter Norman of Ramscan.

Rumour has it that things didn't go too smoothly for Peter in his dealing with Aegis. However the new owner of the Aegis range, Oxxi, will be handling U.S. distribution of the product as *Audiomaster 3.0* - don't be too confused if you see any ads in U.S publications, it's all perfectly legitimate.

New features

● The latest version of the software specifically supports several sound digitisers on the market and is targeted for the user who already has, or is about to buy a sampler. There are a number of new features including the amazing sequencing like feature of "Multiple Loops".

You can assign up to 999 loops or phrases on a single waveform. These loops can then be played in sequence. A short sample can be used to create a long playing digitised tune, or percussion line. Most songs have a lot of repeated sections. By careful editing, arranging and then a little tweaking with the multiple loops you can virtually recreate the original song in a third or less of the space of digitising the entire track.

Coupled with *Audio Engineer's* ability to save in compressed format, it is quite possible to store several minutes of sampled sound on a single floppy disk. A fade point can be assigned so that once a certain loop in a sequence is reached the sample will then fade to silence in much the same way as most commercial music does today.

A series of real time effects are available for rainy days when you want to scare your mother or just annoy your spouse. Echo, Delay and Flange are available - effects which may also be added to samples.

Probably the single biggest improvement is the ability to use all available RAM. Samples of up to eight megabytes may be recorded thanks to *Audio Engineer's* capability to switch samples in and out of CHIP RAM during playback.

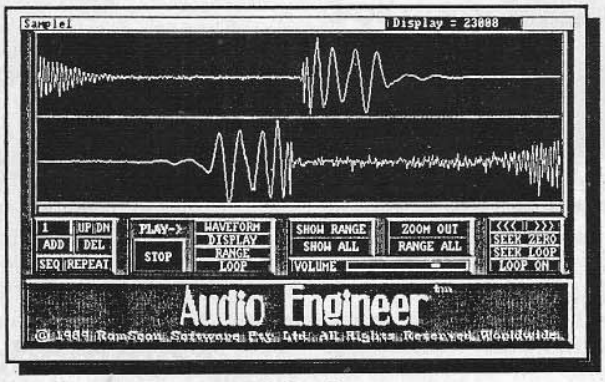
A matter of space

● All this wonderful digitised sound will no doubt take up megabytes of space on your precious floppies. To the rescue yet again, *Audio Engineer* supports a special compressed format. Yes, Single octave Normal or Multiple Loop waveforms in Mono or Stereo, may be saved in IFF compressed format, halving the amount of disk space normally required to store the sample.

Audio Engineer also supports a pause function for use whilst recording. By holding down the right mouse button during sampling, the program "pauses" and records no more data until the button is released. This makes it possible to "edit out" unwanted sections on the fly.

Sampler support

● What if you already have a nifty sampler of your own, but dodgy soft-



Audio Engineer

ware? Well, according to the specifications, *Audio Engineer* can be used to record sound using many other sampler devices. The list includes A.M.A.S., Future Sound 500, Mimetics, Perfect Sound versions 1 & 2, StarSound and a special "Hi Speed" sampler mode.

A professional version

● An additional product, *Audio Engineer Plus*, will be marketed as a combined package of *Audio Engineer* software and a high quality sound digitiser. Ramscan teamed up with another company called Gsoft to produce a top quality sound sampling device capable of supporting *Audio Engineer's* 56,000 samples per second sample rates in Stereo. The resulting sound quality cannot accurately be described in these pages, suffice to say it is in the high order sock-removing department.

Other features of the pro-version include a printer port pass-thru, separate Mic and Line inputs for each channel, independent left/right level adjustment, exceptional audio bandwidth (100Hz to >50K Flat), DC balance (bias adjustment), full dynamic range, ultra low self noise, wide tolerance to DC offset and signal levels and compatibility with all forms of audio input.

Addition programs

● Several extra programs are included on the *Audio Engineer* disk. The best of these is the CD Player. It looks every bit like a CD player, and unlike a lot of other similar interfaces, works like one too. A "Real Time" LED display moves as the sound plays. This program supports all file types created by *Audio Engineer*, including Multiple Loops. With the memory saver option, the player only loads in one track at a time - without it all the selected samples are loaded in at once.

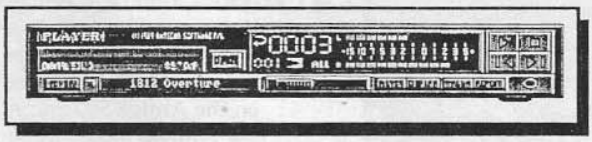
These options are selected using buttons on the CD fascia panel. A volume slide control is included, and clicking on the OPEN button displays a file requestor from which up to twenty samples may be chosen for play. Great for impressing alternate computing platform enemies.

Merge IFF allows two files to be merged to form one output file. All *Audio Engineer* file types are supported. This is ideal for sampling a file in parts and then building them together two at a time to form one longer play file - especially when the entire sample on fit in RAM with *Audio Engineer*.

MultiMaker is a fabulous program for creating samples which work differently in each octave for use as a musical instrument in Aegis Sonix and *Deluxe Music Construction Set*. Up to five octaves can in one sample contain separate instrument samples.

There's also an oscilloscope program for adjusting the bias of your sampling equipment, or just for the fun of a full screen view of the bouncing, jumping sample information.

All samples created with *Audio Engineer* (including Multiple Loops) can be played using a "PlaySound" utility supplied with *Audio Engineer*. This allows you to play music in the background whilst running other tasks such as slideshows.



Audio Engineer CD Player Simulator

GSOFT Audio Digitizer

Conclusions

● *Audio Engineer* comes with a well written and designed manual which guides you through the entire process very smoothly. The whole perfect bound guide is indexed at both ends, chronologically and alphabetically.

Audio Engineer is without doubt the most fully fledged software package for sound sampling available on the Amiga today, and a credit to the Amiga as an example of truly impressive sound editing software for all computers to take a lesson from.

Audio Engineer with the bonus CD player Simulator will retail for $179.95 Australian. *Audio Engineer Plus* will retail for $399.00. See you local Commodore dealer or speak with the chaps at Power Peripherals on (03) 369 7020. ❑

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Other options: Digitising comparison

Sound sampling is not new to the Amiga. Back in the C64 and VIC 20 days, sound samples were recorded using the Commodore Datasette player. The results were crude, tinny sounding and very short. The Amiga's extra large RAM, stereo sound and sophisticated software power has made possible full Hi-Fi quality sound recording or digitising. ***Andrew Dunstall*** *examines several alternatives which provide a bundled solution ...*

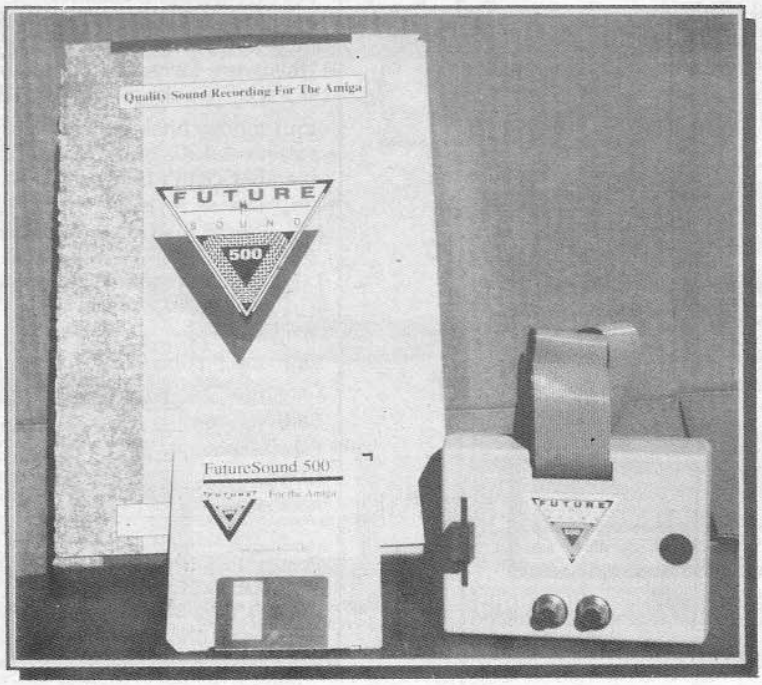
Futuresound 500

Hardware

● The Futuresound 500 audio digitiser is a software-hardware combination for capturing, manipulating and saving ANY audio signal. The hardware consists of an analog to digital converter housed in a 4" by 3" by 1.5" plastic casing. Audio input is via a 3.5mm microphone socket and (stereo) RCA plugs for line-level recording. An input volume (gain) slider is also provided. Connection to the Amiga's parallel port is via a ribbon cable and standard RS232 connector.

Software

● Booting the software reveals a rather spartan interface that reminds me too much of public domain software considering its price. Its four colours are taken from preferences and thus can be altered to taste.



The screen is set up to emulate a four-track tape recorder. That is, it contains a play, stop and record button, rewind (for stepping back through a sample when magnified), forward and monitor (incoming signal through the digitiser). It also features a ladder type input volume display with clip (overload) indicator. Four samples can be held in memory at once, with four buttons at the top to select which track is being recorded to. (Naturally, stereo samples take up two tracks).

In keeping with this four-track analogy, each of the tracks can be muted independently, and have separate volume sliders. Each sample can be looped or "one-shot" and each track has its own "rate" (speed at which the sample is played back) control.

The "sound graph" gives a graphic representation of the sampled waveform, but does not give the user any real editing facilities (like those available in *Audiomaster II*). Start and end positions can be set, and a counter indicates the length of the sample (in bytes). A magnify option is included, plus a line level or microphone toggle icon, mono or stereo toggle and filter on/off toggle.

The filter option warrants further clarification. All Amigas have a built-in low-pass filter that stops frequencies above about 7.5khz being reproduced. This filter can be turned off via software on the Amiga 500 and A2000 but NOT on the Amiga 1000, although supposedly it can be done with a hardware modification to this early machine. (If anyone has performed this hardware mod. could you let us know). A public domain program called "led" will override this filter, good for popping in your *Aegis Sonix* or *Deluxe Music* startup-sequence to regain some "top end", and it only takes up 48 bytes.

Aliasing distortion

● One drawback in realising that you do indeed have "top end" is that it can tend to accentuate "aliasing" noise. Alias-

(continued on page 22)

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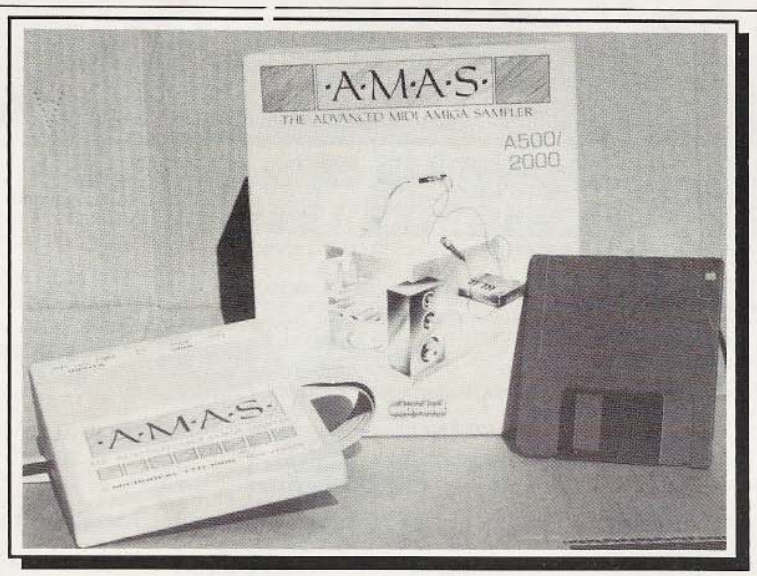


ing noise comes about from sampling a high frequency sound (say 15000 Hertz, or cycles per second) with a sampling rate lower than the highest frequency encountered. If we try to sample a 15khz sine wave with a sample rate of 10khz, the analog to digital converter will scan the waveform 10,000 times a second but encounter a sound oscillating faster, thus the A to D converter cannot make an accurate picture of the waveform and aliasing distortion results. This distortion makes the sample sound "brittle" in the higher frequencies. The sound is all there but it's not a totally faithful reproduction. Using 8-bit sound chips only exacerbates the problem. This is a somewhat simplified explanation but hopefully enough to put you in the picture.

Finally the FutureSound 500 incorporates a Rate, Time and Memory display. The Rate indicates the current sampling rate. Time gives the length of the sample in seconds, possible at the chosen sampling rate. Memory displays the memory needed to record the sample, at the rate selected, for the amount of time chosen.

Three menus are available. The Disk menu allows you to load, save, save as IFF, erase and rename samples and quit the program. The Track menu clears one or all of the tracks, allocates memory or resets a track. The third menu, entitles Bag of Tricks, contains options to reverse a sample, copy or mix samples, zero (silence) part of a sample and scale a sample (make louder or softer).

Conclusion

● All in all, FutureSound does not, in my opinion, give enough manipulation options to warrant its price. I would strongly urge any prospective sampler buyer to compare the alternatives before deciding. RRP $249.00.

A.M.A.S.

Hardware

● Microdeal's Advanced Midi Amiga Sampler combines sampling software and hardware with the option to control the sound via its midi interface (for more on midi see the August 1988 and 89 *Commodore Reviews*). The hardware consists of a wedge-shaped plastic casing 5" by 4" by 1.5" featuring a 3.5mm microphone input and stereo RCA audio inputs. Standard 5-pin in, out and thru midi ports are also included. Ribbon cables ferry the signals to the Amiga's parallel and serial ports.

Software

● All the A.M.A.S. controls are readily available, no pull down menus here. The screen sports left and right channel waveform windows, a button to turn on the spectrum analyser (for a graphic representation of frequencies coming in) and left and right channel oscilloscopes for monitoring the incoming signal.

Auto mode forces the input to reach a certain threshold before the sample is recorded. Eight memory "banks" are available, requiring 200k of memory each. Banks contain a series of samples in "raw" data format (i.e. not IFF format).

Functions are available for looping samples, swapping samples between the left and right channels, mixing (or overlaying) samples, reversing, cutting, copying, compressing, bouncing (stereo from mono) and loading samples. In addition, functions for saving as IFF instruments, clearing banks, adjusting volume, fading, magnifying and filtering samples are included.

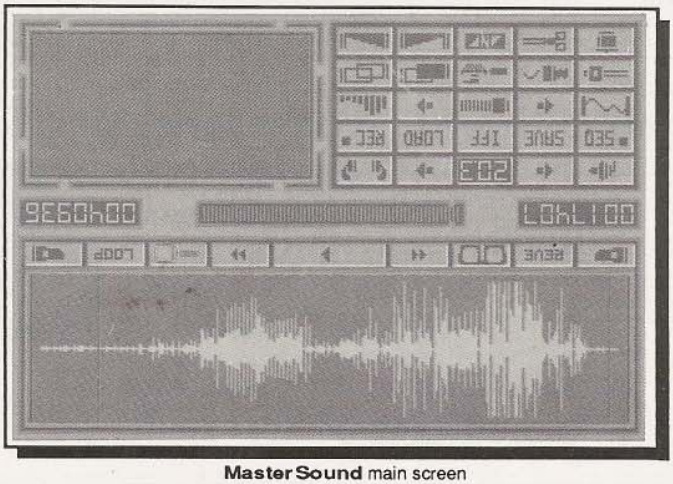
The sample rate can be set from 3.5k (or mud mode) to a respectable 28.8khz. The screen is not cramped considering the buttons available and a quick scan through the handbook should help you remember which icon performs what task.

Midi facilities

● To invoke the midi functions, just click on the midi icon (logical eh?). The midi control panel replaces the sample edit panel at the bottom of the screen. Samples can be assigned to the Amiga's function keys or triggered from a remote midi instrument. Keyboard splits (more than one sample can be played over the range of the external midi keyboard) and octave transpose are available, as are midi channel selection and omni (all midi channels) or mono modes.

Conclusion

● A.M.A.S. is a full featured sampling program that would complement any midi setup, providing the funds were available to accumulate an Amiga



Master Sound main screen

and some midi gear (which is not cheap). RRP $229.00.

Master Sound

Hardware

● Master Sound is also manufactured by Microdeal, hence the similarities in the screen layout (even the handbooks repeat great slabs from each other).

The hardware consists of a 2"by 4" by 1" interface that weds with the Amiga's parallel (printer) port. It looks similar to the A500's RF modulator, has ONE 3.5mm input (that's right, mono) and no input attenuator.

Software

● Functions are provided for moving the edit cursors to the beginning or end of the window (in magnify mode), reversing, magnifying and looping the sample. An auto record function is included, as are facilities for changing playback rate, channel output, input monitoring, volume increase and sample compress.

Samples can be saved as raw data or in IFF format (over one, three or five octaves). There is a real time oscilloscope for monitoring incoming sounds visually and a spectrum analyser (sound familiar?). However, with the spectrum analyser, the input channel cannot be heard while the analyser is working (this goes for A.M.A.S. as well). Samples can also be faded in or out, cut (edited), wiped (part of the sample discarded), mixed, copied and filtered.

One button I have overlooked till now is the sequencer function. This lets you load up to 18 samples at once (memory permitting). The sequencer will function incorrectly if these samples are not recorded at 14.4kz. When set up, you will be able to record a sample mix by tapping out the sample rhythms on the Amiga keypad. Each time a key is pressed, that sample will sound. The program remembers in which order the samples were played and the sequence can be restarted and play the sounds automatically. Editing is available if mistakes are made and the sequence can be saved to disk.

Conclusion

● Overall, the Master Sound sampler was my favourite. Easy to use, nicely laid out, and the ability to save samples as 3 and 5 octave IFF files makes it appealing to any budding computer musician with IFF-compatible music programs but no midi gear (like me). Personally though, I'm more than happy with my "Perfect Sound" sampler hardware (of which there is now Version 3.0) and *Audiomaster II* software. RRP $89.95.

Perfect Sound 3.0

● Sunrize Industries have recently released Version 3.0 of their top selling "Perfect Sound" sampler. Compatible with all the Amiga family, Version 3 features stereo input and input gain attenuator.

Maximum sampling rate is 23.283khz with a frequency response of 11.6khz. Version 3 captures in both IFF and .instr formats and has its C source-code included on the disk. The hardware can be driven by its own software or you can opt for a different interface. RRP $179.00.

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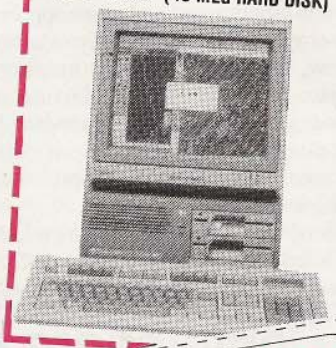

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Title	Amiga	PC	Atari	C64
F-29 Retaliator	●			
Fighter Bomber	●	●	●	●
Indianapolis 500		●		
Hunt for Red October (free movie pass)	●	●	●	●
Dragon's Lair II	●			
Can Do	●			
Teenage Mutant Ninja Turtles	●			
Pipe Mania	●			
Leisure Suit Larry 3	●	●		
Colonel's Bequest		●		

Title	Amiga	PC	Atari	C64
Pro Tennis	●	●	●	●
Double Dragon 2	●	●	●	●
Shinobi	●	●		●
Digi-View 4.0	●			
Deluxe Video 3	●			
Ultima VI		●		
Wide World of Sports Pack	●	●		●
Turbo Outrun	●	●	●	●
Clown O' Mania	●			
Budokan	●	●		●

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Using sound samples with Sonix

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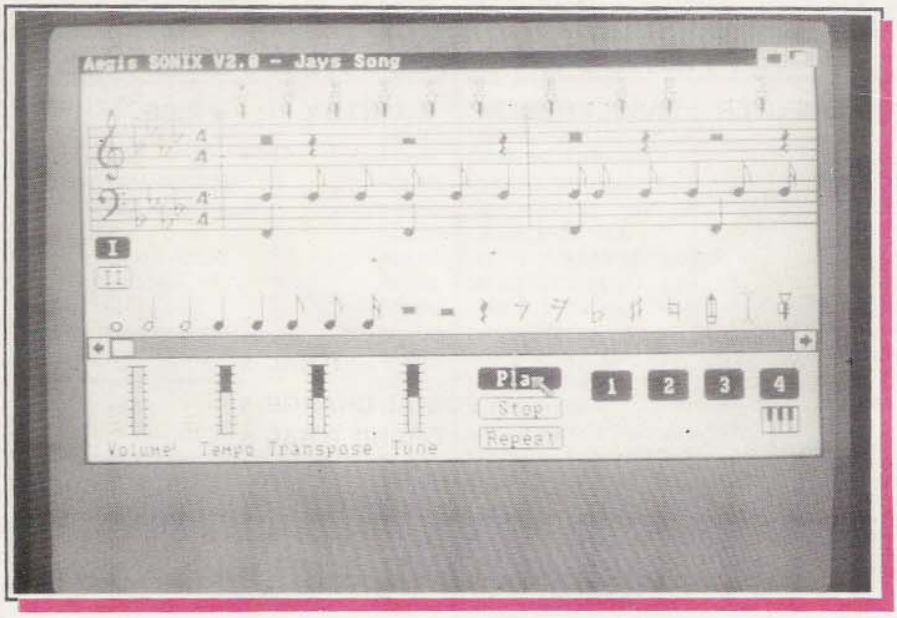
EVERYONE'S HEARD OF the Fairlight CMI. No? The Australian manufactured music computer lugged around the world by the likes of Stevie Wonder. It could record and play back any sound at any pitch, without tape. (Long live the Mellotron). This machine could let you force a chorus of swine to sing the Lord's Prayer.

The Fairlight was a monstrous beast, big as a washing machine, and as heavy. It took 10" floppy disks and had one of those green phosphor monitors that computers used to have when they were the sole domain of accountant types. Thank God things have changed. On recollection, its sampling chips were 8-bit like the Amiga.

By today's standards its sound quality is poor, a problem inherent to 8-bit sampling, restrictions on sound quality are unavoidable. Samplers using 12-bit, 16-bit and higher rates are the professional standard. In comparison the Amiga stands up pretty well as a sampling, sequencing machine that is also a "normal" computer.



If you've come across the Amiga's sound possibilities as an alternative to perhaps your normal computing interests, *Sonix* is a good place to start. Some would ask why bother with *Sonix* when there are many other music programs on the market. Some with interfaces where no knowledge of music theory is needed.

Why use Sonix?

● Sonix is easy to use and inexpensive. It's perfect for the newcomer to sound composition on computers. And its ability to handle samples makes it function more like a tape recorder than a strict music program (which it also is).

You don't need much musical theory to operate it in this fashion. Just find which note on the stave produces the sample playback speed you require.

Say a sample of a kick drum on track 1 sounding every 4 beats of the metronome, track 2 playing a snare once every 2nd and 4th beats. The most basic of rhythms, I agree, but enough to let you see that, given enough tracks, you could build an orchestra.

Sonix gives you four tracks. Just like audio recording to tape, care has to be taken when sampling. Clean samples with the best signal to noise ratio and little background noise are obviously what we're after.

Amiga audio output to a decent stereo is imperative. The 1084S monitor might be stereo but trying to get a decent kick drum sound through a 4" speaker will always prove a fruitless exercise. I also use a small Alesis digital stereo reverb to get some life into the sounds.

One can find second hand digital reverbs for three or four hundred dollars. Old spring reverbs are a waste of time.

Getting samples in

● *Sonix* can't play IFF standard sample files. At first this may seem like a drawback, given the amount of IFF data available, but there is a limit on the size of samples in the IFF format. I have found, using *Deluxe Music Construction Set* from Electronic Arts, IFF samples over about 70k in length will either be truncated or not sound at all. In *Sonix* there does not seem to be as severe a restriction. I have used samples that are over 100k in length without a problem provided one megabyte of ram is available. As usual, the more ram the better.

Samples in the *Sonix* format also seem punchier or fuller than IFF. The Amiga four channel output sometimes flicks from one channel to the other during playback, depending on what sample comes in when. This can be frustrating and I don't know of any way to control it. Any ideas out there?.

Because *Sonix* doesn't use IFF, samples have to be captured using sampling software that lets you save files using the *Sonix* extension .ss. If I sample the guitar, *Sonix* would look for the file guitar.ss in the instrument drawer. It also creates a file ending in .instr. All sound that can be used by *Sonix*, whether it be samples or sounds created in the instrument creation window, have the suffix .instr.

The new AudioEngineer software from RAMScan ie ideal for the job.

All processing of the sample must be done before it is put into *Sonix*. You may wish to turn part of the sound around or edit a glitch. None of this can be achieved within *Sonix*. The program's waveform table window, showing you what sample data there is, is really a non event.

You can change the speed, depth and delay of vibrato of a sample (great), and the A.D.S.R. and that's about all. A.D.S.R. stands for Attack, Decay, Sustain and Release and is represented in the window by 8 sliders. Rate 1 sets the time it takes for the sample to reach the volume set by the level of slider 1. Likewise rate 2 is interrelated to level 2 and so on to 4.

This "envelope generator", as it is known, is for setting how the sample will sound volume-wise over time. The sample might start straight away and over its length become softer or you could set it up to fade in and fade out. Playing around with these controls is the best way to understand it.

Obviously more modification options would be helpful, but after all this is not a sampling package, mainly playback and sequencing.

Using your samples

● Once you have some of your own samples in the Sonix instrument directory you'll want to use them in a composition. Double click on the trumpet icon in the score window. A requester box will open letting you choose what sample to load. Once loaded select a note value and paste it on the stave (just like in real music). Hit the play button to hear the sound. Was it the right pitch and length? Obviously the

(continued on page 32)

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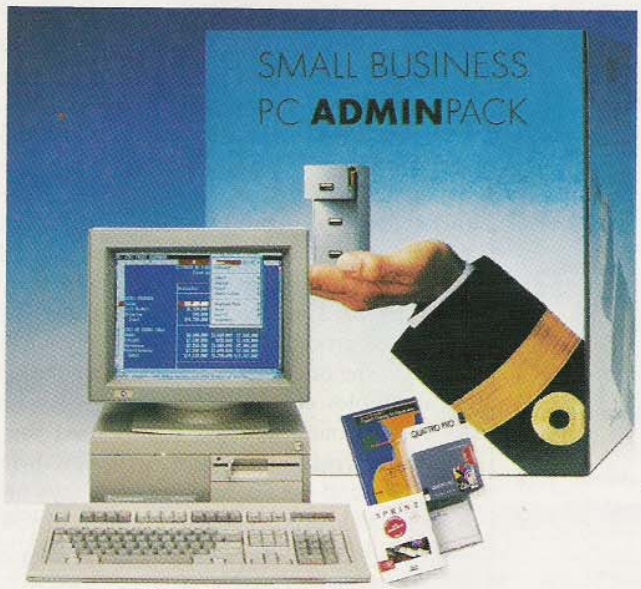

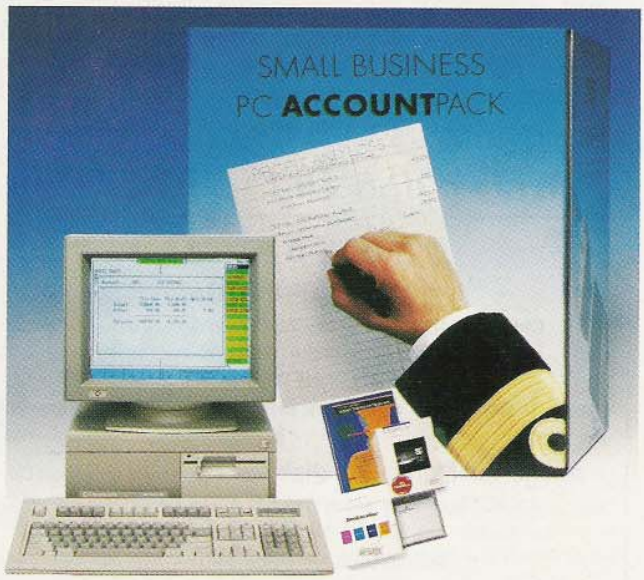

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higher the note on the stave the higher the sound or playback speed of the sample.

This is related to the rate at which you sampled the sound. If it was a long sample it might not have played all the way through. Try a longer note value, or slow down the tempo. (Unfortunately *Sonix* doesn't give you the facility to tie notes together so extra long samples will always be cut off even when using slow tempos).

Sonix's tempo control does not give fine enough control over the speed of the composition to loop a sample precisely, but drum beats and the like, using short percussive sounds, are easy to write and then build on. One way to conserve tracks is to write your drum beat on the one track. Load a kick drum sound and enter the kick drum notes. One pitch value should be used, unless you want a kick drum that changes pitch, and therefore length. Then load a snare drum into the same track and enter the note values. Pitch changes here can emulate different sized drums. Then load your kick drum sound and repeat the procedure. You will have your kick and snare on the one track with the other three free for vocal samples, etc.

Sydney band Severed Heads used the Amiga and sound creation program *Synthia* on their last album, "Rotund for Success" (or so it says on the album sleeve), so it's good to see that, in spite of its undeniable limitations, the Amiga can be used for audio at a professional level.

(We hope to be interviewing Tom Ellard from the band about his use of the Amiga, in both their audio and video work, in the coming months).

Sonix Soundtrax!

● To give you a demonstration of the quality obtainable from *Sonix*, Aegis released the *Sonix* "Soundtrax" series of interactive compositions. Just load *Sonix* and then insert the Soundtrax disks and choose a song to play. I was impressed that such good quality sound could come from the Amiga. Don't forget to run LED first. Once loaded you can dissect the music to see how it's done.

Hopefully you'll be tempted into tampering with the Amiga's sound facilities. Who knows, you just might learn a thing or two about music. Sampling is here to stay. Listen to any popular music and chances are you'll hear samples (especially rap and house music).

Just think, for the price of an Amiga 500 and a sampler, you've got a mini Fairlight. And you don't need five roadies to lug it around. ❑

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The GEOS Column

After months of pleading, days of anxiety and hours of perusing hopeful GEOS columnists' submissions, we finally decided to give ***Bruce Lyon*** *the reins. Over to you, Bruce...*

BY NOW, I expect most Commodore C64/128 owners have heard about GEOS. It is an acronym for Graphics Environment Operating System, which has been the official alternate operating system for the C64/C128 since 1985. In fact it now comes shipped with every new C64c. It was written and developed by a Company called Berkeley Softworks in the USA. This column is intended to delve into GEOS from an end user's, and a programmer's point of view. Product reviews may occur from time to time, but the use of software and the programming aspects are intended as the main focus. Items from both areas will be addressed each issue.

Seasoned *AC&AR* readers will have seen the various reviews of the suite of GEOS add-on products over the past 12 - 24 months. Indeed, an excellent summary can be found in the 1989 Commodore Annual, still available from *AC&AR*.

I do not intend to repeat the comments about products already made. There are many other issues that GEOS users want to hear about, and programming aspects that can keep one busy for hours.

To kick off the ball, I thought we might look at two items. Use of high res graphics in word processing and desktop publishing, and the development of a small GEOS application, that should be quite a useful utility. In fact it was instrumental in the preparation of this article.

Word processing & High Res graphics

● Firstly, GEOS has many powerful aspects, not the least of which is the integration of high res graphics and text in the word processing/desk-top publishing arena.

One problem is that if you're busy word processing and want to add something special to your document, you may want some artwork. But if you've ever tried drawing, even with *GeoPaint v2.0*, it still takes time - maybe as long as the article you're preparing. So what do you do? Forget the graphics?

Well, an alternative is to use what is commonly known as clipart, ie: you cut out someone else's art work and incorporate it in your work. This is truly plagiarism at work. How do you get clipart into your document? Where can you get clipart? What about other products' clipart?

Firstly, the mechanism to get a high res graphics into your wp document is to use the edit-paste-picture menu option within *GeoWrite*. This requires that a photo scrap file be resident on the disk that you double clicked (or opened) *GeoWrite*. You can use the photo manager (supplied with GEOS) to cut or copy a photo scrap from a photo album (a special GEOS file).

Another possibility is to go straight into a *GeoPaint* document and using the area tool, cut or copy a photo scrap from there. When you create a photo scrap, it is to be found as a special system file called, strangely enough, "photo scrap", on the disk you loaded the photo manager or *GeoPaint* from.

You can copy that file just like any other file, ie click on it to select it, then copy it to the disk you have your word processor running from (unless it is on the same disk).

A product out recently which can also produce great photo scraps is the *GeoChart* program. This will be fully reviewed next issue. It is a very mouth-watering product, easy to use and the charts look great in a wp document.

Now where do you get clipart? This is an open ended question, with many possibilities.

One suggestion *AC&AR* readers may wish to follow up is a clipart swap club. When you have some moments, doodle away with *GeoPaint*. When you have produced one whole page, send it into *AC&AR*. Contributions will be combined into clipart disk(s), that will be available at a modest cost to readers through the *AC&AR* disk service. Those whose contributions are included would receive a free copy of the disk so produced.

There are other sources of clipart. For example, if you happen to have a copy of *Newsroom, Print Shop, PrintMaster* there is a utility called graphics grabber that easily converts these products' data files into either a photo scrap or a photo album. You will find graphics grabber on the DeskPak 1 accessories disk.

GEOS only allows one photo scrap file per disk. However a photo album can contain many "scraps"and you can also have many albums per disk. There are many possibilities here. Sort clipart into albums according to certain groupings. eg: animals, sports, electric circuit symbols, cartoons etc. If you have the time to prepare albums, some pocket money can be made if you want to sell the finished product.

Well, that's just about covered the basics of graphics in wp applications. One other point - if you're running *GeoWrite* v2.0 or above, you can have variable margins per paragraph. GEOS considers a photo scrap as one paragraph. Thus its position in the page can be controlled by the left and right margin icons.

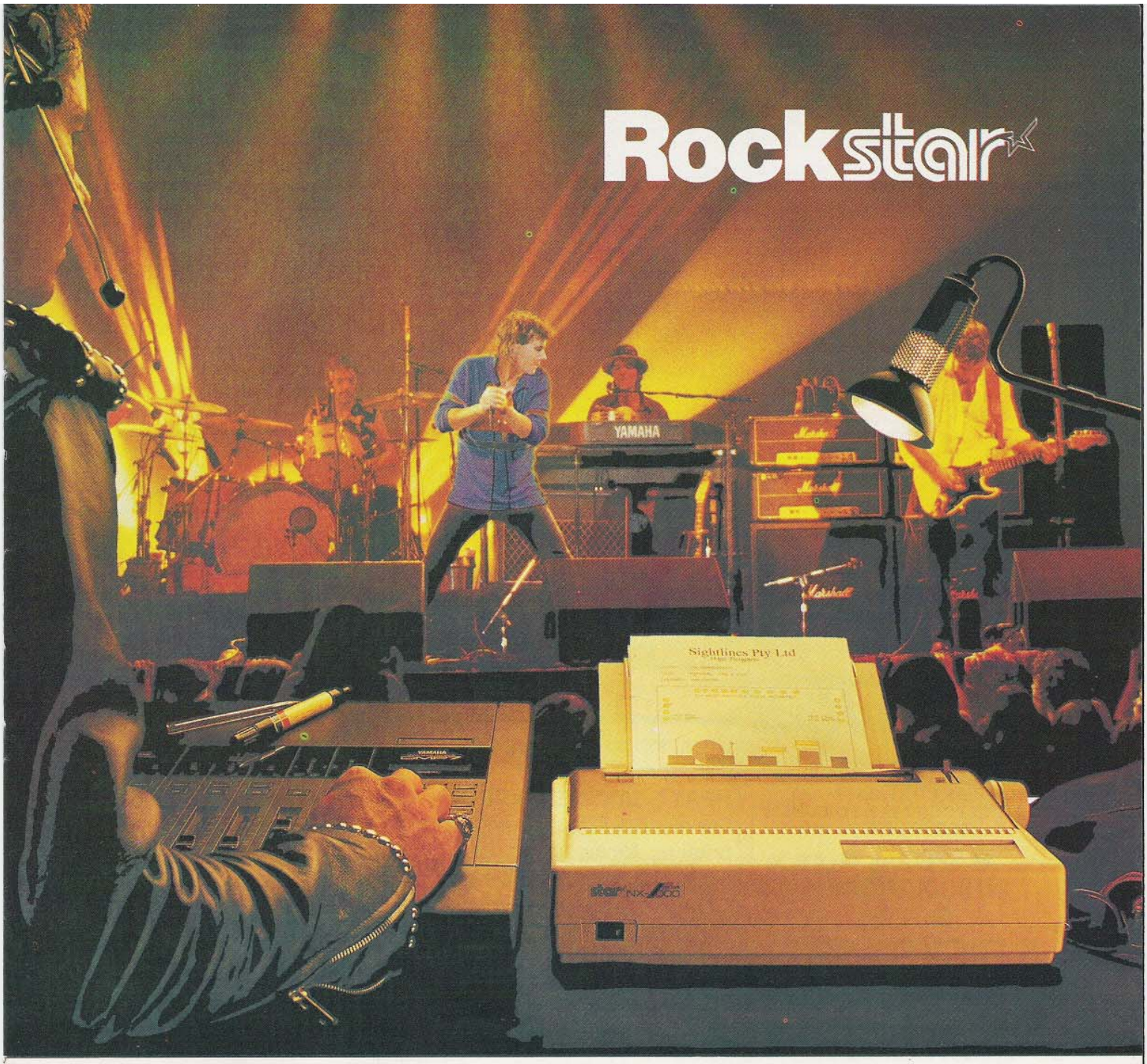
If the margins are closer together than the width of the scrap, a cropping effect can be introduced. Please note a photo scrap should be on a line by itself, no text can reside on the same line. If you need this, you are getting into the desktop publishing arena and *GeoPublish* is the answer for you.

Programming

● Now what about all you programmers out there. Have I got some news for you. Perhaps you've just mastered some BASIC, or perhaps you consider yourself a machine language guru. Well, there is not a package around that comes close to *GeoProgrammer*.

I will describe briefly the features that really impress me and what we will be

(continued on page 36)



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using, then we will get into the start of a small utility program I promised.

Before I go any further. If you are going to program, you need good documentation. This is a must to prevent frustration, and be efficient with your time.

I strongly suggest you obtain a copy of the official GEOS Programmer's Reference Guide. (This does not come with *GeoProgrammer*, but you do get an excellent reference manual describing the product itself when you buy *GeoProgrammer*).

GeoProgrammer is a professional package that runs under GEOS. It is reviewed elsewhere, but some of its salient features are worth mentioning. Source code editing is done via *GeoWrite*. *GeoProgrammer* comes with a complete documentation set and fully documented files with all the constants defines and memory map locations.

Every GEOS kernel service can be easily called by symbol name, not a hex code. The assembler level programming package incorporates a powerful assembler capable of macro expansions, linker for unlimited multiple source files, and symbolic debugger.

GeoProgrammer includes template source files to make application development even easier. We are using one of their template files for this small application. You can develop small sequential assembler programs, another type called a desk accessory and most powerful but more complex is overlays.

Even though the C64 has only 64k, with overlays you can do just about anything, anysize. Eg: the *GeoPublish* package comes as a 99k assembler module and runs fine. Why? Only parts of the code are ever actually memory resident, with the overlay manager taking care of which parts are called in when necessary.

The famous PDP11 minicomputer, still around in many establishments, uses exactly the same ideas. Apart from the multiuser capability, there are many similarities. GEOS is event driven, so is the PDP11. A program has a 64k address space both on the 64 and PDP. The PDP11 allows overlays so that larger programs can be slotted into that 64k limitation. So does ... *GeoProgrammer*. Now there is a performance difference here - but then a PDP doesn't cost less than $650.

Programming GEOS without *GeoProgrammer* is not a worthwhile proposition. Most of your time with *GeoProgrammer* is spent being extremely productive. The drudgery of ml is gone. Even better than BASIC. You spend most of your time designing the user interface and program algorithms.

Most of GEOS is tabledriven. eg: menus and sub-menu choices are created by giving co-ordinates for corners, text for menu choices, and service routine addresses for GEOS to service menu/submenu choices.

The application we will implement is called *GeoASCII*. It is programmed using the sample template supplied with *GeoProgrammer* for a simple sequential application. It does not have built-in support for desk accessories.

GEOS is great for getting text from other wp systems (*EasyScript* etc) and importing via text grabber into *GeoWrite*. But GEOS data files use a special structure (called vlir) not compatible with standard C64/1541 prg or seq files. Therefore we have a problem, we can get text in - but not out.

Of course, the question begs - why would you want to get it out? Well there are times ... eg: I like *GeoWrite* so much as a text preparation environment that I would like to prepare code here bound for other environments - even IBM's or other C64 languages (eg: Super-C, Pascal etc) or maybe a friend wants an article for other purposes and doesn't use GEOS. Hmmm.

So now to a brief program specification (always plan!) ... *GeoASCII* must take text from a *GeoWrite* data file, and put it out into a straightforward 1541 sequential file (either in prg or seq) format.

The input files must be distinguished from output files, preferably by a three character suffix (eg: infile.out). Drive configurations (eg drive a input, drive b output) should be selectable. On screen help would be nice. Conformity with the general GEOS operating environment (or user interface) is good practice.

Well *GeoProgrammer* makes fulfilling this sp[illegible] [illegible]able task. The last sp[illegible]c is already im[illegible]mented using the standard GEOS template! We are only going to go through the main program driver this issue. This will enforce

(continued on page 38)

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the concept of top down programming. ie: get the issues sorted out at the top, and leave the detail till further down the track (next issue).

The main source is included below and the code is freely commented for clarity. General comments about specific points of interest and techniques follow.

The code is segmented into different functional files for ease of maintenance and fault finding. During development, each program segment was a simple code "stub" (ie: called, but a simple rts was issued), until it came time to develop and expand that particular function. This enabled the whole application to be assembled, linked and partially tested at all times, even though only parts were actually fleshed out.

You will notice the extensive use of long subroutine names and variable names. BASIC was never like this. The assembler is quite happy for names to be significant to 8 characters. I use more for clarity of purpose, you should name according to what each thing is or does.

The assembler is a two pass assembler. It processes source code twice to correctly resolve both forward and backward references. The assembler uses three independent counters to work out where your code will end up. A zero page counter, a program code counter and a uninitialized data space section counter.

The resultant file is a filename.rel file which contains binary relocatable object code. This means the code isn't slotted to any fixed address yet - this is done by the linker under the control of the .lnk control file. This mechanism lets us have various source files that we can assemble to .rel files.

Then we link these together to form a non-relocatable, runnable memory image or program. Any names not resolved within a single assembly, are left for global resolution by the linker.

If we make a change to one source file, just make the change, assemble it and then relink all the other module .rel files - rather more quickly than having to re-assemble the entire program!

The basic way the main program works is to load a series of registers with the required data structure addresses, (eg: lda r0,#data-structure), and then call the function, (eg: jsr function) either a GEOS system routine, or a user (thats us) supplied affair.

Thus the hard bit consists of setting up the data structure (eg: a menu table, or a dialog box, or an icon). This means we can get straight into the actual design issues (eg: what part of the screen will be allocated to what function). A much more productive environment.

GEOS allocates 15 general purpose 2 byte pseudo-registers in the zero page (which is of course very fast for data access - due to less cycles needed for zero page addressing). These registers are the only way data should and can be passed to GEOS system routines.

It allows a very neat, standard, and fast interface for program development and execution and it means also not having to know an incredible array of memory locations for programming (cf: basic pokes). Thus we set up table address into a register, then call a subroutine.

Each table (or data structure) consists of a table name (unique identifier) to allow the assembler to know where the data is (notice absolutely no hex - the assembler/linker worry about this), followed by a series of byte or word (2 byte) data lists, finally terminated by a null (0). Each table is set up according to the function being called. The tables are commented and self explanatory (see main program listing).

Well, in the next issue the rest of the files will be published with additional comments where appropriate. In the meantime type in this source and think about how you might try to code this program. ❑

GEOS ASCII Program

```
;*****************************************
;   GEOASCII
;   this application takes a geowrite vlir text data file and
;   converts it
;   to a commodore standard sequential data file. this file

;   can therefore be used to output
;   data to non geos environments, including other
;   hosts/pc's. it contains all of the code
;   and data required for assembly.
;
;the files that comprise this application, and their purpose
are
;listed below :
;
;geoasc    main program source
;geoaschdr    application file header description
;geoasc.lnk    linker control file
;geoascloc    global locations include file
;doabout    sub menu "about" service routine (s.r.)
;doquit    sub menu to quit application s.r.
;doopen    sub menu open input file & convert s.r.
;dodrives    sub menu to setup drive i/o s.r.
;dofileext    sub menu to nominate file extention s.r.
;dofiletype    sub menu to nominate prg or seq output file
s.r.
;
;*****************************************


.if    pass1        ;only need to include these files
            ;during assembler's first pass.
.include    geossym        ;get geos definitions
.include    geosmac        ;get geos macro definitions

;    local equates

.include    geoascloc        ;get geoascii local equates

.endif

;our program starts here. the first thing we do is clear the
screen and
;initialize our menus and icons. then we rts to geos
mainloop.
;when an event happens, such as the user selects a
menu item
;or one of our
;icons, geos will call one of our handler routines.

    .psect        ;program code section starts here
        ;(geolinker will give this an address of $0400)

progstart:

    loadb    dispbufferon,# (st wr fore | st wr back)
        ;allow writes to foreground and background

    loadw    r0,#clearscreen    ;point to graphics string to
clear screen
    jsr    graphicsstring

    ; now check if initialising needed, and if so do it,
    ; else check if valid operating system kernal id
    jsr    checkkeyinit

    loadw    r0,#menutable    ;point to menu definition
table
    lda    #0    ;place cursor on first menu item when done
    jsr    domenu        ;have geos draw the menus on the
screen

    loadw    r0,#icontable    ;point to icon definition table
    jsr    doicons    ;have geos draw the icons on the
screen

    loadw    r0,#banner    ;point to graphics string to put
up application banner
    jsr    graphicsstring

    ; lastly one must pass control back to mainloop

    rts;here are some data tables for the init code shown
above:

clearscreen:        ;graphics string table to clear screen
    .byte    newpattern,2    ;set new pattern value
    .byte    movepento    ;move pen to:
    .word    0    ;top left corner of screen
    .byte    0
    .byte    rectangleto    ;draw filled rectangle to bottom
right corner
    .word    319
    .byte    199
    .byte    null    ;end of application

menutable:        ;menu definition table for main
horizontal menu
    .byte    0,14    ;top and bottom y coordinates
    .word    0,84        ;left and right x coordinates
    .byte    3 | horizontal    ;number of menu items, type
of menu

    .word    geostext    ;pointer to text for menu item
    .byte    vertical    ;type of menu
    .word    geossubmenu    ;pointer to menu structure

    .word    filetext    ;pointer to text for menu item
    .byte    vertical    ;type of menu
    .word    filesubmenu    ;pointer to menu structure
```


(continued on page 42)

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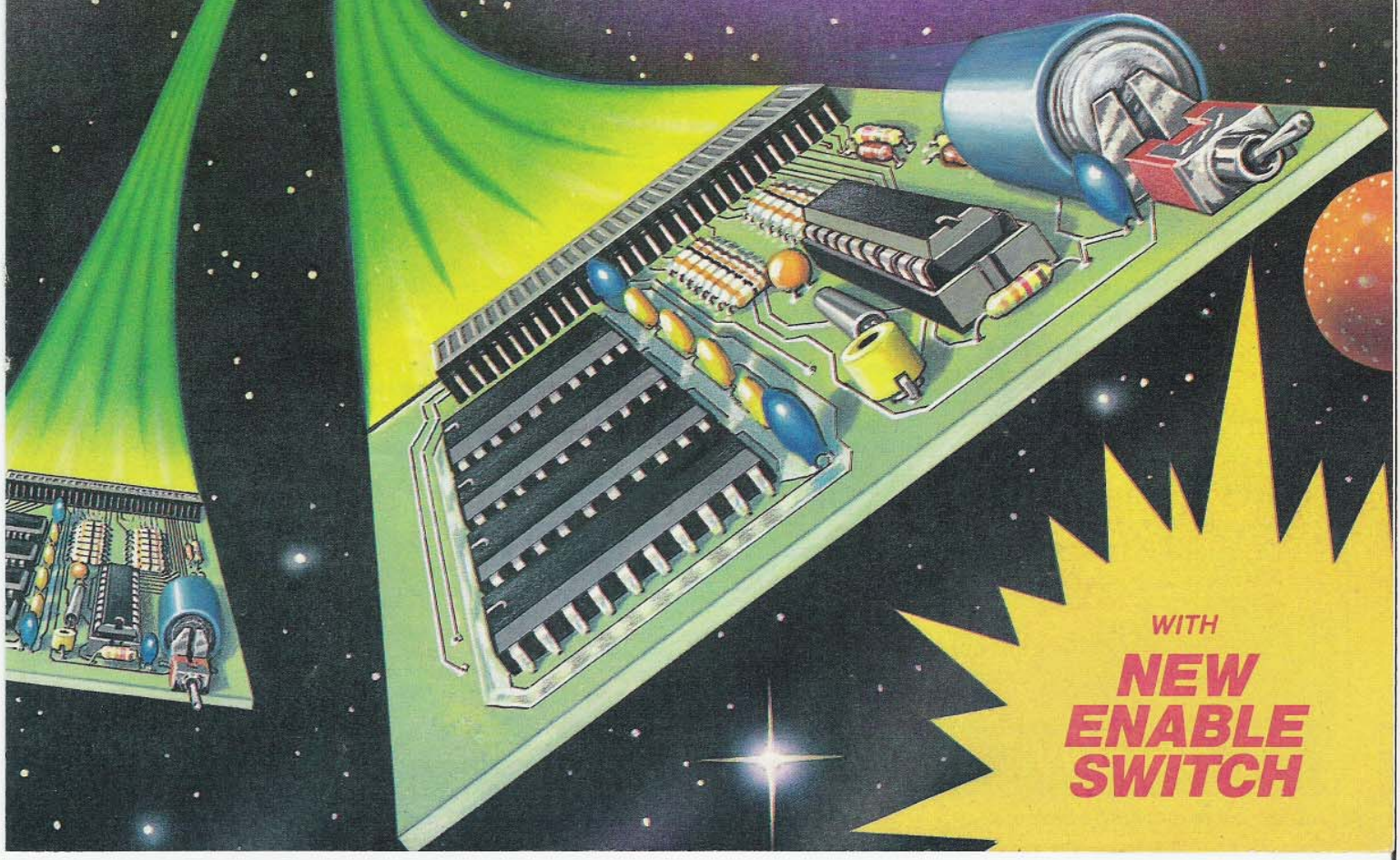

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```
   .word    optiontext    ;pointer to text for menu item
   .byte    vertical    ;type of menu
   .word    optionsubmenu    ;pointer to menu structure

geossubmenu:        ;menu definition table for geos
vertical menu
   .byte    15,30    ;top and bottom y coordinates
   .word    0,79        ;left and right x coordinates
   .byte    1 | vertical    ;number of menu items, type of
menu

   .word    abouttext    ;pointer to text for menu item
   .byte    menu action    ;type of action
   .word    doabout    ;pointer to handler routine

filesubmenu:        ;menu definition table for file vertical
menu
   .byte    15,44    ;top and bottom y coordinates
   .word    30,80        ;left and right x coordinates
   .byte    2 | vertical    ;number of menu items, type of
menu

   .word    opentext    ;pointer to text for menu item
   .byte    menu action    ;type of action
   .word    doopen    ;pointer to handler routine

   .word    quittext    ;pointer to text for menu item
   .byte    menu action    ;type of action
   .word    doquit    ;pointer to handler routine

optionsubmenu:        ;menu definition table for file
vertical menu
   .byte    15,60    ;top and bottom y coordinates
;  .byte    15,74    ;4 menu top and bottom y
coordinates
   .word    48,160        ;left and right x coordinates
   .byte    3 | vertical    ;number of menu items, type of
menu
;  .byte    4 | vertical    ;4 menu number of menu items,
type of menu

   .word    drivestext    ;pointer to text for menu item
   .byte    menu action    ;type of action
   .word    dodrives    ;pointer to handler routine

   .word    fileexttext    ;pointer to text for menu item
   .byte    menu action    ;type of action
   .word    dofileext    ;pointer to handler routine

   .word    filetypetext    ;pointer to text for menu item
   .byte    menu action    ;type of action
   .word    dofiletype    ;pointer to handler routine

   .word    petsciitext    ;pointer to text for menu item
   .byte    menu action    ;type of action
   .word    dopetscii    ;pointer to handler routine

;text strings for above menus

geostext:
   .byte    "geos",0
filetext:
   .byte    "file",0
abouttext:
   .byte    "geoascii info",0
opentext:
   .byte    "open",0
quittext:
   .byte    "quit",0
optiontext:
   .byte    "options",0
drivestext:
   .byte    "drive setup",0
fileexttext:
   .byte    "output file extension",0
filetypetext:
   .byte    "output file type",0
petsciitext:
   .byte    "output text conversion",0

;icon definition table

icontable:
   .byte    1    ;number of icons
   .word    0        ;x position to place mouse at when
done
   .byte    0    ;y position to place mouse at when done

   ; geos requires at least 1 icon to be defined even if it
is only a dummy so here it is

   .word    0    ;pointer to compacted bitmap for icon
   .byte    0    ;x position in bytes
   .byte    0        ;y position in scanlines
   .byte    1    ;width of icon in bytes
   .byte    0    ;height of icon in scanlines
   .word    doicon1    ;pointer to handler routine

banner:
   .byte    newpattern,0    ;pattern fill 0 (white) for
rectangle
   .byte    movepento,{80,}80,150    ;starting corner
   .byte    rectangleto,{240,}240,190 ;end corner for filled
rectangle
   .byte    newpattern,1    ;pattern fill 1 (solid) for
rectangle
   .byte    movepento,{80,}80,150    ;starting corner
   .byte    frame recto,{240,}240,190 ;end corner for
frame
   .byte    esc putstring    ;now define the text to print
inside the box
   .byte    {120,}120,160    ;x lo, x hi, y positioning
   .byte    plaintext,boldon
   .byte    "- geoascii -"    ; application name
   .byte    gotoxy,{120,}120,173,plaintext ;
positioning/style
   .byte    " by"
   .byte    gotoxy,{110,}110,186 ; positioning/style
   .byte    " bruce r.c. lyon - 1989",null    ;credits

; intialisation code goes here

checkkeyinit:

   ; code to check kernal id string against that stored
here as well
   ; as first time initialising

   rts; event handler routines: are called by geos when
an event happens,
; such as user selecting a menu item or clicking on an
icon.

; these are all bundled out into separate files for easy
development & maintenance

doicon1:
   ; this is a dummy icon - not needed for this application
but need at least one for
   ; sake of geos - hmmf!

   rts

   .ramsect        ; uninitialised data space
filenamebuf:
   .block    30    ; reserve in psect 30 bytes for filename
(30 for safety)
inputbuffer:
   .block    size in buffer    ; 1 pages worth of text
outputbuffer:
   .block    back scr base-outputbuffer-3 ; declare output
buffer area
```

Advanced Basic:
C64 and Hires Graphics

by Nick Van Heeswyk

WELCOME ONCE AGAIN to "Advanced Basic". This month I will be covering some of the major points of Hires Graphics.

Firstly the Hires screen is made up of 320 by 200 pixels. A pixel is one individual dot on the screen, a sprite is made up of pixels and so are characters.

You can program Hires in either normal mode or multi-colour mode. In multi-colour mode the pixels pair up the same way as you were to have multi-colour mode in sprites or character sets. To get a screen ready for plotting we need to type in some commands. The screen takes a while to set up, so be patient with it. (After you have seen enough of the demonstration of any of these programs, use run/stop restore to exit.)

```
NEW (return)
5 REM BY NICK VAN HEESWYK
10 POKE 53272,29:REM MOVE SCREEN
20 POKE 53265,59:REM SWITCH ON HIRES
SCREEN
30 FORJ=8192TO16191:POKEJ,0:NEXT
40 FORJ=1024TO2023:POKEJ,16:NEXT
45 REM KEY PRESS AND POINT
50 MO=8192
55 POKE 650,128
60 GETA$:IF A$=""THEN 60
70 IFA$="A"THEN Y=Y-1
80 IFA$="Z"THEN Y=Y+1
90 IFA$="N"THEN X=X-1
100 IFA$="M"THEN X=X+1
110 Q=MO+INT(Y/8)*320+8*INT(X/8)+
(YAND7)
120 IFQ16191 THEN 60
130 POKE Q,PEEK(Q)OR(2!(7-(XAND7)))
140 GOTO 60
```

Where the exclamation mark is in line 130 replace it with an arrow up which sits next to the restore key. The exclamation mark is there because the computer I write my articles on does not have an arrow up key. You can now plot with the keys : A ,Z ,N and M. Now a short explanation.

Line
- 10 - Move screen
- 20 - Switch on Hires screen.
- 30 - Clear screen
- 40 - Poke in desired background
- 60-100 - Check for key press
- 110-130 - Check and plot
- 140 - Go back to line 60

Plotting yourself

● You can plot single pixels one at a time to create your own screen which is a

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lot like tapestry. First we design our picture, make it simple like a square. Now we set up our screen.

```
NEW (return)
5 REM BY NICK VAN HEESWYK
10 POKE 53272,29
20 POKE 53265,59
30 FORJ=8192 TO 16191:POKEJ,0:NEXT
40 FORJ=1024TO2023:POKEJ,16:NEXT
45 REM MAIN PROG
50 READ X,Y
60 C=INT(X/8):R=INT(Y/8)
70 B=8192+ROW*320+C*8+(YAND7)
80 BI=7-(XAND7)
90 POKE B,PEEK(B)OR(2 ! BI)
95 GOTO 50
100 REM DATA
110 DATA
100,100,101,100,102,100,103,100,104,100,40
0,400
```

Don't forget to change the exclamation mark to an arrow up. When you run this small program you should see a small line being plotted. The new lines may look confusing but are easy to understand.

Line
50 - Read co-ordinates X and Y.
60 - Divide our co-ordinates by eight.
70 - We use this line to figure out the byte.
80 - This line figures out the BIT.
90 - Plot the co-ordinate.
95 - Return to line 50.
100 - - Place data here.

By changing the data we can form different shapes and figures. But remember the program reads an X and Y coordinate so remember you need two numbers to plot the one pixel. This process takes a lot of time to form a decent picture, but experiment with it so you know how it works. Place data 400,400 to signal the end of the data reading.

You can also use loops to create straight or diagonal lines which is simpler to do. Keep lines 10-45 because we need those lines to set up our screen.

```
50 FOR X=100TO200:Y=100
60 C=INT(X/8):R=INT(Y/8)
70 B=8192+R*320+C*8+(YAND7)
80 BI=7-(XAND7)
90 POKEB,PEEK(B)OR(2 ! BI)
100 NEXT
110 END
```

Change the exclamation mark to an arrow up once more. Once the program has been run, it sets up the screen and plots a line moving horizontal. Now by using those simple processes we can create triangles, squares etc. But how can we create a circle by using just a few lines? Well, the formula is a bit more complex but if you read carefully you will find it is not so hard. Keep those lines 10-45 once more.

```
50 FOR I = 0TO(pie)*2STEP2/RA/(pie)
60 X=SIN(I)*RA:Y=COS(I)*RA
70 C=INT(X/8):R=INT(Y/8)
80 B=10000+R*320+C*8+(YAND7)
90 BI=7-(XAND7)
100 POKEB,PEEK(B)OR(2 ! BI)
110 NEXT I
```

Where pie is written in brackets just place a pie sign there and change the exclamation mark to an arrow up. Lines 50 and 60 work out what X and Y are without us doing anything. Before running the program change the RA to the radius you desire. First of all try 30 as your radius. By changing the lines in the above program, you can plot a sine wave.

```
50 FOR X = 0TO320
60 Y=100+SIN(X/50)*100
110 NEXT X
```

In line 80 change the 10000 back to 8192. Try changing the 50 and * 100 to different numbers. If you replace them both with ones you'll get a wave like effect.

Multi-colour

● In normal mode there are only two colours, which are the background and the character. With multi-colour we can add two more colours - border and auxiliary. Now it takes two bits to define one dot, which now is two pixels wide. They pair up the same way sprites and characters do.

The colours selected by each two bits are :

Bit Pair	Colour Register	Location
0 0	Background 0	53281
0 1	Background 1	53282
1 0	Background 2	53283
1 1	Lower 3 bits in colour mem.	Colour RAM

To use multi-colour mode it is best to have a black background and foreground which can be achieved by having this as your first line.

```
POKE 53280,0:POKE 53281,0
```

Now to get multi-colour enabled you need this to be your second line.

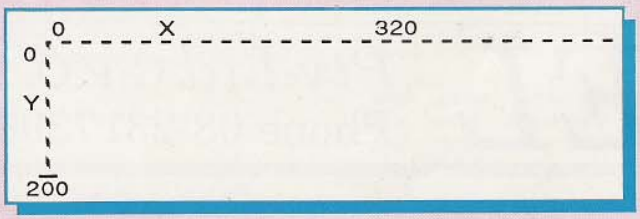
```
POKE 53265,PEEK(53265)OR32:POKE
53270,PEEK(53270)OR16
```

Screen Map

● Just in case you have no idea how to design drawings, I'll quickly go over it for you. First take a sheet of A4 paper and draw up the following (see below).

Where the small dot is, that point is around 100,100. Its works the same as a graph working from the top. The further you move out on the X axis or Y axis, the greater the number. You should have caught on as there is no hard point about it, just use logic. This kind of set-up sheet is good to design simple pictures which do not need to be drawn up accurately. If you're a Tech drawer, you can easily use mm's as one pixel. There are a lot of programs around which enables you to create your Hires drawing - *Blazing Paddles, Advanced Art Studio, Koala Painter* etc.

Well, that's all for this month, look out for other "Advanced Basic" articles in the near future. ❑



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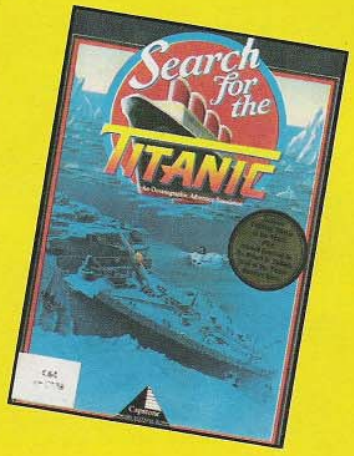

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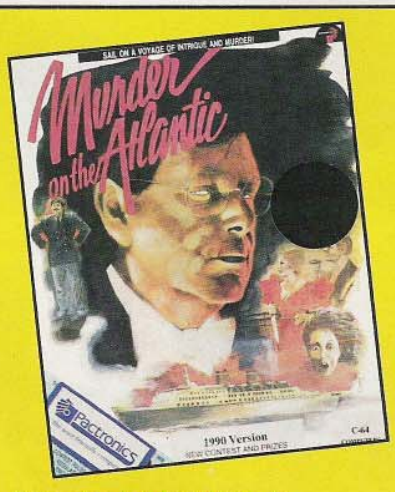

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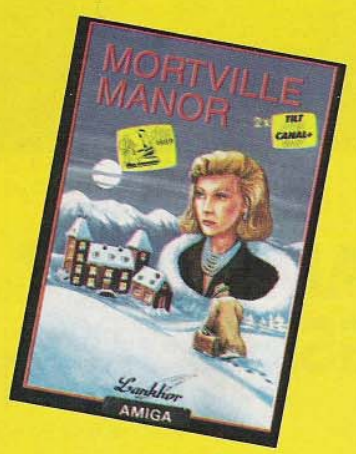

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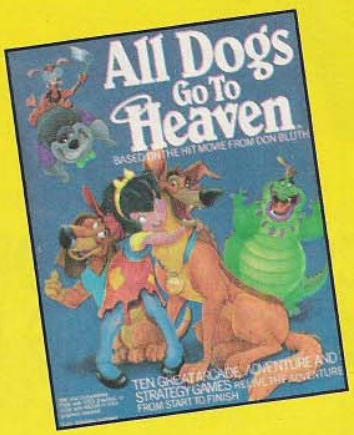

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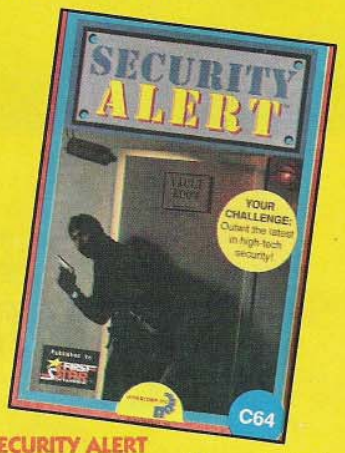

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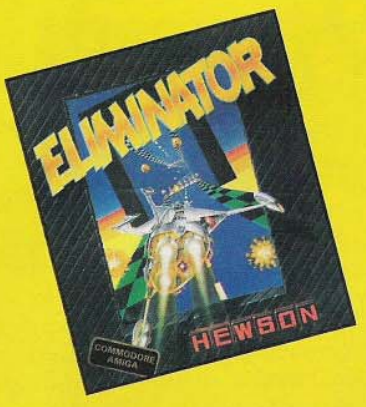

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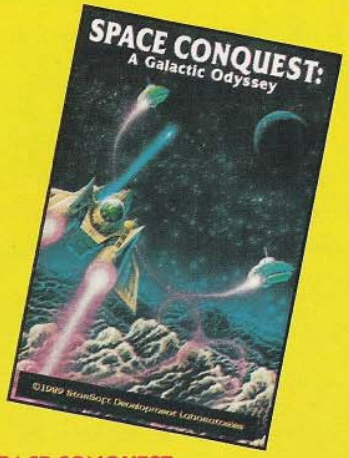

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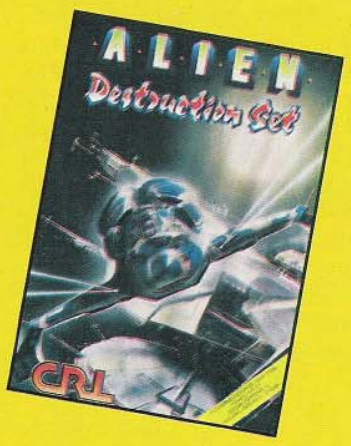

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Commodore 64

The column

Owen James has been entrusted with the weighty responsibility of looking after C64ers in our magazine by way of a regular column filled with tips, snippits of reviews, recommendations and gossip from around the 8-Bit traps. Throw all brick bats or bouquets his way on the subject, along with tips of your own. Over to you, Owen.

MANY HAVE CLAIMED that the 64 is dead or dying, yet it is still one of the best selling computers on the market. More Commodore 64 units are sold every year than any other computer in the Commodore range. Does that sound like a dying machine?

It's true that a large percentage of people are opting to upgrade to an Amiga or another more powerful machine but not everyone can afford to. For most people the power that the Commodore 64 has to offer is more than adequate for their computing needs.

The 64 has been around for a number of years now and has proven itself time and time again as a capable machine. It seems that the good ol' 64 wil be a popular computer for a long time yet.

In forthcoming articles I will be covering areas such as programming, tips and tricks for the 64, as well as specific areas such as music and desktop publishing.

Helpful utilities

● I will begin by looking at some of the programs and utilities that are designed to make life easier for the 64 user. These products are some of my personal favourites. Why don't you write to me and tell me what yours are and why?

Any one of two cartridges remain in the back of my 64 practically always. I own both the Final Cartridge III and Warpspeed. Personally I find life without either one of these almost intolerable.

Warpspeed is more than just a cartridge to increase disk speed - it is an easier working environment for disk usage. Let's be honest, Commodore disk drives are s-l-o-w. (Face it. If you can't finish reading *War and Peace* while waiting for a program to load then you're just not trying!).

Sure, to people that have recently upgraded from a tape drive the apparent speed increase is immense, but once you've seen the speeds that Commodore drives are capable of, there's just no turning back.

Warpspeed claims speed increases of up to ten times faster. This is a marked improvement over normal Commodore DOS routines. Also, Warpspeed has a number of built-in utilities including menu-driven file utilities, a very good sector editor, and a machine language monitor.

The Final Cartridge III boasts a number of features, including a freeze framer (to enable you to make back-ups of important programs), a complete disk utility providing an easier method of performing all those long and sometimes fruitless commands to scratch a file or format a disk, and a host of other features.

Utilities such as a built-in notepad/word processor are also available. All of these utilities are selected via a mouse or joystick using a graphic interface (just like the more expensive machines).

If you're looking for power then go no further than GEOS. This is definitely one piece of software that is well worth a mention. GEOS provides users with the power you might only expect to find on a machine of at least double the 64's price.

Its graphic orientated interface and integrated approach to the software that runs under it makes it popular amongst 64 "power-users". I say "power-users" because the 64 is one 8-bit machine that is powerful when used to it's full potential. I can happily say that software such as GEOS does make full use of the available hardware.

Tips and tricks

● There are many more that are on my list of "indispensable" items but the above short list will have to do for the moment. And now, some tips and tricks that I have discovered while using my 64...

● If you wish to avoid line numbers being shown in a program listing, just type in poke 22, 35. Now, whenever you type list the line numbers disappear. Typing poke 22,25 will re-enable the line number display.

● Own a graphics program such as *Doodle*? Ever wish you could edit those great high resolution pictures you find in games? You'll need a reset button and a machine language monitor for this one.

Load in the program with the image you wish to capture. When you see the image, press the reset button on your cartridge (or if you're either very daring or very silly you can reset with a wire paper clip). Go into the machine language monitor and save memory locations $1c00 to $3fff.

I suggest you save with a filename that will be compatible with your art program. (E.g. if using *Doodle*, your filename should begin with dd to make it load). You'll probably have to fix up the colours. Always be conscious of possible copyright infringements with this tip!

● Here's an interesting April Fool's trick - type poke 120, 0 and press return. Nothing happens, right? Wrong! Try typing another command. Is your 64 ignoring you?

● Want to hide your files on disk from prying eyes? When you save a file, put a colon at the end of its filename. This only works for one file per disk. You must load and scratch that file using the original filename that you saved it with.

Reader input requested

● What tips and tricks have you discovered while using your 64? Send them to me directly at the address mentioned below and the best ones will appear along with your name in future articles. Is there an area that you would like to see published in forthcoming editions of this 64 column? Let me know about that as well.

Also, I'd like to hear from User Groups that support the C64. Send me a name and address and any other details you think we should know about. I'll try to publish a few each article.

Please send any correspondence to the *ACAR*, P.O Box 288, Gladesville, 2111. ❑

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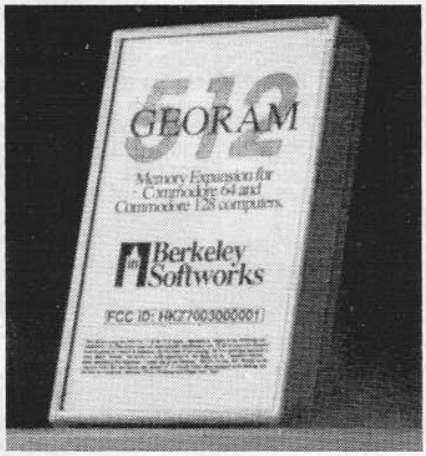

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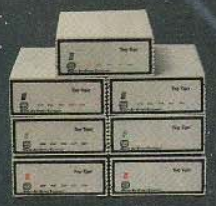

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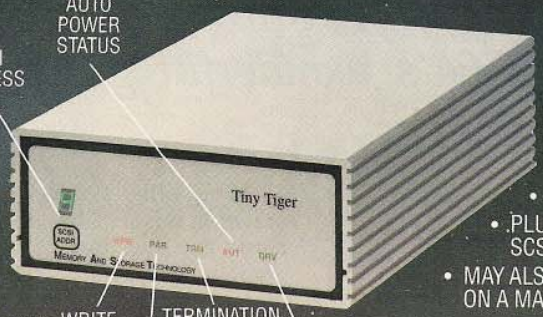

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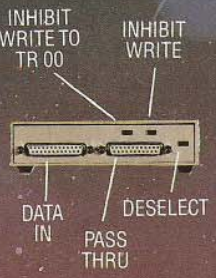

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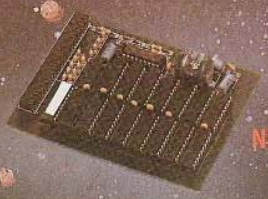

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C64 Graphics and Sound Pt 4: **Picture drawing and screen graphics**

***Greg Perry** continues his tutorial on using the C64's wonderful graphics and sound capabilities.*

Picture Drawing

● The keyboard graphics symbols can be readily used to draw simple pictures of limited resolution.

Press [CLR]

Exercise: Leave a 4 column margin at the left of the screen, a 2 column margin at the right, and using the cursor controls and the graphics symbols see if you can draw a picture of a house. (It takes a bit of practice.)

When you decide you have something you like.

HOME the cursor, move line by line down the left of the screen and type numbers followed by a question mark and a single quote, "? "", then RETURN, on each line. DO NOT USE CURSOR once the quote has been typed.

You now have a program which will print your picture. Note that you do not need to close the quotes at the end of the line, but it normally should be used.

MYSTERY PUZZLE : If you aren't successful, try to follow this one.

Type all characters following the quote mark (") using the shift key to produce a graphics symbol, EXCEPT those within < >. These are typed by using the C= key to give the graphics on the left hand side of the character key. DO NOT TYPE THE < >.

```
110 PRINT"          NM"
120 PRINT"        N   M"
130 PRINT"      N       M"
140 PRINT"    N           M     <A>****<S>"
150 PRINT" N              M   BVVVVB"
160 PRINT" O<YYYYYYYY>P   BVVVVB"
170 PRINT" <HDD>    <DD><N>  <Q>****<X>"
180 PRINT" <HDD>    <DD><N>  B"
190 PRINT" <HDD>    <DD><N>  B"
200 PRINT" <H>     OO<H><N>  B"
210 PRINT" <H>     <NHH><N>  B"
220 PRINT" <YYYYYYYYYY>  B"
230 PRINT"                  B"
240 PRINT"                  B"
250 PRINT" <QRRRRRRRRRW>  B"
260 PRINT" <QEEEEEEEEEW>  U<E>I"
270 PRINT"                  <Z>*<Z>"
```

Many other simple graphics can be drawn in this manner without having to move into the area of high resolution graphics. Once you understand the idea, with the use of colours and reverse field characters, it is possible to draw and program good graphics images with ease. The more programs you look at the more ideas you will find.

2.4 Screen and colour memory

● Like most microcomputers, the screen is actually Random Access Memory, just like the area where programs are stored. The only difference is that you can see what is stored in screen RAM! So, instead of PRINTing a character on the screen, it is possible to put the character code directly into the screen RAM with a POKE statement.

In normal operation the screen RAM occupies 1000 consecutive bytes of memory from locations 1024 to 2023. (Above the screen RAM are pointers for the sprites and above them lies the BASIC RAM for program storage.) This screen RAM is not permanently fixed in these locations. As we will see later it can be moved to other memory locations for special uses.

Characters are POKEd to the screen RAM by using the appropriate value selected from the table of "screen display codes". (User Guide pp. 132-134, Reference Guide pp. 376-378; for conversion formulae see Chapter 1.3.)

For example to put the character "A" into the top left corner of the screen

POKE 1024,1 (1 is the screen code for "A")

Do you see the A ? You most likely do not! (-except on the very original C64s)

"HOME" the cursor to the top left of the screen and you will see the "A" flashing?

What has happened is that we have successfully put an "A" into the correct position in the screen RAM but its colour is the same as the background, so it cannot be seen. The second part of this operation requires putting a colour value (0-15) into the SCREEN Colour RAM. This 1000 byte area of memory from location 55296 to 56295 stores the foreground colour for each of the corresponding screen RAM locations. Unlike the screen, the colour RAM area CANNOT BE MOVED.

Now, choose a colour value for our "A", e.g. for cyan [CYN] the value is 3 - one less than the number on the colour key, and POKE it into corresponding colour position by

POKE 55296,3

We now see a cyan "A".

Its easy to have fun with the colour memory. For example

```
Program : RND Colour RAM
10 REM (C) GREG PERRY, BRISBANE, 1984
100 REM RANDOM SCREEN Colour
MEMORY
110 FOR I=0 TO 1023
120 SC=55296+I
130 REM SELECT Colour
140 C=RND (0)*16
150 POKE SC,C
160 NEXT
```

Now type a screen full of assorted characters and shapes and RUN the program.

Notice how, if there is no character at a particular position, then no colour change appears. We are only changing the character foreground colour NOT the whole screen colour.

Exercise: ADD Line 115 POKE 1024+I,1.

This ensures that there is a character at each screen RAM position. Try other screen codes such as 160, the code for a reverse field space.

By POKEing characters to the screen and colour RAM, simple games programs can be developed. The screen is a 40 column (0-39) by 25 row (0-24) grid. To move around the screen from any given position,

right add 1 to the location.
left subtract 1
down add 40
up subtract 40

(continued on page 56)

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BUT you must check that the new memory location is still within the screen RAM area between 1024 and 2023.

The following program provides a basis for many games routines. It allows you to move a "heart" graphics character (shifted "S" or [S]) around the screen with the cursor controls.

```
Program : MOVING HEART
10 REM (C) GREG PERRY, BRISBANE, 1984
100 REM SCREEN RAM POKE
110 CH=83
120 REM START AT MIDDLE OF SCREEN
130 H=20:V=11:P=H+V*40
140 POKE 1024+P,CH
150 REM COLOUR RAM TO CYAN
160 POKE 55296+P,3
170 GET A$: IF A$="" THEN 170
180 POKE 1024+P,32
190 IF A$="[RIGHT]" THEN H=H+1
200 IF A$="[LEFT]" THEN H=H-1
210 IF A$="[DOWN]" THEN V=V+1
220 IF A$="[UP]" THEN V=V-1
230 REM CHECK IF WITHIN LIMITS
240 H=H+40*(H>39)-40*(H<0)
250 V=V+25*(V>24)-25*(V<0)
255 P=H+V*40: IF P<0 OR P>999 THEN
STOP
260 GOTO 140
```

NOTES

- The screen character code for [S] is 83 (CH in Line 110)
- The GET instruction (Line 170) gets a key from the keyboard. If no key has been pressed it GETs nothing, i.e. ""
- Lines 240 and 250 may look somewhat strange at first but they are correct. The statement (H>39) will have the value of -1 if H>39 and the value 0 if H=<39. These logical operators enable short routines which save using several IF statements.

Flashing Border

- Remember the minor problem we had with the printed border, where we could not print on the far right of the screen? This is easily overcome by POKEing a screen border. Let's build up a border program stepwise to give a "flashing light" effect using the shifted "Q" graphic character [Q] whose screen code is 81.

Firstly, we will use a number of variables to make life easier.

```
Program : FLASHING BORDER Lines
100-200
10 REM (C) GREG PERRY, BRISBANE 1984
100 REM POKED FLASHING BORDER
110 REM SR:START OF SCREEN RAM =
1024
120 REM SE:END OF SCREEN RAM = 2023
130 REM CR:START OF Colour RAM
=55296
140 REM CE:END OF Colour RAM =56295
150 REM BC:BORDER Colour REG. =53280
160 REM SC:SCREEN Colour REG. =53281
170 REM CH:CHARACTER SCREEN CODE
= 81
180 REM C1 AND C2 = COLOURS
190 SR=1024:SE=2023:CR=55296:CE=56295
200 BC=53280:SC=53281:CH=81:C1=2:C2=7
```

Now POKE the character to the screen and a colour to the colour RAM. Remember the screen has 40 (0-39) columns and 25 (0-24) rows. Here we will POKE the top and bottom at the same time, followed by the left and right columns. This is done two "lights" at a time (STEP 2 in Line 210) and a different colour C1 and C2 is used for alternate "lights".

```
210 FOR I=0 TO 39 STEP 2
220 POKE SR+I,CH: POKE CR+I,C1
230 POKE SR+I+1,CH: POKE CR+I+1,C2
240 POKE SE-I,CH: POKE CE-I,C1
250 POKE SE-I-1,CH: POKE CE-I-1,C2
260 NEXT : POKE SC, RND (0)*16
270 FOR I=23 TO 1 STEP -2
280 POKE SR+I*40,CH: POKE CR+I*40,C1
290 POKE SR+(I+1)*40,CH: POKE CR+
(I+1)*40,C2
300 POKE SE-I*40,CH: POKE CE-I*40,C1
310 POKE SE-(I+1)*40,CH: POKE CE-
(I+1)*40,C2
320 NEXT
330 POKE BC, RND (0)*16
340 Z=C1:C1=C2:C2=Z: GOTO 210
```

A couple of extras have also been added. Lines 260 and 330 change the screen and border colours randomly at the completion of a row of "lights".

Line 340 swaps the colours of adjacent lights and then starts the program again.

This program is somewhat inefficient in tha manner in which it changes the colour RAM values. In order to minimise the number of program lines, the routine repeatedly POKEs BOTH the screen and colour RAMs. Obviously this is not necessary. Once the character has been POKEd to the screen RAM, it is only necessary to loop through a procedure which changes the colour RAM values to achieve the same effect.

One final point on colour RAM POKEs. In fact you can "program" (?) the C64 to automatically POKE a colour to the colour RAM when you POKE to the screen RAM. This is done by

```
I=PEEK(53281):POKE 53281,7:PRINT "
[CLR]":POKE 53281,I
```

Yellow, colour value 7, has been used here but you may select any other colour.

Don't ask me how it works, I've no idea. It just does!

Try this in the moving heart program; DELETE Line 160 and ADD the above as Line 10.

You can generally add this to all your programs if you do not wish to worry about the colour RAM. However, if you clear the screen AGAIN either in direct mode or in programs, the routine doesn't work any more!

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

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Video title animation with Video Effects 3D

by George Kimpton

RECENTLY I WATCHED some fascinating animation demos from Europe at Whites Computers, bi-monthly Amiga Demonstration and get-together. Each demo had equally inspiring credits or titling telling us all about the bright boys who had produced each show. Apart from the fact that some of the credits were obviously ego trips, I had to admire the skill of the programmers with the intricate manoeuvres performed on screen. Balls zoomed and skipped around the screen metamorphising into winged bats or other objects with unbelievable smoothness.

If, as I have been told, many of these demos are written in code and not made using existing animation programs, there are some extremely talented programmers out there. Most of us hacks wouldn't have a hope of writing anything in code let alone an animated title for our home movies, sales promotions for work or documentaries on our pet interests. If you are like me, you tend to dodge even using CLI and back off hastily at the mention of writing anything in Basic let alone writing a program in code or C.

Well, all is not lost. Apart from having *Deluxe Paint III* and *Photon Paint 2.0* to produce animations we also have *Video Effects 3D*. This program is a special effects generator as distinct from straight animation and can produce professional quality 3D type animations of logos, text or pictures.

The program is easy to handle using mouse and keyboard but does not produce text or pictures itself. The raw material must be produced elsewhere using *Deluxe Paint, Pro Video Plus, TV Text* or some other text or art program and saved in IFF format. These IFF files are imported into the edit screen and cropped to suit. Note that the imported IFF images must conform to strict colour limitations and arrangements for best effects. Only eight adjustable colours are allowed with specific palette locations being restricted for shadows and extrusion colours. The palette colours are adjustable for matching or effect and each object may have its own palette. Watch out for some strange effects though if different palettes are programmed to share the screen at the same time.

These imported images are manipulated in 3D perspective space to Zoom, Compress, Tumble, Turn, Flip and Tilt or Shatter. The centre of rotation can also be varied allowing hinge effects, barrel-rolls and eccentric spins.

Logos or other objects such as words can be extruded to give depth to an object and shadows can be made to follow every movement at selected distances.

Different objects can also be programmed to move independently yet interact with each other to achieve some very interesting effects. This is done by programming parallel tracks while editing the show.

The demo which comes with the program shows these effects but does not produce any of the sophisticated interaction which the program is capable of achieving. Nevertheless it is still very eye-catching.

Memory limitations

● The program will operate on all three standard Amigas but must have a minimum of 1 Megabyte of memory with 1.5 being preferred. The program is very memory intensive when operating and does not multitask. This can be a bugbear when the Amiga is busily plotting frames for an animation as this ties up the computer and may take an hour or two. The number of colours used also affects the speed and time of plotting, unfortunately.

The time taken to produce the individual frames is, from my own experience, a bit over a minute for reasonably simple screens on an A2000 with 3 Meg. These times could be different on a 500. Multiply this time by the number of frames necessary to give a smooth animation and it all adds up alarmingly. Now don't throw up your hands and say "here we go again", the end result is worth it all when you see it.

To my knowledge there is no updated version for use with accelerator boards. Maybe Innovision Technology will bring out an update, for this program would be in its element with an accelerator.

I usually set mine up at bedtime and go to bed. Next morning it's all waiting for me. A word of warning here for sleepyheads, a floppy will only store about 15 to 20 seconds of single

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effect sequences. With interactive effects this may decrease to as little as 6 seconds with 60 frames per second. Watch that show length if left plotting overnight.

It is possible to set up this program on your hard disk and it would be worth considering for long complex sequences. Instructions are given using a supplied batch file for loading to hard disk. When first booted up the program is set up to operate on DF0 and DF1. Provision is made through the INSTALL box on the main menu to customise the load/save paths. Only one exception to this occurs and that is the script files must be saved on a floppy in DF0 but pictures and play files may be saved or loaded by selecting DH0. Editing and playback are two separate modules so it is necessary to complete and save each show before displaying the finished product. Either module becomes resident on loading and the program disk is removed to allow insertion of the script disk for editing.

Creating a sequence

● Creating or editing a sequence is pretty straightforward as everything operates on a point and click basis on the various control screens. Instead of the usual pull down menus you have labeled buttons to click on. A short message appears on screen describing the function of each button under the pointer to jog your memory.

Initially you are offered the choice of loading and editing an existing sequence or starting a new one. You are asked for a file name for your new sequence which is entered by clicking on a screen keyboard. For a professional program this method of naming a file is decidedly crude. This sets up a script file which will contain all details of the keyframes and images of your sequence.

Next you are asked to select and load the images you wish to use. These must be Hi-Res using between 2 and 8 colours. Care is necessary here in the setting up of the original image palette for it to be compatible with the program guidelines as mentioned above.

One word of warning here, if more than one image shares the screen at the same time the palettes should be the same. This is to avoid conflicts which can give some weird and unexpected effects depending on which image has priority at the time. Avoid complex colour schemes. Keep it simple to avoid problems. The smaller the number of colours the quicker the plotting. Many good titling sequences on TV only use between two and four colours. Have a look next time.

The image is converted to the Video Effects format after which you can crop the unwanted background to speed up plotting. Cropping is by clicking on double ended buttons which move a box limiter around the image. One problem with double ended buttons in this program is the longer the button is held down the more the adjustment accelerates. Up to nine objects or images may be loaded for use in a single script.

Returning to the Main Menu you select Edit Script which then moves you on to where you create Tracks with Keyframes. These tracks describe the motion of each object or image used and lay down the time sequence of that object. It is here that you specify the start and stop locations for each movement and the path it will follow.

One feature I found very useful in this program is the memos it displays on screen as soon as you hover over the button with the pointer. For the beginner it is almost possible to ignore the operator's manual. As a result it is pretty easy setting up the script.

Keyframes

● Each track contains at least two keyframes. The first keyframe sets the start location, the image aspect and the starting time of the following action much as the storyboard in a film. The next keyframe sets the finishing location of the image, its aspect, the type of movement to be performed and the time allowed to carry it out.

It is also possible to set shadow characteristics, adjust logo extrusion depths and colours, priority of the image over others and perspective. There is even a range of special effects for transitioning images on or off screen. If all that sounds a bit much, don't worry it really is easy with those memos. Add to this the ability to view the programmed action in wire frame format and to plot and display each keyframe for checking and you have a pretty good idea of what the finished sequence will look like.

A small insert screen in the top right corner of each keyframe edit screen shows in wire frame the location and aspect of the image. Actions possible are zoom, tumble, turn and spin and the direction of the last three is selectable with the angle of movement also adjustable.

It is possible to add other keyframes to a track to create a sequence of different events such as just holding the image on screen in order to allow people to read the credits or whatever. Generally though it is good practice to create extra tracks rather than to have long and complex keyframe sequences on one track. Therein could lay disaster.

A number of short keyframe sequences is more flexible. It is also possible to create parallel tracks operating at the same time but controlling different objects. Depending on the priority set objects can be made to move in front of or behind each other and palettes can dominate all tracks on display.

After setting up all those tracks and frames you return to the Main Menu screen and save the script for future reference. Then you click on the Render button to start the computer plotting your masterpiece.

Here you are given several choices. Firstly you can choose to render a complete Play File or you can render a series of frames for external control or you can just render any frame as an IFF picture for saving and use elsewhere. Selection of individual frames is by specifying a time slot.

Choice of the number of frames per second to be rendered is limited to 60, 30 or 10. Ten is useful for a quick check though too rough for finished work. The storage drive is selectable so those with hard drives can use the extra capacity. Once the sequence is rendered you must close down the edit module and enter the play module. In this mode it is possible to select and load any previously rendered play file.

Two choices are available here. It is possible click on the Play Button which gives a continuous run of the sequence and reverting to the control screen when the left mouse button is clicked. The Presentation Button gives a single run which can be frozen on any frame and restarted by just by clicking the mouse. It is also possible to move the display around on the monitor screen in the Play Mode. This is essential on the version I have as the screen is not PAL but NTSC and I find it best to have the display centred for best effect.

One final word of warning. My Version is an early one and will not work with a Fat Agnus but is OK with a standard chip memory. Before buying check it is compatible with your memory configuration.

Well, have fun. While *Video Effects 3D* is no world beater, the results are good and well worth the money and effort. If a later version is available which will operate with an accelerator board and Fat Agnus and is in the PAL format give it a try. (The PAL version is now available, although we are not sure if it will work with a Fat Agnus chip - RRP is $339 from Computermate (02) 457 8118) ❑

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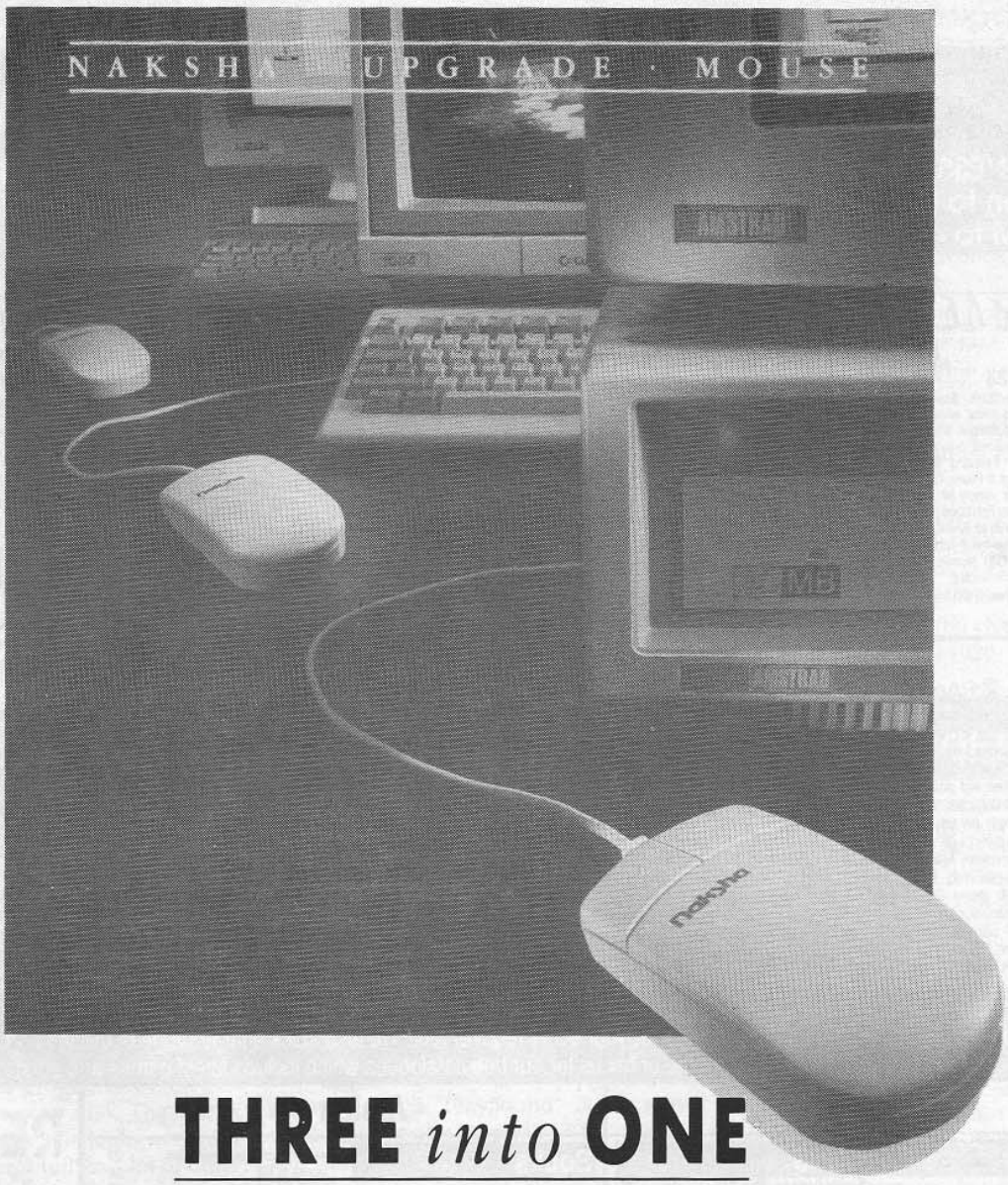

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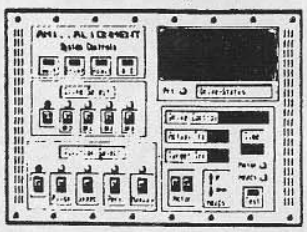

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The Mega Entertainment Section

Edited by Phil Campbell

That's Entertainment

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

A gremlin in the system?

● July has been declared Gremlin month by the folks at Mindscape. Look out for the launch of a bundle of exciting new products. Some of them, like *Venus* and *Skidz*, will only run on 1-Meg machines. Then there's *Federation Quest* and the long awaited *Greg Norman's Ultimate Golf*. Read on for details of our amazing Greg Norman Competition.

X-Out from Rainbow Arts

● Just out of the box from Questor and Rainbow Arts comes *X-Out*, a shoot-em-up that's played to rave reviews around the world. Watch out for a full review soon.

Pipe Mania from Questor

● I've just been playing a demo version of *Pipe Mania* - no relation to Tasmania, and a heck of a lot more fun. This game looked potentially addictive, so I switched it off. More details soon.

Dataflow release Space Rouge

● Trek through an astonishingly realistic universe with outposts and mining stations, planets and asteroids, stars and starships - all in spectacular 3-D graphics. *Space Rouge* is a role playing adventure, it's an arcade game, it's a bit of everything.

More PD games

● Tim Strachan from Megadisc has just sent me a pile of 10 public domain disks, each featuring at least one reasonably good game. On Fish 328 there's a new version of *Tetris*, always a favourite. This one looks much more classy than the previous PD attempt. On disk *Faug 38* there's a demo copy of Shanghai, which is one of the most elegantly designed games around - pick matching tiles from a pile of Mah-Jong pieces to uncover a dragon's eye on the mat beneath. Class. On Fish 329 there's a huge strategy game called Empire, and on 336 there's an arcade quality adaption of *Pingo* - this one features little disks and ram chips being pushed around inside your computer! Give Tim a ring on (02) 959 3692 if you'd like to order any of these - around $5.00 each, with rapid service and friendly advice.

More sightings of our "Game of the year"

● Everywhere I look there are foreign mags raving about *Sim City*, the game we named as top for '89. The Poms didn't get it until 6 months after us, and now that their January mags are arriving sea mail, we're starting to get the impression that they all agree! *Amiga Format*, for example, rated it at 93% - a great game, and one that's well worth getting hold of.

Ratings war

● Speaking of ratings, you've been asking for them. You'll notice as from this issue that they'll be gradually creeping in to some of our reviews. We'll work on a system to standardise them as much as we can - in the mean time, take 'em or leave 'em.

Amazing Mindscape Golf competition

Commodore 64 and Amiga

● Ever want to play golf like Greg Norman? You know - never winning a major competition, getting beaten at the last moment by fluke shots from the fairway, but still ranked number one in the world. Who wouldn't? Well, now's your chance. Mindscape are offering five lucky readers the chance to play one of the best golf simulations yet - it's *Greg Norman's Ultimate Golf*. Programmed by Gremlin and distributed by Mindscape, this is the game that everyone will be talking about.

So how do you get into the action? It's easy.

On Monday July 16th, I'll be playing 18 holes of *Ultimate Golf* on a course chosen at random from the disk. All you've got to do is GUESS MY SCORE. That's it. It's easy. One hint. In real life, my golf is abysmal. In computer golf it is slightly better.

So here's what you do.

● Address an standard sized envelope to **Phil Campbell**, PO Box 23 Maclean NSW 2463.

● On the back of the envelope write your name, address and phone number.

● Specify whether you've got an Amiga or a Commodore 64.

● Write your guess clearly in a suitable space. Put a circle or a box around it so it doesn't look like part of your address. Come to think of it, my golf scores look more like phone numbers!

● Post it so that you can be sure it will arrive BEFORE July 16th.

● In the event that no correct answers are received, prizes will be awarded to the five closest guesses. In the event that there are more than five correct answers, winners will be drawn from a hat.

Get those entries rolling in, folks. This one is for everyone, it's easy, and all it costs is 41 cents for a stamp. Go for it!

Desert Competition Winners

● Wow! What a great response to the Mindscape "*It Came From the Desert*" competition! Heaps of entries, but unfortunately not all correct! Congratulations to the following readers, who should each have already received their copy of *It Came From the Desert* courtesy of Mindscape.

Greg Eames, Ballarat, Vic
Grant Heggie, Holt, Act
Andrew Skurrie, Newcombe, Vic

Enjoy your prizes, guys - and thanks to Mindscape for sponsoring the competition. ❑

Letters to the editor

THE MAIL BAG is bulging again this month, and we're happy to see it. There's only one problem. Readers are still sending mail to the wrong places. PLEASE TAKE NOTE. Letters for the ENTERTAINMENT SECTION should be sent to **Phil Campbell**, PO Box 23, Maclean, NSW 2463. Letters about anything else should be sent to the main office at 21 Darley Rd Randwick NSW 2031. If anyone else sends a letter to me asking how to connect a Kawasaki Ink-matrix Printer to the serial centronics port on the back of a VIC 20 I will go bananas! Now that we've got that sorted out, on with the show ....

Dear Phil

● Does anyone out there know the Secret Entry Code for *Sentinel*? If anyone does, help would be greatly appreciated.

M. Summers
Albion Park Rail, NSW

Ed: *Can anybody help? Please let us know.*

Dear Phil

● I have just upgraded to an Amiga, after my C64 fizzed, and was wondering when is *Red Storm Rising* going to be converted to Amiga? How about a review of *Beverly Hills Cop* and *Midwinter* as no mag overseas or Australian, that I know of, has done a review on either. Thanks.

Zaun Bhana
Palmerston, NT

Ed: *Congratulations on the upgrade. We can only review the software that we're sent by the Australian distributors - usually, we're the first to get the hot new releases. So far, nobody sent us review copies of Beverly Hills Cop or Midwinter, which can mean either (a) the games are so bad they don't want us to see them (which I doubt, especially in the case of Midwinter) or (b) they're not available here yet. Or it could even be (c) software companies don't like us much anymore. Mmmm? Anyhow, we'll check, and likewise with Red Storm Rising.*

Dear Phil

● I was wondering if you can help me solve a problem which I am having finding the SYS call to the start of a program after resetting the computer. I have currently been using a program to assist me but I would like to know how you would go about it manually. I am the proud owner of an Action Replay Cartridge and this is how I am learning machine code via the inbuilt monitor.

I thank you for a great Australian magazine which has valuable information but I would also like to suggest that you expand your tips section a bit more. I have sent in many pokes for you to include in your magazine. Keep up the good work!

Glenn Robinson
North Ringwood, VIC

Ed: *Finding a SYS call manually is a bit like following a silk thread through a forest. There are probably heaps of readers out there just waiting to correct me on this - so by next issue I'm sure the mailbag will be swollen. But let me explain it as I see it. The problem is, I haven't done it for years, not being a wild-eyed game cracking freak, so my memory is a little hazy. Back in the olden days, programs would boot with a little basic loader, and you could look at this loader program for the SYS call. Much too obvious in these pirate infested waters. So a sort of paper chase is called for. Using your machine code monitor, scroll through the usual patches of memory until you find an area of sensible looking machine code. This will be one of two things - a little sub-routine all on its own, or perhaps the start of the main program. If it's just a subroutine, follow the JMP address and have a look around. If it's the main program, problem solved. Try executing the program from the address you've found with the "G" or "GO" command in most machine code monitors. Trial and error is the only way to go!*

Dear Phil

● Please find enclosed some game tips for your excellent magazine and congratulations for producing such a magazine.

J. Dell
Armidale, NSW

Ed: *Thanks for the compliments, and for the tips. They'll appear in print over the next few months.*

Dear Phil

● A few issues back you were comparing *Bubble Bobble* to *New Zealand Story*. What about *Bubble Bobble 2 - Rainbow Islands*? It's by the programmer Andrew Braybrook, who did *Uridum* and *Paranoid*. I think it's great and I've ordered it from Interlink. I wonder why no-one in big shops has it. I finished *Space Ace* in four days, finishing an average of 6-7 scenes a day. I also thought it was a bit sus ... what does Ace really say after Kimberley says "Isn't he adorable?" Makes a lot of sense! Thanks.

S. Malligan
Greenwood, WA

PS. I can't wait for *TV Sports Basketball*.

Ed: *Working backwards, I can. And I hope Basketball is more fun than the Football version. I reckon it was boring. Second, I wish you'd told me what she says. I never got that far in SPACE ACE. Finally, thanks for the reminder about RAINBOW ISLANDS. I meant to mention it, but wasn't sure that it was released yet.*

Dear Phil

● I recently bought a secondhand C128. Amongst some of the games that I got with it is a game called *Impossible Mission*. After spending some time playing this game we cannot work out how some of the functions work. We are hoping that someone has a copy of the instructions to the game who would be happy to send me a copy. Thank you.

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Joy Cross
Sunnybank, QLD

Ed: *What you've got there happens to be one of the best games of all time. Keep playing - you might figure it out. In the meantime, some helpful player might send you a manual. By the way, you did say that was an ORIGINAL copy of the game, didn't you?*

Dear Phil

● I've started to read ACAR since I purchased my Amiga three months ago. I'm really impressed with the graphics and quality of most games, compared to my old C64. The Amiga is unbeatable and so is your magazine. It's the best!

One thing has been worrying me. On my video recorder I've been recording graphic samples, title screens and actual game play from my games (this is how I record my high scores). The question is: Is this method illegal and/or does it breach any copyright laws that protect the programs?

Finally, some suggestions. Firstly, when new programs are reviewed, the recommended retail price and the distributor are shown. Why not also print some stores that stock the programs such as Myers, K-Mart etc, as well? Secondly, in the near future could ACAR print a pamphlet or supplement that contains all the hints and tips you've printed before. I'm sure this will save many people searching through their old copies of ACAR for those precious cheats. That about wraps up my letter, the magazine is great. Keep up the good work. Fanatic Game Player.

Jason Burstow
Mt Warren Park, QLD

Ed: *Thanks for the compliments - glad you like the mag as much as you like your Amiga. As far as I can see, recording games on your VCR is pretty harmless. However, as far as the actual terms of copyright, you may well be committing an offence. Because copyright laws are not quite up to date, game software may well be protected in terms of "audio visual performance" - what it looks like, and what it sounds like. This is a pretty crazy situation, and I'm sure no software company in the world would have any objection to what you're doing. Sounds like a great idea to me - immortalising your greatest moments.*

Listing suppliers of games is next to impossible. What you've got to do is go to your local supplier, like K-Mart, and ask what distributors they deal with. K-Mart, for example, sources their games from Questor, Ozisoft, ECP and most of the other big name distributors. Check with them, then when we print the name of the distributor you will know where to go. The "Hints and Tips" suggestion is a good one. We'll wait until the collection builds up a bit more and then we'll think some more about it - maybe a huge selection in next year's Amiga and Commodore Annuals? ❑

Amiga Hints and tips

AMIGA AMIGA AMIGA AMIGA AMIGA

Test Drive II

● Here are some helpful tips from regular reviewer Tony Smith:

One complaint I often hear about Test Drive II is the difficulty of setting it up. The secret is in the INSTALL menu. Mine is set to read scenery from DF2:, cars from DF1: and a write enabled copy of the boot disk is in DF0: It is important to use a write enabled copy so the configuration can be saved. Another good method for single drive users is to make a play disk for use in DF1: On this disk can be placed two sets of scenery and one car, or one set of scenery and up to three cars (use a file utility like diskmaster or dirutils to copy files and drawers to your playdisk if you are able, if not, use the INSTALL menu on Test Drive (its slower but it works OK) then configure your boot disk for 'Play disk in DF1:' and save it.

Populus!

● Wow! You thought that little bunch of codes were good. Wait til you hear this. Steve Evans, from Kenthurst NSW has sent in a five page single spaced double columned set of the full 494 Populous worlds. How do you like BUGOUTME for number 403, BUGLOPDON for 435 and WEAVUSPERT for 494? If they sound good to you, Steve will send you the full list if you send him a stamped, self addressed envelope. His address is as follows:- Steve Evans, 1 Sagars Rd, Kenthurst 2156 NSW.

Chase HQ

● Michael Middleton of Brunswick gives the following advice. As soon as the title screen disappears, start tapping the space bar at high speed, and continue tapping until the game begins. You should now find your car has a speed of over 1066 km/h. (All that stuff with the space bar must have done something to the tappets!) Secondly, Michael says you can activate the cheat mode by holding down the fire button and the left mouse button and typing GROWLER. Now press T during play and you can reset the clock back to 60 seconds.

Sword of Sodan

● James Small, of Daisy Hill, Qld, says that once the game has loaded, you should select your hero and then lose all your lives on the first screen. Now select the heroine, and you should have infinite players. What is this, anyhow - some kind of anti sexism affirmative action campaign or something? Get rid of the blokes, and a woman will sort everything out!

Eliminator

● Also from James Small comes this list of access codes for Eliminator. The codes are for stages 2 to 14, and are listed in order:-

AMEOBA, BLOOP, CHEEKI, DOINOK, ENIGMA, FLITME, GEEGEE, HANDLE, ICICLE, JAMMIN, KIKONG, LAPDOG, MIKADO. Funny though, I always thought amoeba had the "o" before the "e"? James also suggests that you should keep moving - the aliens will always fire at you. Use the second weapon as it is the most effective and doesn't use as much ammo as the first.

Shadow of the Beast

● Phillip Nicol from Anakie, Victoria, offers the following trick. Instead of pressing FIRE to start the game, press the fire button and the left mouse button together. Keep holding them down until it says insert disk 2 (or until you get a cramp in your hand.) When you play, you will now have unlimited lives.

New Zealand Story

● More mousey fun from Phil Nicol - before booting up, hold the right mouse button down, then insert the disk. Keep holding it down until the game has loaded, and you'll find you've got unlimited lives.

Space Ace Solution - concluded

● Yes folks, this is the long awaited

last instalment of Geoff Suttor's SPACE ACE solution. Last month we left Ace at the end of scene 17, racing down a corridor being shot at by guards. Now read on ...

SCENE 18. Go RIGHT when Dexter is nearly at the corner.
SCENE 19. Go UP when Dexter is half way across the room to climb into Borf's control centre.
SCENE 20. Press FIRE to block Borf's swing.
SCENE 21. Same as above.
SCENE 22. Press FIRE to block Borf's swing then when he knocks you to the ground go RIGHT to avoid him stepping on your face.
SCENE 23. Press FIRE straight away to block Borf's swing then go DOWN to duck under Borf's roundhouse kick.
SCENE 24. Dexter will be on his back so press FIRE to block Borf's swing once more.
SCENE 25. Bork will swing his staff at your legs and head, so first go UP to jump over the first swing then go DOWN to duck under the second.
SCENE 26. Go RIGHT to avoid Borf's swing then DOWN to jump on Borf's back.
SCENE 27. Wait until there's a close up of Dexter on Borf's back then go LEFT immediately to grab the rope.
SCENE 28. No moves here - it's just Dexter grabbing Kimberly his girlie as they fall towards the lava pit on the platform, but ...
SCENE 29. As Dexter lands on to the lava pit with Kimberly in hand go RIGHT to jump to safety.
SCENE 30. Now Kimberly is safe. Borf fires his infanto ray, it blows up the path in front of Dexter - go RIGHT and run back to safety.
SCENE 31. Borf fires his infanto ray again - go LEFT just before you get to the corner.
SCENE 32. Dexter is running down a bridge lined with mirrors - go RIGHT to avoid being blown away with the path in front of you. SAVE THE GAME NOW!
SCENE 33. Borf aims the infanto ray and fires. There is no escape this time so go LEFT to push the mirror into the path of the beam then go RIGHT to avoid being hit by the beam. The timing is absolutely CRITICAL! Stuff it up and you're a kiddy, kiddo. Do it right, and the beam reflects on Borf and ... see for yourself.

That's it folks - and thanks again to Geoff Suttor of Deniliquin for sending in the solution. ❑

C64 hints and tips

Rolling Thunder

● Stuart Elflett of Toogoolawah, Qld, says to POKE 33570, 173: SYS 32768 for infinite lives. He also says that if you use exactly the same methods as you would in the arcade version, you'll find it easy. (But don't try to put the coin in the slot, OK?)

Solomon's Key

● Also from Stuart comes this one. POKE 2213, 165: POKE 8854,66:SYS 2063 for infinite lives. He says if you shoot the bullets that get fired at you with one of your fireballs, they will turn into treasure. Pick them up, but don't get hit by them.

Operation Wolf

● Finally, Stuart suggests using a 1531 mouse as a joystick - it makes this game much easier to control, and you'll have more ammo from the start.

BMX Simulator

● Jason Rooimans says if you want unlimited lives, load, reset, then type POKE 13937,0:SYS 4096 followed by RETURN.

Zynaps

● Also from Jason: Type POKE 37281,255:SYS 32769 and you'll have 255 lives. Should be enough to keep you going!

Into the Eagles Nest

● To freeze the soldiers load game and reset, then type POKE 24651,234:POKE 24652,234:POKE 24653,234:SYS 32784. If all is well, they'll be as stiff as Napoleon's army in the middle of a Siberian winter.

Destroyer

● Troy Morrison says in the "screen" mission there's an easy way to get through. Just stay in one spot and the planes will come right at you!

Red Storm Rising

● Also from Troy, if you want to find the enemy quickly, select the easiest level and start the game. When it starts, wait for a few seconds, and then hit the replay button - you will see all the enemy ships and destroy them easily. This doesn't work on higher levels.

Project Stealth Fighter

● Finally, Troy says for the lowest signature in this game, set the pitch at 12 and decrease the throttle until level flight. If you get just under 500 feet you should have a signature of 1.

Thanks to all who are writing in! Don't forget to send your hints and tips to Phil Campbell, PO Box 23 Maclean NSW 2463. ❑

Hall of fame

Amiga

Arkanoid - 976,548 Kamikaze Andy
Blockout - 36,455 David Marsh
Bombjack - 200,680 David Thompson
Bubble Bobble - 1,200,460 Vanessa Van Der Heyden
Buggy Boy - 103,350 David Thompson
Continental Circus - 290,000 Phil Campbell
Crazy Cars - 38,839,560 Jason Burstow
Crystal Hammer - 43,847 David Thompson
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
Indiana Jones L.c. - Completed Phillip Nicol
ISS - 1,420,450 A G Smyth
Karate Kid II - 52,000 Robert Dunn
Leatherneck - 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 - 879,480 David Thompson
Pioneer Plague - 35,412 Keir Sooby
POW - 612,865 David Thompson
Rampage - 111,600 Kamikaze Andy
Sidewinder - 385,800 Ian Malcolm
Silkworm (heli) - 913,700 A J Dunstan
Silkworm (jeep) - 474,800 Tristan Mason
Skweek - 314,820 David Thompson
Speedball - 10,335 Gs And Ps
Starwars - 2,296,786 Ian Malcolm
Super Hang-On - 7,743,039 Jason Burstow
Sword Of Sodan - 364,750 Kamikaze Andy
Test Drive - 103,981 Daniel Harrison
Test Drive II - 292,086 David Marsh
Tetrix - Level 100 Luke Tattersall
Typhoon - 54,255 Owen Webster
Whirligig - 7,428 Jonathan Scowen
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Commodore 64

Bangkok Knights - 36,800 Nick Van Heeswyk
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Double Dragon II - 255,190 Nick Van Heeswyk
Fast Break - 136 To 9 Chris Byrne
Giana Sisters - 69816 Nick Van Heeswyk
Gryzor - 203,900 Paul Millward
Handball Maradona - Level M Nick Van Heeswyk
Hawkeye - 59,000 Nick Van Heeswyk
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Int. Karate - 139,300 Paul Millward
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Dragons Breath

by Greg Munro

"Do ya wanna live forever?"... No, not a one-liner from *Conan the Barbarian*, but an ambitious offer from Palace Software, creators of a unique Fantasy Strategy game called *Dragons Breath*. The object of this game is to find three parts of a talisman scattered through the land of Anrea. Achieve this and you will be "taken to the Throne Room of the Great Castle at the top of Dwarf Mountain to learn the ultimate secret of immortality."

Mind you, I doubt anyone is about to collect this secret in a hurry - you could play *Dragons Breath* for months, even years, and still not win.

But I'm not complaining. I've seen very few games that display the Amiga's graphics and music capabilities so well!

Dragons Breath is hot!!

The game comes on two disks, so an external drive is handy, although I found it still very playable when I disconnected DF1. A blank disk is also required to save games, which is essential, since the game takes so long. You can save as many games as you like. Gameplay is via mouse or joystick.

The opening credits, fading in and out like movie titles, and the eerie, stirring music were reminiscent of the movie *Conan*. The semi-animated scene of Bachim's castle that follows has to be seen to be believed. You could almost step into it.

After a password from the manual (a bit unnecessary since the disks are also copy protected), access is gained to the player choice screen. This consists of pix of Bachim the Alchemist, Oureod the She-Vampire and Ametrin the Green Beast, each of which can be played by either a human or by Ami.

On the main game screen is a perspective map of the land surrounding Dwarf mountain. The castles of Ametrin, Oureod and Bachim are west, north-east and south of the mountain. At the bottom are six icons. Three are pictures of the player characters. The others are for aborting, saving to disk, and causing a turn to progress. Each turn is a month. There are nine months in an Ora, or game year, with exotic names such as Vernezhi, Vienu and Rhintrim.

Clicking on your character takes you to your castle screen. The castle pictures are excellent artwork, each with music for atmosphere. There are seven icons and a picture of your character on this screen. One icon returns you to the main screen. The other six take you to various screens for carrying out the tasks necessary to stay alive and beat up on everyone else. These include looking after your dragon and sending him to raid or conquer villages; incubating dragon eggs; using maps; reading your library; mixing potions to cast spells; and buying from wandering apothecaries.

The basic idea is to keep dragons alive, incubate more (you need at least three to win), and keep from running out of money. The more heat you use, the faster a dragon egg hatches. The more heat you use, the more it costs. The more you tax a village, the more money you get. The more you tax a village, the more chance of revolt. The more spells you use, the more chance of success. The more spells you use, the more expensive substances you buy. And so on. There is far more to this game than I can possibly describe here. Tactically, it's huge!

When all players have decided their moves, the Turn icon on the main screen is selected to make the computer calculate the results. These are shown using text, graphics, SFX and music. Arcade action lovers can choose to pilot the dragon themselves on village raids, but this usually results in the dragon's demise at the hands of village yeomanry! It's better to preset the level of "zeal" he will use and let the computer do it for you.

Dragons Breath will be played to its full potential by seasoned wargamers and fantasy strategy players who enjoy spending 30 minutes working out variables for a turn that will be completed in a few seconds. To arcade freaks it may not be exciting, but it's worth buying just to show off the graphics to friends who own Macs and other inferior machines!

So far, staying alive beyond about three turns has been too much for me, let alone finding the talisman. But I don't mind. I'm sure I already know the secret anyway. ❑

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

Ratings:
Graphics: 9.5
Music: 9.5
Playability: 9.5 to strategy game players
5.0 to anyone less patient
Manuals: 8.0
Value for money: 8.0

Renaissance

by Phil Campbell

AUTUMN ALWAYS FILLS me with nostalgia. I don't know why - maybe it's just something in the air. Another summer fades, another year clicks over on the odometer, and I can't help taking just a few sidelong glances in the rear vision mirror. Nostalgia is sort of fun, but it makes you uneasy when you realise how fast the Ferrari of life is really travelling.

Renaissance has made this fact just a little too plain. This is a genuine dose of computerised nostalgia - a collection of almost perfect clones of *Space Invaders*, *Galaxians*, *Centipede* and *Asteroids*. And that's not all. For good measure the programmers have thrown in an updated version of each game, boasting hi-tech graphics and a number of gameplay enhancements.

These are unquestionably the classic games of the late seventies and early eighties. I remember them well.

I first met a *Space Invaders* machine at Central Railway station back in 1979. The encounter was brief - coin in the slot, a few misplaced shots, and Game Over. But the marching invaders and the pulsating "thud" from the speakers had a strange appeal. One game, and I was well and truly hooked.

Galaxians followed a year or so later. There were a few technical leaps involved, like the introduction of a full colour screen. The original *Space Invader* machines used a mono screen overlaid with coloured cellophane. A good trick - some people never even noticed. But the *Galaxians* were genuinely multi-coloured. Not only that, they would regularly break out of formation and launch stinging attacks on your base ship. *Galaxians* was a great game. My favourite, in fact, and of all the games that have come and gone since, this was the one I played best.

To be honest, both *Centipede* and *Asteroids* left me a little cold. The former featured a multi-segmented creature that scurried back and forth across the screen, weaving its way downwards through a maze of mushrooms. Each time you shot the centipede it split, making the task of stopping it all the harder.

Asteroids was one of the first games to feature vector graphics - the screen display was made up of connected lines rather than clusters of dots. Your ship was a small triangle - with only a thrust control button and a rudimentary steering system, your task was to navigate through a meteor storm, blasting the space rocks into ever smaller particles.

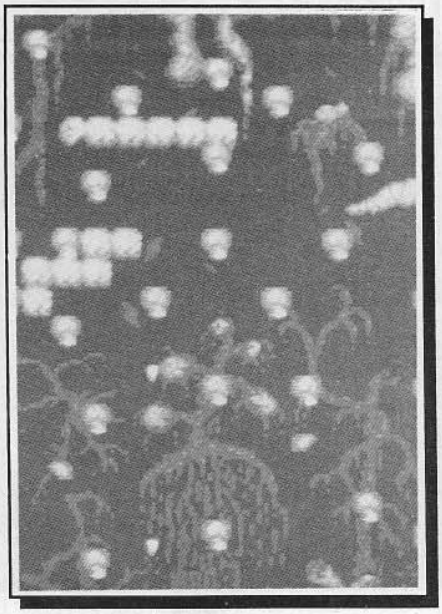
Ah, memories. It seems like only yesterday. But the fact is, there's a whole generation of gamers who have never had the thrill of tasting these classics from the past.

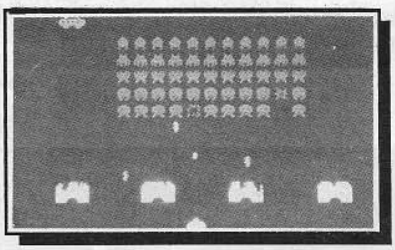
Renaissance opens with a menu screen - the four titles are listed, with a subselection allowing you to choose between the classic and contemporary versions. The four "classics" are pixel-for-pixel copies of the arcade originals, with identical gameplay and sound effects. Only the names have been changed, presumably for legal reasons - now they're called *Megapede*, *Invaders*, *Draxian* and *Rockstorm*. Serious gamers will not take long to figure out which is which.

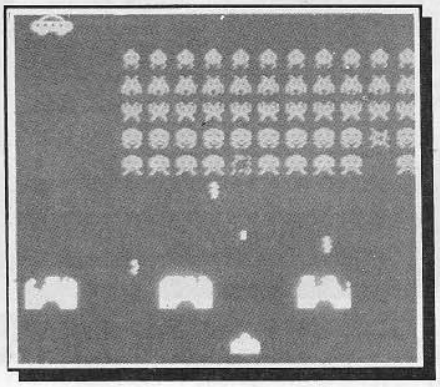
The contemporary versions are a nice addition to the collection. The basic gameplay is retained, while the graphics and sound effects are given a major overhaul. In *Invaders*, for example, you find yourself battling a squad of metallic looking insectoids. Your gleaming laser canon now has all manner of knobs and bumps which do absolutely nothing except look pretty. A pity, because the aliens are harder to kill, and there are a number of new twists - just the thing to keep you going when the nostalgia wears a little thin.

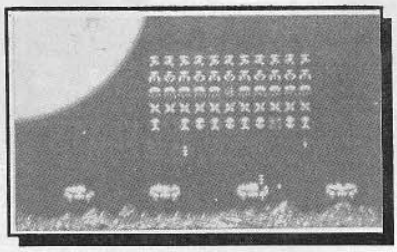
Renaissance is a high quality compilation. The original games have a proven track record, so if you feel like recapturing your mis-spent youth ... ❑

Review copy from Pactronics (02) 748 4700.
RRP Amiga $39.95.









Pinball Magic

by Phil Campbell

THEY'RE LARGE, NOISY and colourful. Wires weave everywhere, connecting bumpers to light bulbs to ancient electro-mechanical relays. And they're lots of fun to play. Pinball machines. The great survivors in the world of electronic entertainment.

My mate Luke Tattersall has one sitting in the corner of his garage. It takes up enough room to park half the family car, but who cares? This is a genuine pinball machine, an antique, a classic example of its genre. Pity it doesn't work.

Most of us just haven't got that sort of room. But that doesn't mean you can't enjoy a good game of pinball. *Pinball Magic* is a genuine pinball machine on a disk - stick it in your computer, wait a moment or two and you'll be flipping and bouncing to your heart's content.

Computer simulations vary in their proximity to reality. Even the most complex flight simulator will leave a lot of details for your imagination to fill in. Not so with this top class pinball-sim. Think about it for a moment. A real pinball machine has two buttons to push to move the flippers. They're now on the keyboard, but they're genuine buttons. A pinball machine has a brightly coloured glass-covered playfield. My monitor likewise. All we need is a silver ball, something that my Amiga can easily simulate.

In other words, playing *Pinball Magic* is almost exactly like playing the genuine article. Smaller, perhaps, but still very, very convincing.

Pinball Magic provides you with nine different layouts - it's really nine pinball machines in one. The first level is fairly straightforward. Press the RETURN key and your ball shoots up the side channel and bounces around the table. There are bumpers, there are flashing lights, there are two flippers at the bottom of the screen. The aim at this point is to light up the letters A, B and C arranged around the table by hitting three special targets.

Tricky at first, but after two or three games I made it. When the lights go on, a small gate opens on the top end of the table - coax the ball through the gap and you've made it to level two. This time you'll need to trigger five extra switches, with lights marked A to H arranged in what can only be called a devious pattern. Hitting H is clearly impossible - I'm still working on it.

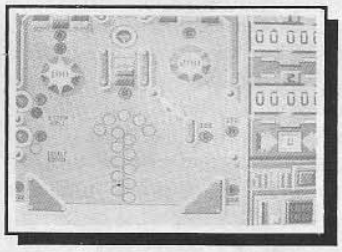
Preview screens reveal some of the fun that's still to come. Best of all is the "breakout" table, with a series of coloured bricks to knock down and destroy - a classic video game idea incorporated into the pinball format.

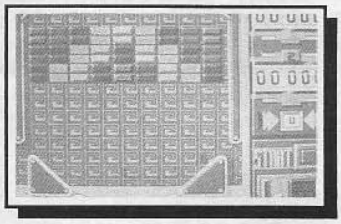
Graphics on the Amiga version of *Pinball Magic* are lovely - not overdone by any means, and perhaps even a touch too conservative. After all, pinnies are generally known for the garish quality of their artwork. There's certainly nothing to complain about though, with all the workings of the machine laid out in precise detail. The score display, for example, is made up of rolling digits that spin around precisely like the display on a genuine machine.

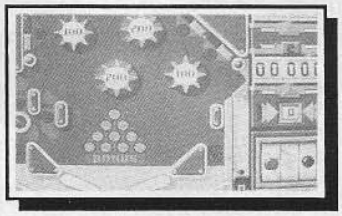
Sound effects are crisp and realistic too - clicking relays, flapping flippers, bouncing bumpers and the clack-clack-clack as the score racks up on the counter. No bells, though, which is rather a shame.

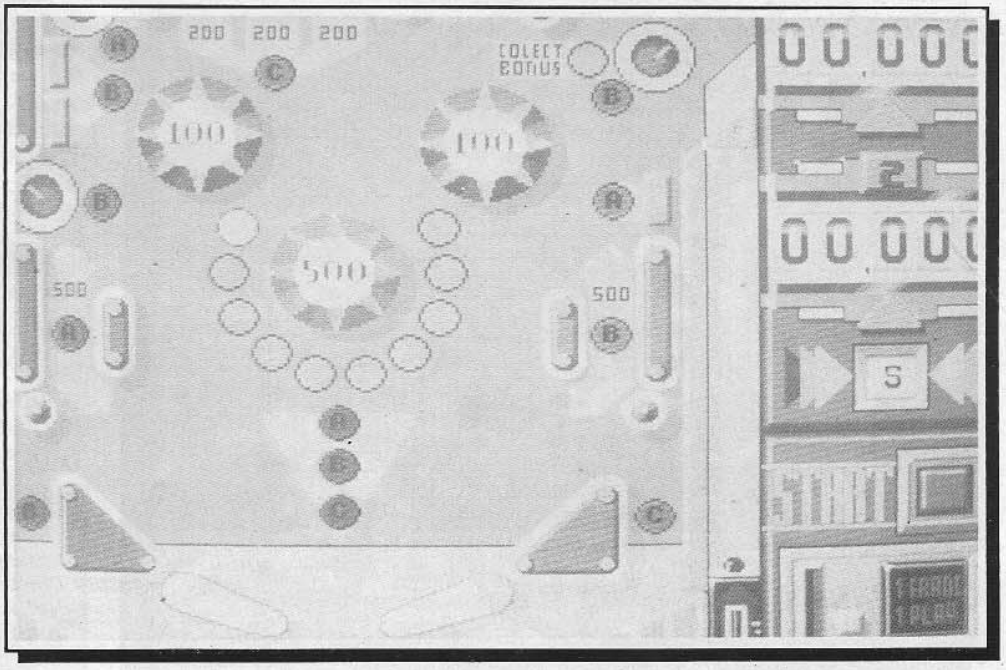
Pinball Magic is lots of fun. It captures that genuine pinball mystique, that tinge of nostalgia that's invariably attached to those good ol' machines at the back of the penny arcade. It's a bargain. ❑

Review copy from Pactronics (02)748 4700.
RRP Amiga $39.95.









Dragons Lair II

Escape From Singe's Castle

Remember Dragon's Lair? Here's the sequel, and it's actually better than the first. Read on, as Phil Campbell investigates Dragon's Lair II ...

PREPARE YOURSELF FOR some serious frustration. Get a grip on your hair and get ready to tug. *Dragons Lair II* has arrived, and it's absolutely beautiful. It's also one of the most annoying games I have ever played.

First, the good news. *Dragon's Lair II*, subtitled *Escape From Singe's Castle*, puts right almost everything that was wrong with its predecessor. This was one of the most impressive Amiga games of all time, though it suffered from a number of fatal flaws. The extent to which things have been rejigged, fine tuned and improved in the sequel is remarkable - a genuine case of a software company actually listening to the people who play their games.

The most remarkable fact of all is that this program even lets you modify the original *Dragon's Lair* to run on a hard disk, effectively linking the two games together into one huge cartoon style adventure. Slow disk access was the main weakness of the original game, so if you've got a couple of megabytes to spare I'd certainly recommend you install it.

The game is basically a cartoon, just like you see on the telly. The main difference, in my case at least, is that it is very much shorter. More like a subliminal advertisement.

Split second timing, brilliant instincts and razor reflexes are required to get past even the first stage of the game.

In theory, all you have to do is press your joystick in the right direction at the right time. This will change the course of the cartoon sequences on your screen - do the right thing and you can guide your character to the end. Otherwise, he'll meet a painful end.

The plot is simple. Singe the Dragon has captured the beautiful Princess Daphne and hidden her in the inmost recesses of his castle. As Dirk the Daring, it's up to you to save her. Through a series of rooms you'll be confronted with deadly obstacles and foes, including the Evil Shapeshifter who lurks deep in the catacombs.

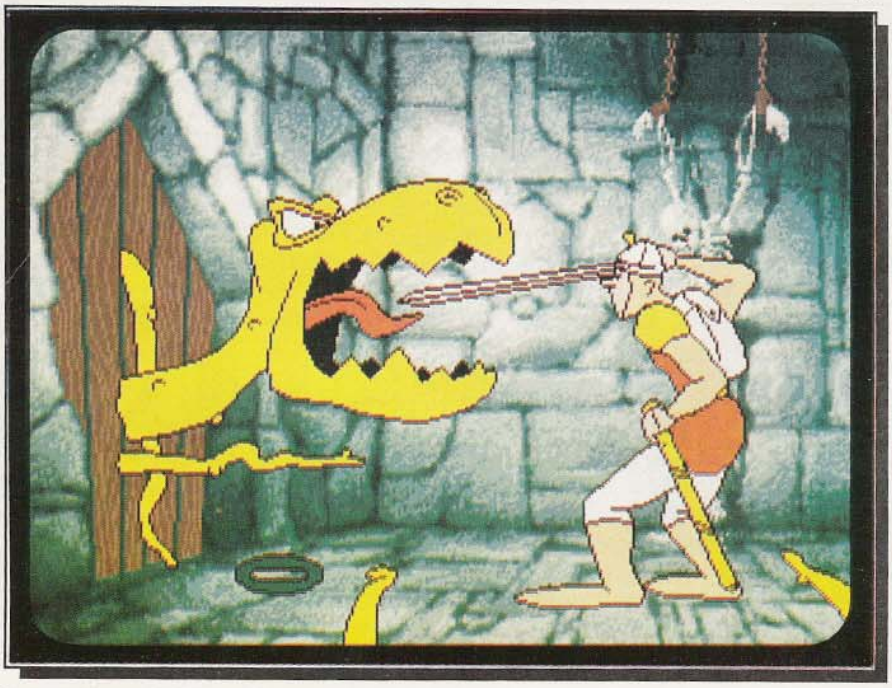
I'm a real klutz. The first scene took me more than an hour. Imagine this - all in glorious technicolour... I'm standing in a gloomy castle corridor - a curl of sinister smoke issues from a crack in the floor. Suddenly, a gap opens beneath me. I jump back, but too late - the scene dissolves as I hurtle to my demise. I got pretty familiar with that little sequence! Since then, I've watched a friend play his way through most of the game as if it was easy.

There were vicious mud men, a bucking mechanical horse, long corridors to traverse - all sorts of goodies just waiting to be found. Inspiring stuff, so I'm going to keep on practising.

Dragons Lair II will sell like hot cakes for one very simple reason. Nothing else can come near it in terms of graphics. The Amiga is a very competent machine, and nothing demonstrates the fact quite so well as a session with a game like this.

Backgrounds are full of detail, with a sombre colour palette that sets the scene perfectly. The animated figures are huge and well drawn, and they move with cinematic perfection. Add a sound track with screams, creaks and grunts at all the right times and you've got a sure fire winner.

Dragon's Lair II - Escape from Singe's Castle is a superb piece of software. The hefty price tag of $89.95 for the Amiga version is justified - five disks crammed full of action. This one is a real showpiece! ❑



Review copy from Questor (02) 662 7944.
RRP Amiga $89.95.

Ratings:
Graphics: 98%
Sound: 86%
Gameplay: 64%
Value: 70%
Average rating: 80%
Save up for this one.

NINJA WARRIORS

by Phil Campbell

SOME PEOPLE THINK life can be reduced to a set of simple epithets, a bunch of neat little statements that explain everything. Here's one you may not be aware of - I call it the "Ninja Dictum." Put simply, the Ninja Dictum states that anything labelled with the word NINJA will have an irresistible appeal to seven-year old-boys.

This is especially so with computer games. Ninjas, computers and seven-year-old boys are an inseparable combination - I know this from bitter experience.

A Ninja, for those who haven't spoken to any seven-year-olds lately, is a Japanese warrior, something akin to a Samuri. Ninja warriors are expert swordsmen, though their favourite weapons are deadly shuriken, star shaped throwing knives. If all else fails they are happy to resort to a well placed kick.

Ninja Warriors is the latest in a long line of Ninja games - *Ninja Mission, The Last Ninja* and *Dragon Ninja* have all come and gone. This one, though, is undoubtedly the best. Packed with an unprecedented level of background detail, with smooth animation and a responsive control system, *Ninja Warriors* is almost unputdownable.

The game scenario is pretty standard. As usual, an evil dictator has taken over the civilised world as we know it. As usual, it's up to you to set things straight. This time, the despot controls a huge army of green-clad troops. You control a robotic Ninja Warrior - and if you've got a friend with a spare joystick, he can control another one. Together, you can take on almost any odds.

And odds there are. It looks easy at first. The enemy soldiers are easy to beat. Then out comes the bazooka - watch out, or you'll literally lose the shirt off your robotic back. But the real challenge comes later. Try a pair of hunchbacked monsters in tandem, or the Super-Ninja at the end of level one. Tough competition, but nothing compared to the huge Sherman tank that I just spotted looming towards me in level two!

Control is simple and well implemented. The firebutton on your joystick controls your weapons - if an enemy is close, your Warrior will use his sword. If there's nothing in range, he will automatically throw a shuriken - usually it takes two hits to bring down an enemy, although the hunchback monsters take more. Left and right thrusts control your direction on the screen, pushing up and down make you jump and duck.

Animation is silky smooth. As your warrior strolls neatly across the screen a city backdrop unfurls behind him - a backdrop full of incredible detail. The run-down streetscape comes complete with spray painted graffiti, life-like billboards and crumbling shopfronts.

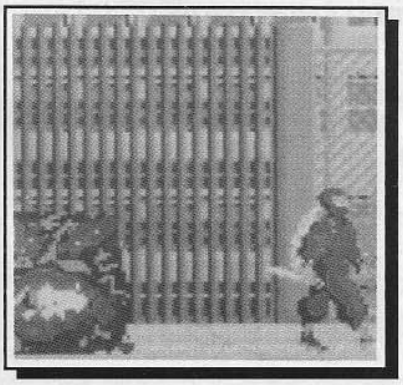
Ninja Warriors is unusual in that the backdrop never repeats - each element is unique, so a vast amount of memory is required. Rather than place the graphics in resident memory, the programmers have adopted the novel approach of loading graphic data from disk as required - accordingly, the usual game sound effects are accompanied by the persistent grunting of the disk drive as the graphics feed onto the screen in real-time.

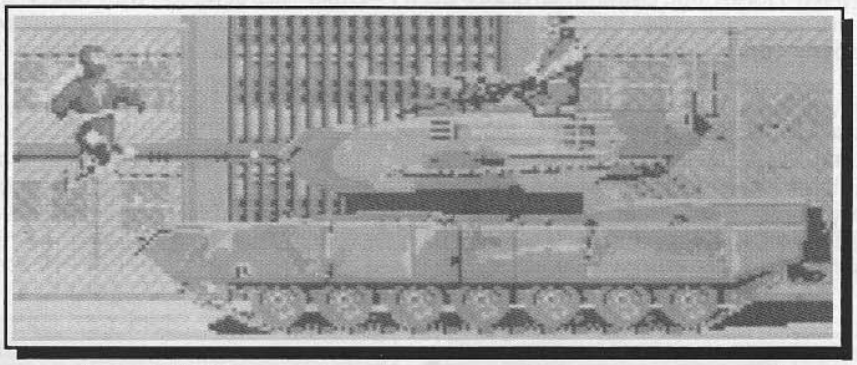
The system works extremely well. *Ninja Warriors* started out in life as an arcade machine, and the programmers claim that the disk-memory technique has allowed them to capture the original backdrop of the entire game complete with all animation frames. I'm impressed.

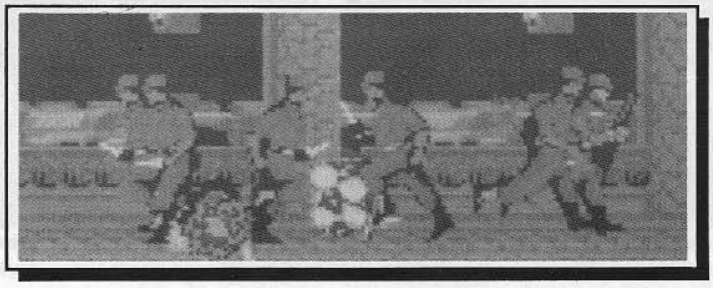
The bottom line, as usual, is playability. It's no good having a game that looks a million dollars if it is no fun to play. *Ninja Warriors* scores well here too. You'll find yourself getting tantalisingly closer to your goal every time you play - who knows, just one more try and I might make it.

I recommend it - but if you ever want to play it yourself, make sure you keep it out of the reach of seven-year-old boys.❑

Review copy from Mindscape (02) 899 2277.
RRP Amiga $54.95, C64 disk $39.95/cassette $34.95.







Eye of Horus

Steve Pike learns to walk like an Egyptian as he checks out Eye of Horus. I wonder if his mummy played too?

SOME GAMES ARE violent, some are boring, and there are others that are fun and interesting. But to play this game to its limits, you need to be a professor in Egyptology. Just as well someone invented instructions. These marvellous documents are just about as detailed as a uni degree, anyhow - and as a little sideline, you can even learn how to play the game, if that's all you want.

The game is based on the story of a past king of Egypt, who was tricked by his half-brother, Set, into lying in a box. Set promptly locked the chest and threw him in the Nile. Just before that fatal last breath, Osiris was rescued by his wife, the beautiful Isis. Together, they conceived Horus, but Osiris died before he was born. Like sands through the hourglass...

Isis tried to hide Osiris' body, but Set found it. He ripped the corpse into seven pieces and hid the pieces throughout the tomb. As we all know (?) a soul cannot be fully at peace until the bits of his body are together. Your part in all this is to help Horus put his poor old dad back together again so he can rest in peace, rather than in pieces.

While you're at it, you may like to destroy Set forever. It is best, however, not to upset the man too early in the game, or your future son could be looking for his father, too. (Huh? ... ed)

Horus can change into a hawk, hence you'll notice that he's got a funny looking head. There are amulets to aid you and Horus in his adventure, but they must be used sparingly, and can only be picked up when Horus is human. You have unlimited papyrus darts as needed when Horus, and as a hawk, you can spit bullets without limit. On your travels, there will be heiroglyphs on the wall, and the amulets are usually hiding among them.

Other heiroglyphs will object and come alive just to spite you, so look out! There are elevators to get you from level to level, but some are locked, and these cannot be used until the colour coordinated keys are located.

There are 19 different amulets to collect, which help to summon gods in a tight situation. But be warned, make sure the amulet about to be used is the right one for your needs - NO SECOND CHANCES!! As you collect a piece of Horus' father, he must be placed in the chamber where you began the journey. (You can only carry him one piece at a time.)

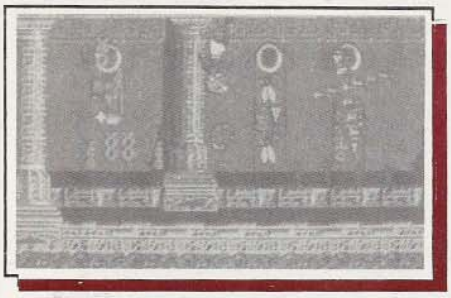
Your father can bring you back from the dead three times, and once more again, if you have the amulet of the FROG. Although the labryinth is a complex place to wander around in, you do not need a map. All you do is find and collect the amulet of the STEPS, and the map is always at Horus' fingertips. The catch is that it could be in any of the forty-odd rooms.

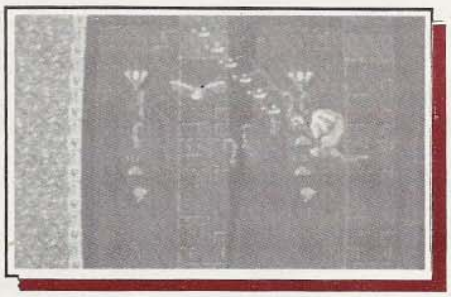
Sound effects are sparse, but there is not much in a tomb that makes noise. The main noises you will hear are the thud when you are attacked by a nasty, the chirrup when you gather amulets, and the bang of exterminated hieroglyphs. There are other noises such as when you deposit a piece of your father in the body bank, and when (or if) you confront Set. Background music plays constantly, and gives the game the ultimate Egyptian feeling.

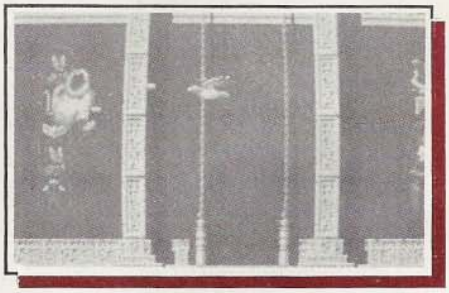
Graphics, although not breathtaking, are well-defined and colourful, and certainly add to the atmosphere.

Eye of Horus is a very good arcade adventure, and its few drawbacks are more than compensated for by its many good points. In fact, any problems are soon forgotten as you set out to destroy bad ol' uncle Sst. ❑

Review copy from Mindscape (02) 899 2277.
RRP Amiga $59.95.







Cadet computer journalist Juris Graney revs up his Amiga to file this report on Fifth Gear.

THIS WOULD HAVE to be a first! An illegal car race and you are invited to participate. Not only that, you can use every trick in the book to win. There are no rules. All you have to do is drive straight through the game until you come to a sign saying "TURN HERE" - then turn around and race back.

Sounds pretty easy - but when you try it, it's harder than it looks. Especially when you're attacked by a bunch of Mad Rev Heads and cops.

While you load the game, a nice graphic appears on the screen. The title sequence features music that will knock you off your chair. Listen for a while, then press the fire button and you're off.

Before you race you can do some shopping. You can buy missiles which shoot down helicopters, missile launchers and a very handy auto fire controller. O.K. - now that you have that sorted out reverse back and go racing.

At first you won't have to worry about being continually shot because there aren't many contestants. There is the occasional cop car and rev head to contend with, but don't sweat. After a while you come to another intersection. Going right takes you to a fuel depot and going left takes you to the river.

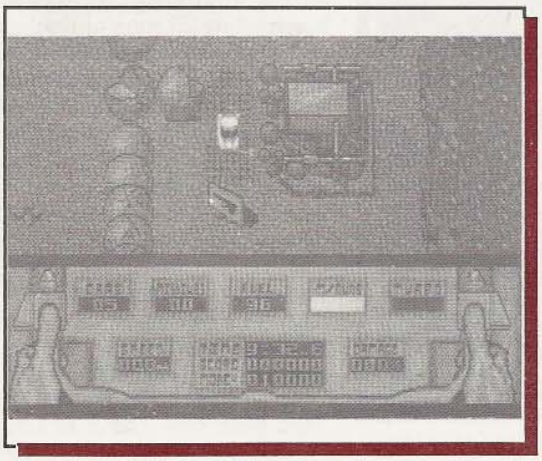
Crossing the river is no easy feat. After you work out how to cross it - I'll leave that to you - go left and you'll find yourself in the Extras shop. Here you can buy a Turbo Booster, Helium Tyres, Watertight Chassis and a Side Propulsive Motor. There is one other shop along the way and that is the Garage. In there you can fix the damage to your car or buy a new one for $10,000.

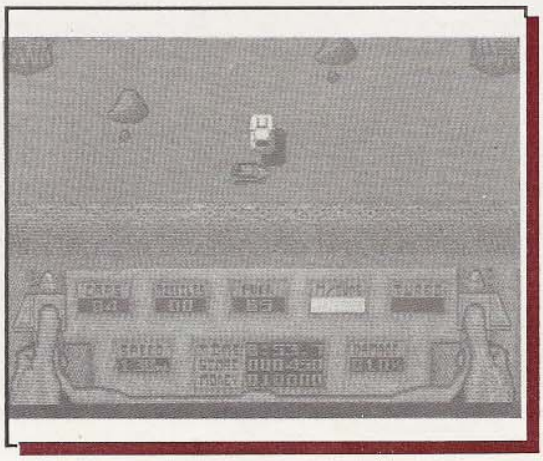
Through the game you'll be faced with Helicopters, Mad Rev Heads, Tanks, Trains, Cop Cars and normal everyday entrants. Eventually you will come to a series of bridges, roads, and brick walls. The brick walls are easy to get through because there are gaps big enough for the car to fit through. In this case you have two choices. You can drive through it which takes a bit of time or you can jump it with the turbo booster.

After a few more of these and more rev heads you come to another river. Jump it and you're on your way to the sign saying "TURN HERE." Then it's off again, back down the track to the FINISH line.

Now you may think after reading this review, let's buy this game. Don't jump to conclusions. The graphics, which are by Pete Petriv, are not crash hot but they pass as good. There is one problem with this program, and that is that the controls lag. After you move the joystick, there's a slight gap before anything happens. When you are in a tight squeeze, you may find that by the time the movement happens you're already dead. Even so, it is still a fairly good game and I enjoyed it. But don't expect too much for your money. ❑

Review copy from Pactronics (02) 748 4700.
RRP Amiga $39.95.
C64 tape, part of Budget Blasters.





Test Drive II

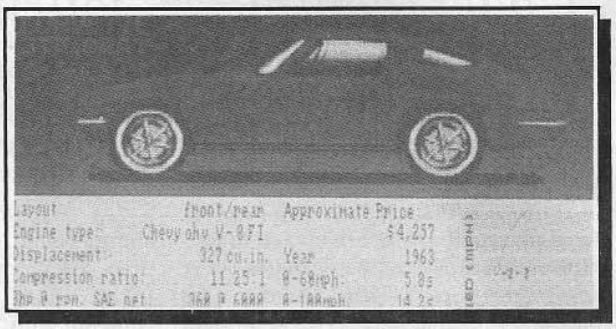
The Muscle Cars

by Tony Smith

WAY BACK IN the old days my dream car was the Ford Mustang. I had a scrapbook full of pictures of them. Realities, however, mean I drive a twelve year old diesel Landcruiser which is so slow that you have to book in advance if you want to overtake anything. Now, though, my dreams have come true with the release of *Muscle Cars*, the latest upgrade for *Test Drive II*.

Five great cars are featured - cars like the 1963 Corvette Stingray, a 360 HP 327 Chev with 135 MPH and 14.5 second quarter mile, or a 1967 Pontiac GTO with a 400 cu.inch V8. From 1968 comes my dream car, a 428 cubic inch Shelby Cobra Mustang capable of 130 MPH and 14.6 second quarters. This vehicle is ducoed in full Cobra colours, wide tyres and 12 months' warranty, first to see will buy.

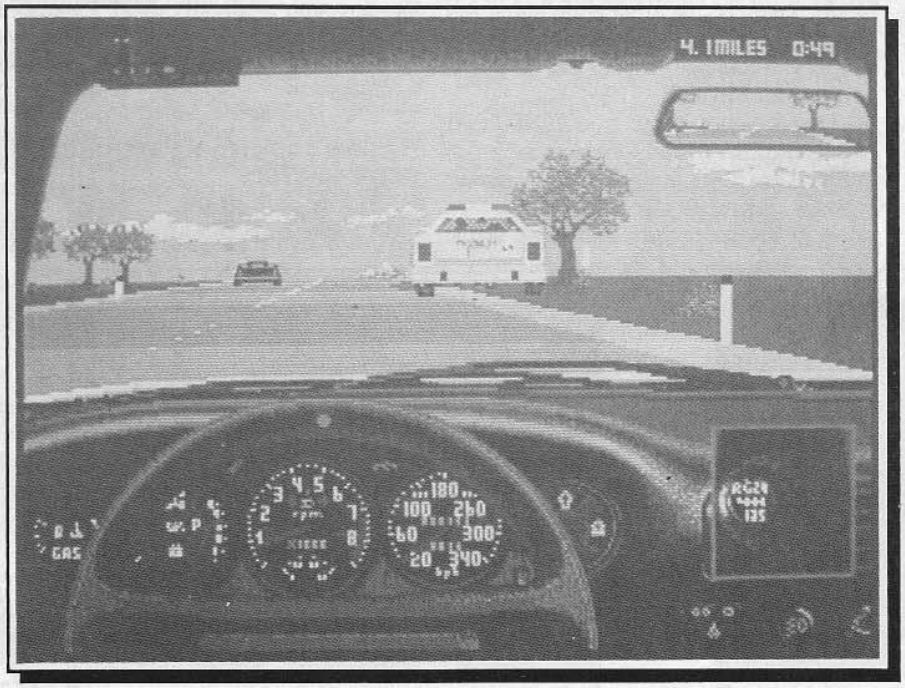
From the magical year of 1969, the year of the Triumph Bonneville with the teardrop tank, come the other two muscle cars, the Dodge Charger Daytona with a huge spoiler on the boot, a 427 cubic inch, hemi-headed monster with 425 brake horsepower, 144mph and under 14 second quarters! This one really appeals to the petrol heads of the family. Last but not least is the '69 Chev Camaro - now this car is something else! Fitted with an ALLOY 427, running 12.5 to 1 compression ratio, this behemoth produces a whopping 550 horsepower. Capable of 152 mph, this baby will outrun the cops with ease - as fast as the Charger over the standing quarter, and it runs away on the straight with an incredible power to weight ratio of 6.7 lb per brake horsepower.



Handling suffers due to the extra speed but the Camaro is the ultimate. Some of the cars cannot outrun the law so tactics must be used to avoid arrests.

Sounds are excellent with throaty V8 rumbles from all the cars - the sound effects are very accurate, one of the best features of this simulation.

Test Drive II is already a classic and updates such as scenery and muscle cars keep it fresh and variable. *Muscle Cars* is a logical extension for *Test Drive II*, along with other scenery, who knows what they will do next - how about a Cabover Peterbilt with a Silver Series Detroit Diesel and a fifteen speed Roadranger gearbox hauling 25 tons of oranges to Phoenix Arizona over the Rockies? Or how about a 500 hp Mack Super Liner B-Double hauling bricks from Gunning to Taree via the Putty Road avoiding the RTA inspectors all the way? Maybe even a run down the old Pacific Highway from Kempsey to Sydney? That's living dangerously, for sure. ❑



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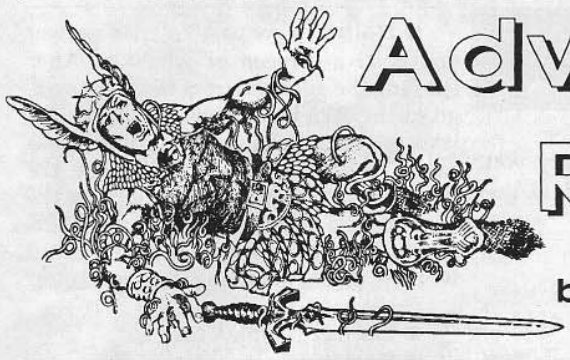

Adventurer's Realm

by Michael Spiteri

Welcome once again to ***Adventurers Realm*** *- Australia's only column dedicated to assisting and informing adventure, rpg, and strategy game players on all Commodore computers.*

For all your adventure and wargame queries, problems, tips, help, gossip, malicious rumours write to:

Adventurer's Realm PO Box 351 Pakenham Vic 3810

For all your role-playing game queries (and some adventure hints & tips) write to Kamikaze Andy at...

The Dungeon 44 Hawkesbury Drive Willeton WA 6155

● NOTE! Always enclose a stamped addressed envelope when writing to the Realm!

● Watch out for the Official Adventurers Realm Hint Book ... available soon! ❑

Free hint sheets

● The following hints sheets are available free of charge! You can choose up to four different hint sheets, however because of the high demand, only those with stamps or stamped addressed envelopes (s.a.e) will receive hint sheets.

- Bard's Tale 1,2,3
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Problems, Problems, and More Problems
(Or the Troubled Adventurer's Dept)

● This is the section where adventurers beg and grovel for help to reach the simple level of sanity. If you can help these hair-pullers, please write to the Realm ... soon!!

First up is Paul O'Neill of Geelong, who after fighting with his mate in a newsagent for the magazine deserves to be put out of his misery. Paul is stuck in the *Holy Grail*. He wants to know how to get past Nick after you get the book or the keyboard.

Macintosh user Peter Devitt of Evandale in S.A is stuck in *Deja Vu II*, but unfortunately, he does not say where!! I think he might be after just general hints.

A character called Spaceflight has written in with problems regarding *Indy* - the graphic adventure. First he wants to know how to get past the grate to the crypt, and then he wants to know how to open the chest at Henry's house.

Thanatos (alias Shayne Cooper) of Wagga Wagga in NSW is stuck in *Alternate Reality: The Dungeon*. He asks the following questions:

● Where is Luckies Potion Brewery?

● What are the answers to the Gargoyle's three riddles?

● Where is the entrance to level four?

● Where and what is the Blood Stone?

● What do I use on Death's Door?

Susan Dawson of no-fixed-abode is stuck in *Leisure Suit Larry II*. She wants to know how to get into the elevator on the top of the volcano.

Kevin Emery of Bundaberg in Queensland is stuck in three games. Firstly, in *Indy* he wants to know how to get past the final trial. Then in *Guild of Thieves*, what does he do in the bank vault. Finally, in *Manhunter*, Kevin is stuck in Day Three. He has just smashed the radio and retrieved the third module, but does not know what to do next!

Peter Nuzum of Lara in Vic is one of the few adventurers whose pleas for help get overlooked. He was stuck about a year ago in the adventures on the Pro-Pack diskette. Well, 12 months later, he is still stuck, though he has progressed onto some harder problems ...

Temple Curse: How do you get the magic ring out of the flint in the Fire Room?

Island of Spies: How do you get the truck to move after starting the engine?

Last Planet: How do I get through the force field?

Finally, a chap whose signature reads something like Alan is stuck in *Dungeon Master*. He is at one level where you have to open two fire doors. He has opened the first one but cannot get the key to the second! Any help for this and all the abovementioned problems? ❑

Help, Help & More Help
(Or the Smart Adventurers Dept)

● Yes folks, a lot of people like this section because it cures mind diseases. If your problem appeared in Problems, Problems, Problems, a few months back, then there is a good chance the solution lies here somewhere ...

● **Game:** Leisure Suit Larry II
● **For:** Jerry Kushnir
● **From:** Spaceflight
● **Help:** On the very right of the rightmost compartment in the plane is the emergency escape. Pull the lever and jump out. Make sure you have the parachute from the insurance machine.

● **Game:** Space Quest I
● **For:** David Marjanovic
● **From:** Spaceflight
● **Help:** Get past the laser beams by reflecting them with the piece of glass from around your spaceship. Kill Orat by making the spider follow you into his cave. To read the cartridge, put it in the cartridge slot in the console past the godlike being, then examine the monitor.

● **Game:** Dungeon Adventure
● **For:** David Lear
● **Help:** To be rid of the jelly you need the corpse which is found in the long room.

● **Game:** Bards Tale I
● **For:** Anyone!
● **From:** Tim Gorlick
● **Help:** The mad god's name is Tarjan. Find the crystal sword to kill the crystal golem. Have your magician at the front of the party and have him cast ANMAR before taking on the grey dragon. This lessens the damage the dragon does with its breath.

● **Game:** Bards Tale II
● **For:** Anyone!
● **From:** Tim Gorlick
● **Help:** To find the Sword of Zar, teleport from the maze of dread entry stairs to 1 dwn, 15 nth, 10 eas. Tell the riddler "DER". The sword can be thrown for about 300 points.

● **Game:** Bards Tale III
● **For:** Anyone!
● **From:** Tim Gorlick
● **Help:** To get past Valarian's tower you need a canteen or wineskin. After learning the gill spell from the fisherman, go to the lake behind his hut. Enter the lake to get to the crystal palace, find room with elixir of life in it. Use the wineskin to get some. Use water on the acorn by the tower. A tree will grow lifting the stone slab and providing you with the means of getting the Nightlance.

● **Game:** Temple Curse
● **For:** Anyone!
● **From:** Peter Nuzum
● **Help:** To cross the pool, row w.

● **Game:** Island of Spies
● **For:** Anyone!
● **From:** Peter Nuzum
● **Help:** After crawling out from under the parachute, hide para.

To get out of the plane, take para, wear para, pull lever, pull ripcord. To cross the swamp e.s.w.e.n.w.w.n.

● **Game:** Last Planet
● **For:** Anyone!
● **From:** Peter Nuzum
● **Help:** In the limestone cave, go n.n.s.e.w. To get out of the ice cavern, get ice, slide. To pick up the green man you need to wear the gloves. ❑

The Dungeon
by Kamikaze Andy

● This month the Dungeon brings you the latest news on RPG's from the USA. New World Computing has just released its mighty *Might and Magic II* for the Amiga, with greatly enhanced graphics and sound. You must lead a party of adventurers and explore the land of Cron, defeating evil monsters and solving ingenious puzzles. The C64 version has been out for some time.

Loom is Lucasfilm's first attempt at a role-playing-game, and it features outstanding graphics and animation. Although the interface is similar to previous efforts such as *Indy*, there will be no typing or even selection of verbs! The only interface will be a musical staff, and spells will be cast by using different musical notes. Available now - on the Amiga.

From Origin comes the long-delayed *Ultima V*. After programming delays and court writs, the Amiga version of this masterpiece will be out soon. When will the just released *Ultima VI* on the IBM be converted? Who knows. Origin has released another RPG while we wait for *Ultima VI* in the form of *Knights of Legend*, a modular role-player which will accept additional data disks. I've tested the game and it's tough! Graphics are excellent, and this product is out now for both Amiga and C64.

Universe III is the latest installment in Omnitrend's Universe saga, and the first on the Amiga. This sci-fi RPG features graphics similar to *Paladin* and also utilizes mouse and icon control. Another Omnitrend product, *Breach II* is also sci-fi, but more of a wargame that a role-player.

Finally, the return of Infocom! Yep, the masters of adventure have settled in their West Coast settings and have begun the task of rebuilding their reputation. Traditional adventurers might despair since Infocom are now definitely an all RPG company, and their text or even text-graphic adventures are on the way out. Their first release was *Mines of Titan*, a conversion of an earlier Electronic Arts product called *The Mars Saga*.

Their latest release is only for the Amiga and PC, and it's called *Circuit's Edge*. Based on a series of sci-fi novels by George Effinger, this RPG casts the player as a private eye of the future. Your goal is to search the city for a missing folder containing valuable info! Be warned however, Infocom have labelled *Circuit's Edge* as an adults only game. The younger rpg'ers among you might like to wait for *Battletech II*, available soon. ❑

Questor Adventurer of the Month

● Questor have kindly donated a free game to the adventurer of the month. To be in the running you could do anything from just sending in lots of hints and tips, lots of funnies, or from just having something generally interesting to say about adventure games! Be quick though, this is for a limited time only! ❑

Realm Review: Tower of Babel

It's getting harder and harder to draw a line between action games and strategy adventures. This one breaks all the rules. There's a ton of realism, there's action - but the element of strategy is all important. ***Michael Spiteri*** *reports ...*

PURE BRILLIANCE! These are the two words I would use to describe this incredible piece of programming by UK programmer Pete Cooke.

Probably the most ingenious and expandable mindbending puzzle and strategy game to be released on computer since the infamous *Lode Runner*.

The task set to the player is quite simply to collect a number of energy capsules and destroy a few objects. The task sounds even more simple when you are given the likes of Zapper, Pusher, and Grabber - three robotlike spiders to do the work. Zapper can zap things, Pusher can push things, and Grabber, of course, can grab and store things.

The energy capsules are there for the taking - you just have to work out how to get past zapper guns, pusher guns, mines, time bombs, lizards, snakes, etc, that have been stragically placed to drive you up the wall. You must plan every single move of the spiders to complete each level of the game. Each of the spiders must work together as a team - otherwise the mission becomes impossible.

The game takes place on an interconnecting network of towers, platforms, and lifts (displayed in colourful solid 3D graphics).

A playing board can be viewed from any direction at any angle, so you can see clearly where all the obstacles are placed.

You control the spiders by first selecting the spider you wish to move, and then positioning the pointer on directional arrows to move the spider. Pressing the fire icon has different results depending on which spider you are using. Zap-

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per will fire a laser beam directly ahead of its path. Pusher will attempt to push an object directly in its path, and Grabber will grab whatever is in its path (such as the very important energy capsules - with Grabber dead, the mission becomes impossible.)

If you want, you can operate the spiders all at the same time by programming up to eight moves at a time using the programming function. This style of play is necessary on harder levels of the game where timing and teamwork are a major factor.

You have to examine the field carefully. If you move any one of the spiders in the path of a Fixed Zapper then that spider is dead meat (or should that be metal?). Even worse, if you move a spider into the path of a Fixed Pusher, then you might find your spider being unwillingly pushed into the path of a Fixed Zapper. Then you have to watch out for the Rotating Zapper or Pusher, which can zap/push anything around it! Land Lizards can be just as mean when it comes to destroying your mission, forced to change direction they literally destroy the floor on which you crawl! Mines and timebombs also add that extra difficulty when planning movements.

Well, what was originally a simple adventure has turned into a deadly gauntlet! Don't worry, the programmers have included some objects to help you on your way. A Block is just something that can be pushed into the path of a Fixed Zapper/Pusher to make crossing the path a lot easier. The Glass Block will even reflect back a Fixed Zapper's beam causing it to self-destruct. Freezer will freeze all deadly objects, and Wiper will wipe out all unoccupied squares! Lots more other objects to deal with, too much to mention.

Sooner or later, after many hours (and I mean MANY hours), you'll have worked your way through all of the many levels in the game, and then, *Tower of Babel* will go back to the shelf to gather dust. Not so fast!

Like in *LodeRunner*, you can design your own towers and rig them with every evil weapon you can fit! Watch your friends' brains explode as they try to decipher your own personal tower. The designer is very easy to use, and you'll have new worlds designed in no time!

Attention to detail is what also makes this game a winner. The graphics are very clear and colourful and very realistic, from the way the spider bends its knees when it trots, to the colourful terrain. The sound in the game is also quite good!

The manual is well set out, with a playable tutorial built in. You'll learn the game in minutes, but play it for hours.

Very playable and very addictive. I usually chicken out by telling people to try before they buy; well, I feel safe in saying, if you are after a great strategy game - go out and buy *Tower of Babel*, and establish the cult following the game is crying out for!

From Rainbird. Distributed by **Questor**
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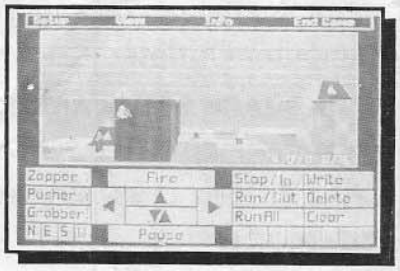
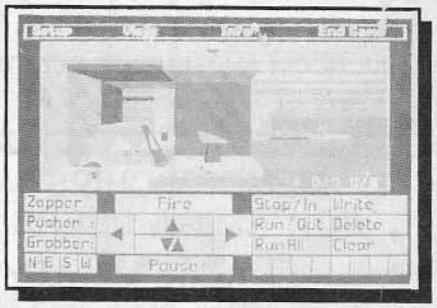
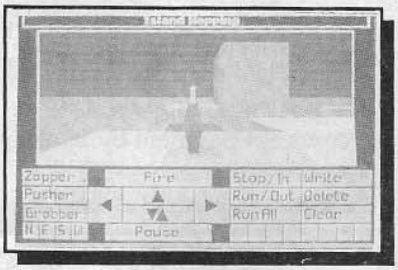
Rating out of 100 - 98.
RRP Amiga $59.95. ❑







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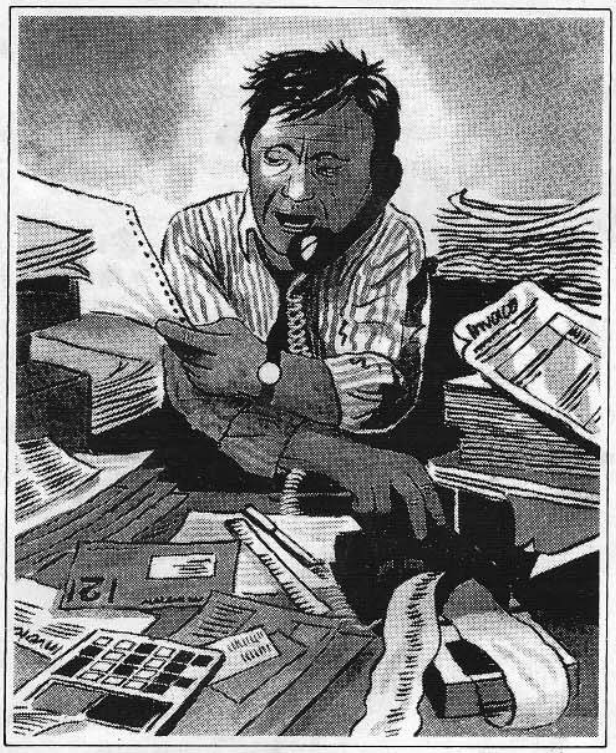

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