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Issue 31
January/February 1988

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PAGE 6

ATARI USERS MAGAZINE

THE PAGE 6 AWARDS
YOUR CHANCE TO VOTE!
see page 17

Issue 31

January/February 1988

'The Magazine for the Dedicated Atari User'

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PAGE 6 is a user's magazine which relies entirely on readers' support in submitting articles and programs. The aim is to explore ATARI's capabilities through the use of simple and better tools. We will pay for articles and programs which are appropriate and we hope that readers will enjoy seeing their work published. In time we hope that other readers will learn from the articles and programs submitted and increase their knowledge of Atari computing.

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PAGE 6

ATARI USERS MAGAZINE

Issue 11 Jan/Feb 1988

"The Magazine for the Dedicated Atari User"

ISSN No. 0902-4967

THE CREDITS

Full "official" credits are on page 6, here are the people who made it possible.

Les Ellingsham did the Editing

Nicola Perry looked after the ads

Phil Cardwell gave valuable Editorial Assistance

The Regular Contributors are:

Gerry Francis
Mark Hutchinson
Matthew Jones
John Davison
John Davison Jr
John Sweeney
Paul Mann

The superb Cover Illustration and many other illustrations (also here) were by Barry Armstrong

All other contributions for this issue are outlined alongside their articles or programs. Thanks to everybody for contributing and those helping others.

Helping keep the magazine on the air are:
10000 Atari, Birmingham, Van Alstine, 10000 Atlantic, Cleveland, De Damm, Bruce Sprague and Phil T. Todd O'Neil and George are two of the very best not to mention the Pacific Champs. Phil Jones is working for Team Atlantic here and other's. And a whole lot more!

Severson? You had that Atari is supposed to run as well isn't it?

The next issue of PAGE 6 could feature YOUR article or program. So, send it!

PAGE 6 is a quarterly volume entirely with Atari equipment and software. Published twice 1987/88, both this year. It is distributed, with hardware, to all users, 10000 Atari, 10000 Atlantic, 10000 De Damm, Bruce Sprague and Phil T. Todd O'Neil and George are two of the very best not to mention the Pacific Champs. Phil Jones is working for Team Atlantic here and other's. And a whole lot more!

Editorial

YOU CAN WRITE TO US

Well, this is our third issue on the newsstands but such are the vagaries of the news business that we still don't know exactly how many of the first issue we sold? We are proud to be dedicated to Atari and I am not interested in producing magazines for other, lesser, computers but one of the problems of being an independent publisher with only one title is that you need to do more to cut out the inevitable wastage and make sure that the magazine is reaching the right outlets where it will sell and not lay on shelves unused and unread. Unlike others we don't have another title like *CompuWorld* Fish Brevier to fall back on (but that I would want to fall back on that). Many readers have been reporting the progress of sales in their local area by passing comment but it is, in fact, beneficial to us if you can let us know of any major newspapers who either do not stock the magazine or who will not. It is not possible, or indeed desirable, to get the magazine into every small newspaper but it is quite important to make sure that we know where the magazine is selling well so that we can ensure that our distributors get their copies to those outlets. If you find a shop that has sold-out of PAGE 6, ask them how many copies they had and then drop us a line or give us a ring, it will help us and it will help you.

One of the benefits of getting the sales sorted is that we can make decisions about whether to put extra pages in the magazine when needs be. For instance we had the two month material for this issue and would have liked to have put in an extra eight pages as a Christmas bonus but our total newsstand sales have sorted down it would be foolish to gamble. So you see, if you keep us informed, we might be able to keep you even more informed about what interests us all, Atari computing.

YOU CAN WRITE FOR US

Regular readers will know that we occasionally put out pleas to readers for programs and articles to keep the quality of PAGE 6 up to scratch and sometimes in this issue you will find an "advert" offering you money in exchange for programs! If you are new to PAGE 6 you might be interested to hear what sort of programs and articles we like. As far as programs go, we will consider any type of program that uses the Atari's unique abilities well be it a game, utility, business, application or whatever. If you find it interesting enough to write, then others may also find it interesting to type in and use. Articles likewise. If there is any subject to do with Atari that you think you know well and find very interesting, then write about it. We have always preferred our contributors to write "from the heart" rather than be commissioned to write 1000 words on such-and-such as we believe that is what gives PAGE 6 more depth than other magazines.

Don't be afraid to send a program or article to us. If we can't use it you will only get a rejection slip with a polite thank you for the submission, nothing more sinister. And we are quite happy to see stuff that other magazines have rejected because quite often they reject things simply because they don't know enough about Atari! Some of the best things from past issues of PAGE 6 have been rejected by some of the "top" magazines. It is often our, and your, good fortune that they seem not to understand just what a great computer an Atari really is!

HAPPY NEW YEAR

This one marks the passing of yet another year. To all our long standing and our many new readers PAGE 6 wishes a Happy Christmas and a fantastic New Year. Let's hope Atari goes down strongly to success in 1988, they might even notice we're here.

I'm off on my first holiday of the year. See you in 1988!

Les Ellingsham

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US Doubler two chip set and fitting instructions £29.95

This Disk Operating System has been widely acclaimed as the best DOS for the 8 bit Atari range. SpartaDOS from KCD supports everything from 814-disk drives through RAM disks to hard disks. A special menu allows rapid transfer, erase and locking or unlocking of files using only the Space Bar, Option, Start and Select keys. The utility package supplied also features a 32 character keyboard buffer, intelligent switching between disk densities, a binary file game menu, subdirectories and time/date file stamping.

SpartaDOS complete with 175 page manual £29.95



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P-R Connection

Now you're no longer limited to Atari compatible printers and modems. The P-R: Connection plugs directly into the serial disk drive port of any 8 bit Atari computer and provides the user with a standard Centronics printer interface and two RS-232 serial ports. It also draws its power from your computer which means one less cord fighting for a power point while its compact size leaves your work space virtually clutter free.

The P-R: Connection's serial ports use a fully compatible B: handler and resemble those of the 850 interface with the same signals and functions.

P-R: Connection and manual £49.95

Supra's MicroPrint is a parallel printer interface for the Atari 8 bit series of computers which plugs into the computer's serial peripheral port and then directly into the printer. It works with most parallel printers and 8 bit software and includes a built-in printer cable.

MicroPrint

MicroPrint £29.95



The SupraDrive AT 20Mb hard disk for the Atari XL and XE series connects directly to the computer's parallel bus, allowing high speed data transfer rates of 8-10,000 bytes per second (approximately 10-15 times faster than the normal Atari drives). The SupraDrive AT stores more than the equivalent of 200 single density Atari disks and can access any information within milliseconds. All this adds up to an extremely efficient system for the serious Atari 8 bit owner. The SupraDrive AT is supplied with hard disk interface, built-in power supply, manual and SpartaDOS.

SupraDrive AT ready to plug in and use £79.95

Rambo XL transforms your 800K into a mighty 256K computer and makes it memory compatible with the 1000E. Now your XL can support Basic XL extended mode or the standard RAM disk supplied with Atari DOS 2.5. With the RED: COM: handler supplied with SpartaDOS you get a 768K RAM disk - enough to duplicate a full double density disk in one pass! You must supply eight 256K DRAMs and the DOS of your choice.

Rambo XL with fitting instructions £29.95



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BANNED!



Friday. This turned out to be unlucky for Red Rat Software for on 11th November they launched Little Devil, their latest Atari release, only to discover that it had been banned by Silica. Distributors and certain overseas distributors! What is more Silica went totally over the top and banned their next release entitled Nightmares even though they hadn't even a finished version!

So what is so evil about these titles? Nothing at all, they are just variations on traditional arcade style games. Little Devil just happens to be set in Hades where you have to collect lost souls in order to rescue a Princess, and Nightmares has some superb monsters in a swirling shoot-'em-up format. So why has these? Silica say that they will not touch anything that deals with the occult because it is "harmful to children". Talk about double standards! How come it is perfectly acceptable to kill people with karate, bombs and guns and wipe out every living alien just because they don't happen to come from your planet, yet rescuing a Princess in Hades is harmful? We suspect it has a link to do with distributors losing interest in 8-bit titles and finding a

convenient excuse not to stock them. It will be interesting to see how many ST titles get banned (you can think of several candidates) in the coming months.

In the meantime, Red Rat need the support of every Atari 8-bit owner because they are one of the few to stick to supporting this format. In a difficult market they are trying to bring you new titles regularly and if they can't get them onto the market, you will lose another software company. If your local dealer can't get these titles you can order direct from Red Rat at P.O. Box 12, Prescott, Merseyside, L35 9HQ. Tel. 091 426 9089. Both titles are £7.95 on cassette and £9.95 on disk.

Other new releases from Red Rat, (remembering/forgetting), are *SPACE WARS, DOUBLE PACK No. 1* with *PLANET ATTACK* and *MADMAX*, *LEMPSTER, DOUBLE PACK No.2* with *IRONCLAD BULL* and *POTTEROLE PANK*, and *SPEED-RUN*. All are £7.95 on cassette and £9.95 on disk. Two new releases for the ST at £14.95 are *Penny and Scrambling Wings*.

Support Red Rat, they are supporting you!

PCW RECORD

The computer industry is alive and well thanks by the recent PCW Show. Anyone who went on the Saturday will surely have credited it was, there were even rumours that they might have to shut off the gallery because of the number of people!

The official attendance figures show that over 71,000 visitors turned up

making this the biggest U.K. computer show in history. With repeat visits included, the attendance was over 80,000.

Getting that many into the National will be a bit of a credit, but let's hope that the Atari Christmas Show, just gone, enjoys equal success.

GAME OF THE YEAR

The Guild of Thieves, available in Atari format, has been voted Game of the Year in the 1987 British Micro Computing Awards, a double achievement for Magister Software following earlier awards for their first release, The Pines.

Magister Software Managing Director Anita Sinclair is delighted that their second game should win an award because "it was probably judged on the quality of gameplay... rather than the technical achievements of the parser and the visual delights of our graphics". The Pines was widely acclaimed as breaking new ground with its parser and graphics and following up an initial success is always difficult.

Bainbrid Software have just released the third Magister Software adventure, Justice, and are hoping that it will be just as successful.

GNOME RANGER

Level 9's latest release, *Gnome Ranger* is being marketed directly rather than through Bainbrid Software and is a 3-part, high-located adventure concerning a busy Cinema called Ingrid who leaves her dream farming village to study gnome chemistry at college. The routine with all sorts of new-fangled ideas and sees about modernising her family whether they like it or not. Every improvement ends in disaster but Ingrid is not put off, she chronicles every event in a diary which accompanies the game. Eventually, after a secret meeting, the gnomes give Ingrid a magic scroll but when she reads it it transports her far away and she must find her way back, paying the wilderness to rights as she goes!

Level 9 have tried to make this a different style from their previous adventures while retaining the parser and text abilities found in Knight One, their latest release through Bainbrid.

Usually for Level 9 this one is available on disk for the Atari XL/XE at £9.95 or on 5 cassettes for the same price. It is good to see Level 9 finally recognising Atari owners with disk drives and doubly good that they can put the product out at the same price as on cassette. Why can't others do it?

EASIER THAN AUTOMAKE?

Dear PAGE 6,

While browsing through the September/October issue of PAGE 6, I was surprised to see your AUTOMAKE program for disks. I agree that it is a lot easier than typing RUN "D:\AUTOMAKE" but I have found a much easier way, using DOS 2.0. First insert the DOS master disk and boot it up, when the DOS menu appears select 'L' to load a binary file. When the prompt appears, type SETUP.COM and press return. The drive will then load and run the program. A menu will appear, select option 'F' SETUP AUTOFOR DIRBOOT. Another menu will then appear, select option 'F'. It will then ask you the name of the file you wish to download. Type in the filename, for example D:\PAGE then insert the disk that you want the Autofor on. (Remember it must have the program on e.g. PAGE, press return and it will now create the AUTOFOR.RUN file. To re-load switch off the computer and switch on again, it will now automatic your file

Michael Jacques,
Manchester

If you are aware of the use of SETUP.COM but a lot of users do not have a full copy of DOS 2.0 which includes this utility and are you sure it's easier than using AUTOMAKE? It seems to me that typing RUN "D:\AUTOMAKE" and then typing in your filename is easier for beginners than having to remember about binary disks and such like.

Got anything interesting to talk about? Or some questions to ask? Or some tips to pass on? Write to Readers Write, PAGE 6, P.O. Box 54, Stafford ST16 1DR

OH NO! NOT DOS 4!

Dear PAGE 6

Help! I am one of those unfortunate that upgraded to DOS 4 and have since discovered that I would be far better off with DOS 2.0. Can anyone suggest a way of recovering my files from DOS 4 to DOS 2.0? I don't own a cassette unit so I can't make the transition via tape. Please help!

Andrew J. Yates
Oswestry

And we thought everyone had moved out with a rope! Don't worry, but the only simple way of doing the conversion that we know of would be by means of COPY'ing the files onto then CLON'Ding them onto the DOS 2.0 format. Unless some other reader in the same situation that wishes a conversion program!

GAUNTLET BUGS!

Dear PAGE 6,

Like John Derrin in his review in issue 28, I have had similar problems when loading Disk 4 and when selecting a character.

The Dungeons disk appears to be heavily copy protected, and remembering an article on copy protection using non-standard sectors which indicates that some drives have problems reading these sectors, I reconfigured my drives to make the newer one Drive A. On re-booting, the dungeons loaded perfectly and there have been no problems with crashing when selecting a character. I also tried sending one character in Disk 4 and the other in Disk 5. There was no crash and the

character at 'B' waited patiently for the other to join him the long way.

The problems with crashing could therefore be related to the method of copyprotection used, a slightly better standard drive having trouble reading these non-standard sectors.

M.S. Silvester
Aldershot

COMPING FASTER

Dear Sir,

I bought Vol.2 No.2 of the FASTEN disk magazine at the PCW Show. Can the games and utilities be put onto another disk and if so how?

P.T. Whaley
Southampton

You may copy any of the FASTEN disks, so long as it is for personal back up only, otherwise you will be in breach of copyright. Assuming that you have a single drive system, disk and hold the left mouse button on the application you are going

to copy, then drag it over on to the D: disk drive icon. From there follow the on screen prompts. It is quite simple for your master ensure that any associated files such as Resource files (such the outside .BSC) are also copied.

GOOD ADVICE!

Dear PAGE 6,

I would like to offer some advice to people having trouble with mail order companies. When writing to these companies, have the letter read by recorded delivery. It costs around 40p for the first three, but the company in question can't tell you it's been lost in the post. If this brings no joy, contact your local trading standards office or consumer protection department. They should be able to make things move. Also keep a copy of any correspondence that is sent or received.

S.A. Collier
Kings Norton, Birmingham

ASTRONOMERS UP IN ARMS!

Dear PAGE 6,

Why does there not seem to be any Atari astronomical software on the market? B.E.C., Cambridgeport and Skywatch have this type of software currently available but Atari seem to have omitted the possibility that people using an Atari have used an astronomical program.

I cannot believe that Atari have neglected to contact astronomers since Atari is big in the U.S.A. and astronomy is a very popular pastime across the Atlantic.

I would be grateful for any help regarding the above.

Lynne Lawrence
Secretary
Blackpool & District
Astronomical Society

Several programs, although not commercial, seem to exist. For the ST there is SET MAP from the public domain. For the 5-16 there is Observational Astronomy from SPYGLASS's issue 13 or Skywatch from COMPACT, issue 68. You might be able to get these back issues through the Gemini web site. Atari themselves have an astronomy program for the 8-bit although it seems to have only been released in the States. You could try a retailer such as Ludbrook Computing of Preston who specialise in importing software from the U.S.A. Maybe some of our American readers could suggest other programs!

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NEW RELEASES!!!

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WARGAMES

A major survey of almost every
wargame available for the
8-bit Atari conducted by
M. Evan Brooks

Computer wargaming in the United States is a dedicated market; there are c. 14,000,000 dedicated computer wargamers, and this points out a problem inherent in the market. While wargame products are measured of a certain sales target, it is quite difficult for sales to reach the broader market. Only Microprose has been able to expand its sales into the gold or platinum levels (100,000/250,000 sales respectively), thus, as companies grow larger, they tend to produce few wargames and target the more mainstream offers.

In the United States, computer trends went from arcade to adventure to simulations. In Britain, the trend went from arcade to simulations, but with the emphasis on console products in Britain, products tend to have a relatively short shelf-life and an expensive price. This has tended to prevent the more detailed simulations from gaining access to the consumer market. Hopefully, this is in the process of change.

This reviewer has been engaged in simulation gaming since 1966, and has been involved in computer simulation gaming since 1982. My background includes service in the United States Army (currently, I hold a Reserve commission as an Infantry major).

ALMOST EVERY GAME AVAILABLE

This article will attempt to rate every wargame for the 8-bit Atari with which the author is familiar. Many of these games will be converted to the ST. In deciding upon the aspects of a computer wargame, there are certain selections that one must make. Usually, levels of difficulty range from introductory to intermediate to advanced, with gradations between these parameters. In addition, the primary medium must be considered: land, sea and/or air and finally, the level of the

simulation - tactical (man-to-man up to company-level), operational (battalion-level to division-level) and strategic (corp-level to theatre army or higher). This review will delineate the games available by levels of difficulty. Within each level, the wargame will be characterized by its medium, simulation level and overall recommendation. Overall recommendations are made by the ratings following the game title.

- 0 = avoid
- ★ = minimally adequate, at best
- ★★ = buy ONLY if interested in this period
- ★★★ = recommended
- ★★★★ = highly recommended
- ★★★★★ = a MUST HAVE
- + = a rating midway between any of the above

These ratings are the author's own, and reflect a personal opinion as to the "warsim" or lack thereof of the product. Additionally, it must be noted that price does have a relation to rating, i.e. the "bang for the buck" theory holds true, and often an inexpensive game can achieve a higher rating than a (marginally) better but more expensive product. Following each Level are the Merchant Products - no longer available for sale, but often found in close-outs and sales.

AVAILABILITY

SSI have an agreement with U.S. Gold in this country and more, but not all of their titles are easily available from any Atari dealer or from many Multi-Order dealers. Microprose now have a UK subsidiary and their games are, or will, be available at U.K. prices. Most of the other games, providing they are currently available in the United States, can be obtained from specialist dealers such as Strategic Plus, P.O. Box 8, Hampton, Middle TN321 55A (Tel. 61 879-2807) and Computer Adventure World, LA Charing Cross, Bedfordshire LU1 4AU (Tel. 052 658 1131). Other retailers who specialise in import American titles may be able to help such as Ludlum's Computing, 3, Ormskirk Road, Preston, Lancs PR1 5QF (Tel. 0772 218744). Where products are released in the U.K., you will find the price in sterling alongside, otherwise the price in US\$, where known, is shown.

M. Evan Brooks is well qualified to comment on Wargame simulations being a graduate of the United States Army Command & General Staff College and being currently enrolled in the Naval War College. He has obtained qualifications in various branches of the Services including Infantry, Armor and Military Intelligence. His full time occupation is an Attorney with the Federal Government (IRS) and he is a Major in The United States Army Reserve currently serving as Operations and Planning Officer for a Military Police Battalion.

INTRODUCTORY LEVEL

This is where you should begin if you have little previous wargaming experience. Jumping to an too high a level might put you off wargaming forever. On a few of these, learn the ropes and you will soon be at intermediate level.

BATTALION COMMANDER ★★+ SSI, £14.99

A tactical contemporary portrayal of armored warfare. With built-in as well as design-your-own scenarios, the game offers a myriad of options. Easy to play, its utility is damaged by its astronomical license fee.

BATTLES FOR BIRMINGHAM (2IC) ★

This simulation offers excellent graphics, poor game play, and little value. Since it is a recent release, many dual-screeners may be considering its acquisition due to the dearth of new products, but beware - this is not a viable commercial simulation; it resembles public domain material available elsewhere. **SEA, AIB**

BRADSHAW ★★★★★ SSI, £29.99

A tactical simulation of ship-to-ship combat during the Napoleonic Wars. With both an arcade and tactical option, one may add layers of difficulty as his own pace. Quick play times and ease of operation make this a necessity in any wargamer's library. Highest recommendation. **SEA**

COLONIAL CONQUEST ★★+ SSI, £29.99

A strategic-economic simulation of the Age of Imperialism. The manual is more difficult to comprehend than the game is to play. Multiple-player interaction is strongly recommended. A cross between the board games of Risk and Diplomacy. **LAND/SEA/ECONOMIC**

FIELD OF FIRE ★★+ SSI, £14.99

A tactical simulation of equal-level operations on the Western Front during World War II. Scenarios are varied and enjoyable however, this reviewer is not overly enthused about the historical accuracy and license fee from this simulation. Nevertheless, it is a good introduction to computer wargaming. **LAND**

FIFTH MISSION OVERSEA ★★ SSI, \$29.99

A tactical recreation of the bomber offensive against Germany during World War II. Realistic but dull, with little room for player initiative. **AIB**

LORDS OF CONQUEST ★★☆☆ MicroPress, £19.99

A strategic-economic game of empires. Relatively primitive graphics are coupled with a map maker and map viewer to make a very interesting multi-player game. As a solitaire effort, it is not quite as interesting, but still retains some appeal. Playability is a definite plus here. **LAND/SEA**

NAM ★★ SSI, \$19.99

An operational simulation of battles in Vietnam, its play is marred by its complete obscurity via a/an somewhat awkward and gaudy employment. Enjoyable as a "shoot-'em-up," but laughable as a conflict simulation. **LAND/AIB**

NAPOLEON AT WATERLOO ★★☆☆ + Crossart, £77, £84.99

An operational simulation of the most famous battle in history, this game has the potential to be great, however, numerous licensees according to be denied, historical accuracy and valid license fee are a definite minus. **LAND**

ONAGE ★★+ Origin, £29.99

A faithful recreation of the boardgame, this faithful but poor negative. The boardgame as \$1.99 was a bargain; the computer game at \$29.99 is not. Still, a good introduction to computer wargaming. **LAND**



PACIFIC GRENADIER ★★+ SSI, £14.99

A tactical simulation of at-sea warfare on the Eastern Front during World War II, its license fee is not overly accurate. Recommendation by the is overemphatic, and opportunity fee is too ambitious. Overall, a solid game, but lacking panache. **LAND**

SARATOGA ★★ Ark, £19.99

An Eastern Front chess, this operational/trategic simulation of the American Revolution in 1777 is developed by marketing techniques. With documentation available on the disk file side, the lack of a hard-copy map (especially relevant to in the documentation) makes the game almost unplayable. **LAND**

SIX GUN NIGHT-CRUI ★★ SSI, \$19.99

A tactical sea-to-sea simulation covering famous Old West scenarios (both historical and Hollywood). Primitive graphics detract from this simulation, but it is quick and easy. Historically accurate, its quick playing time and enjoyable scenarios make up for its defects. **LAND**

TIGERS IN THE SNOW ★+ SSI, £24.99

An operational simulation of the Battle of the Bulge, its primitive graphics and play mechanics have been superseded by more recent efforts and limit its appeal. **LAND**

TOP GUNNER ★★☆☆ MicroPress, £24.99

Three arcade games in a package: Helios Ace (World War II Pacific aerial war) and Mig Alley Ace (Korean War tactical air-to-air) are acceptable in-built three war wargaming. Superceded by more recent products, the repackaging at the lower price will make this an interesting offering. (Note: three games are available separately in the UK at £9.99 on cassette and £14.99 on disk.) **AIB**

WARRIORS CONSTRUCTION SET ★★+ SSI, £29.99

The source code from Roger Damm's previous design Operation Whitehead, Field of Fire, Panzer Commander, the game's potential to design-your-own scenarios in history is limited by the failure of the system's mechanics. Still, a novice may well find its flexibility interesting. **LAND**

THE MORIBUND

Read them over to cut

AFTER MIDNIGHT ★★☆☆ SuperWare, \$19.99

A strategic simulation of the War in the Pacific (1941-1945), this game bears little resemblance to history, however, it is fast and quick to play (i.e. 45 minutes for the campaign). Reminiscent of Avalon Hill's board game Victory in the Pacific, this is recommended for the novice. **SEA/AIB**

INTERMEDIATE LEVEL

ARMOR ASSAULT 3 Epix, B

Thankfully no longer available, this game of tactical armored warfare is guaranteed to detain the most dedicated player. LAND

COMMAND LEADER 3 AAA, BM, B

A tactical simulation of armored warfare (land/platoon) over the last 40 years. With built-in as well as design-your-own scenarios, the game offers a myriad of options. Graphics are quite primitive, but the scenario sets are good. For those Commanders, by the same designer, is the more recent design (with better graphics), joining SAS's "Charlie" line, it will be discontinued shortly. LAND

EMILES 3 AAA, BM, B

A tactical simulation of World War I aerial combat. The ability to design your own scenarios as well as those already extant offers hours of enjoyment, however realism is very low and the view port of the game will show the only mildly successful Silverfishes, the only simulation covering this period. AIR

EASTERN FRONT 3 AAA, B, B

An operational strategic simulation of the German invasion of Russia during World War II. The strategy version offers both beginner and advanced scenarios. Classics by contemporary programming standards, it is still fun to play and a bargain at the price (assuming that one can still find it). LAND

FLYING TIGER'S DISCOVERY 3

A tactical air-crete simulation of World War II (Pacific Theatre). The graphics, realism and play value are sufficient to draw anyone from fanfare play. AIR

INDENTAFEL 3 Discovery, B

A tactical game similar to Flying Tiger, only occurring in the European Theatre of Operations. Just as fun as Flying Tiger. AIR

LEGIONNAIRE 3 + Avalon 198, B, B

A tactical(?) simulation of warfare by the Roman legions against various barbarian tribes. Quickly learned and playable in a single sitting, it bears obvious resemblance to its more successful ancestor Fantasy Wars. A good introduction to computer wargaming, in a combats aspects of attack play and campaign play. LAND

OPERATION WHEELWIND 3 + Brookstone, B

The success of Field of Fire/Panzer Grenadier/Wargame Construction Set, this tactical simulation offers an urban assault during World War II. In many ways, it is more interesting than its descendants, but it is difficult to find. LAND

SHIELD 3 551, BM, B

This operational recreation of the Civil War battle has been superseded by the computer wargame "State of the Art". Easy to learn and play, it is not so much a historical study as a "fun and playful" game. Plus for the novice user, with its primitive graphics. LAND

WORLD WAR III 3 Crystal, B

An operational simulation of conflict in the Middle East involving American and Soviet forces. Primitive, obsolete and inadequate, it is no longer available for sale. LAND



Now that you have got into wargaming it's time to seek out more challenges. Some of these will let you to the full but if you find them too easy, there is always the Advanced Level to consult.

BOBRODINO 3 AAA, B, B

Napoleon's tactical mastery but strategic defeat in Russia, 1812. A set-piece battle, the simulation is historically accurate and enjoyable. Premiering on the B-50 Atari in August 1987, this is one of the few B-50 releases to merit mention. LAND

CLASH OF WELLS 3 AAA, BM, B

A strategic simulation of war in Europe during World War II (both Eastern and Western Fronts). Primitive graphics and poor user interface coupled with extremely poor documentation will deter most players. Yet, the sheer scope of the simulation offers some playability and enjoyment. LAND/AIR

COMBAT IN VIETNAM 3 AAA, B, B

MicroPress, £14.95 (C), £19.95 (D)

An operational simulation of battles in Vietnam 1964-70. Historically accurate, it neither more than one would expect in basic problems in that operational warfare in Vietnam was rarely decisive, and for the game looking for clear-cut resolutions, this simulation may cause more questions than it answers. Recommended for those wishing to learn as opposed to those looking for sheer "gaming" fun. LAND/AIR

COMBAT BALANCE I 3 AAA, B, B

Space opera, Combat Balance I is a tactical simulation of space combat in a Star Trek type is victory-based, and graphics are primitive. However dated by later efforts, of less than 1. SPACE

CRUSAIDS IN EUROPE 3 AAA, B, B

MicroPress, £4.95 (C), £7.95 (D)

An operational strategic simulation of the Western Front during World War II, the scenario offer more value for the money than most other games. The campaign suffers from a certain lack due to the artificial intelligence, but for the intermediate player, its mechanics and play give this game a high recommendation. LAND/AIR

ISAR BUSTERS 3 AAA, B, B

An arcade recreation of the bombing of the Ruhr dams in 1955. Surprisingly, this producer's graphics and "fun" make it too much of a game and not enough of a simulation. AIR

OPERATIONS IN THE DESERT 3 AAA, B, B

MicroPress, £11.95 (C), £14.95 (D)

An operational study of the Desert Campaign in World War II, it offers a fascinating study which will teach the intermediate player new aspects of armor desert warfare. While more accurate than Crusade in Europe, its maps is much less broad, thereby delivering less "bang for the buck". Still highly recommended. LAND/AIR

P-51 STRIKE EAGLE 3 AAA, B, B

MicroPress, £8.95 (C), £14.95 (D)

It is no arcade game or a wargame! No matter what the decision, it has poor platform (over 250,000 units copies sold). Quick to play, multi-scenario and user-friendly recommended. AIR

GREAT WAR 1914 3 AAA, B, B

An operational simulation of the opening months of World War I (both Eastern and Western Fronts). It suffers from the same flaws as CLASH OF WELLS and does not have so much depth as its predecessor. LAND

KNIGHTS OF THE DESERT ★★ SSI, \$24.95

An operational simulation of Rommel's Desert Campaign in North Africa during World War II, it was the first SSI product to offer multiple stacking in the same lane. The concept was a laudable one and positions its recreation of the African Campaign does not deliver its potential. **LAND**

NORMANDY, BATTLE FOR ★★☆☆ MicroPro, \$25.00 (C), \$24.95

An operational simulation of the Normandy invasion, this game is moderately easy to learn although the documentation covering the actual landings leaves much to be desired. A real player, it offers somewhat from lack of joystick input. But overall, a solid intermediate level game. **LAND/SEA**

NATO COMMANDER ★★☆☆ MicroPro, \$25.00 (C), \$24.95 (D)

An operational strategic simulation of the east war in Europe, this review is more kind of the game than the developers currently are. While the mechanics are relatively easy to learn, playability in the larger scenario is limited. Still recommended overall. **LAND/SEA**

ROME AND THE BARBARIANS ★★☆☆ Comsol, \$24.95

A strategic simulation of the Fall of Rome. Easy game mechanics coupled with difficult strategic decisions make this a real player. Still, the game system itself appears too casual for such an ambitious strategic simulation. Recommended for the aficionado. **LAND**

SILENT SERVICE ★★☆☆☆☆ MicroPro, \$25.00 (C), \$24.95 (D)

A tactical simulation of submarine warfare in the South Pacific during World War II. Superb graphics coupled with detailed rules, historical accuracy and layers of complexity make this simulation a necessity in every gamer's library. Why wait? If you don't have it, you should! **SEA**

STAR FLEET ★★☆☆☆☆ Cyber, \$24.95

This tactical space simulation is a worthy descendant of the early mainframe Star Trek games. The multitude of options and ease of play make this an enjoyable product, although it can prove repetitive. Despite some reviewers considering this a rip-off from public domain products, this review will recommend it. **SPACE**

SURRENDER AT STALINGRAD ★★☆☆ SSI, \$24.95

The World War II Southern Offensive (to the East) carried on in SSI's inimitable format, i.e. primitive graphics, inadequate use of tactical and overall elements of operation. **LAND**

THE MORIBUND

One to seek out - Forget the rest

CLEAR FOR ACTION ★★☆☆☆☆ Avalon Hill, \$24.95

A ship-to-ship simulation it is **RECONDENSED**. However, this simulation is broader in scope and allows for multiple ship actions. With potential for precision, its execution does not. Primitive graphics coupled with horrendous user interface make this simulation barely playable. **SEA**

CONOMIC BALANCE II ★★☆☆ SSI, \$24.95

Concise Balance II offers a strategic expansion of the Conco. User-view through emphasis on economic expansion. Scenario dated by late efforts of Imperial Colonus and Reach for the Stars. **SPACE**

ENGALBER ★★☆☆☆☆ AFA, \$24.95

A strategic simulation of Arthur's attempts to forge a kingdom out of the British Isles. While introductory to play mechanics, the sheer scope of the game raises its complexity level to that of intermediate. This is not intended as a criticism, the game is a ringer for default economic simulations on the basis of this line simulation. Barely available for sale, it remains a fine game and a worthy addition to one's library. **LAND/ECONOMIC**

MIDWAY ★★☆☆ Avalon Hill, \$24.95

An operational strategic simulation of the Midway Campaign, this game has been superseded by improvements in computer simulations. Graphics are extremely primitive. **SEA/NAI**

PANZER LAGO ★★☆☆ Avalon Hill, \$24.95

A tactical simulation of armored warfare during World War II, it is continually dated by newer efforts. **LAND**

PARIS IN DANGER 0+☆☆☆☆ Avalon Hill, \$24.95

An early game superseded by newer efforts, this operational strategic simulation of Napoleon's 1814 Campaign suffers from poor graphics and lack of realistic playability. **LAND**

T.A.C. ★☆☆☆☆ Avalon Hill, \$24.95

A tactical simulation of armored warfare during World War II. Similar to **PANZER LAGO**, it suffers from development shortcomings. **LAND**



ADVANCED LEVEL

This is where it all leads! You need to be experienced, dedicated or masochistic to try out some of these. You also need to have more money, for sure you are hooked, the prices seem to go up considerably!

ANTETICAN, BATTLE OF ★★☆☆ SSI, \$24.95

An operational simulation of the bloodiest day in American history, this simulation is historically accurate, although not as interesting as **GETTYSBURG**. Layers of complexity from basic to advanced offer many options. The basic problem with this simulation is the hard-to-learn - the North outnumbered the South almost 3-2, and since the player is aware of this, a World War I-type bloodbath occurs. In the ultimate opinion, the player as the Confederates would prove more interesting. **LAND**

BATTLE CRUISER ★★☆☆ SSI, \$24.95

A simulation covering surface naval action in both World Wars, this is a case of the earlier original **Warship**. No-one would be broken, although this is the better bargain given its more extensive coverage. **SEA**

CARRIER FORCE ★★☆☆ SSI, \$24.95

A tactical/operational simulation of the major Pacific carrier battles of World War II, this game is extremely slow in execution and its historical accuracy may be questioned in some areas. Despite these facts, it covers its subject in an interesting way and is worth the effort for anyone desiring to learn about the period. **SEA/NAI**

CHICAGOMASS ★+☆☆☆☆ CIGOR, \$24.95

A tactical/operational study of the Battle of Chancellorsville, this game offers a plethora of detail, however, its graphics are so primitive that they doom the game before it gets started. One has come to realize more in graphics than this game can begin to deliver! **LAND**

COMPUTER AMBUSH ★★☆☆ + \$39, £19.99

A tactical maneuver-plan simulation of parading in World War II. The graphics are primitive, but the details make up for this deficiency to a large extent. **LAND**

GETTING INTO THE TRENCHES ★★☆☆ + \$29, £19.99

Similar to **ANTETAM**, this tactical operational simulation of the most famous battle in American history is more successful. Tense and complex, it is a fascinating game and a worthy addition to any gamer with the least interest in the American Civil War. Players should choose to begin on the second day for a more familiar simulation; the campaign scenario will generally result in positions other than historical, but it is interesting to see the might have-been. Highly recommended. **LAND**

GULF STRIKE ★ + Avalon Hill, £19.99

An operational simulation of contemporary combat to simulate **GENEGAME**. Diverse and historical complexities plus orders of battle abound. But the graphics are enough to deter all but the most determined. The map, in shades of orange and black, resembles a Big Mac (at least on a mid-Philippines). An extremely convincing of a fine Matt Herman masterpiece. **LAND/SEA/AIR**

IMPERIUM GALACTICUM ★★ \$11, £19.99

A strategic space empire-building game, this has to recover to **COMBAT**, **BATTLESHIP**. More detailed, and potentially more interesting. **SPACE**

KANAPPOLETTI ★★☆☆★ \$51, £29.99

A tactical simulation of warfare in the Eastern Front during World War II, this game was Computer Gaming World's Game of the Year (1985). Multiple options abound the only defect is the lack of joystick input. Still, an essential addition to any wargamer's library. **LAND**

KANAPPOLETTI SCENARIO DISK 1 ★★ \$51, £29.99

Five additional scenarios for **KANAPPOLETTI**, they are not really necessary. Historical accuracy is subject to question in some of the scenarios, and the basic game itself can overcome any options the player wishes. **LAND**

NECH DEKALAH ★★☆☆ \$31, £19.99

KANAPPOLETTI in another wrapper on the Central Front. While the game loses an obvious resemblance to its predecessor, the effects of **STORM** and built-in-definite firing positions raise questions as to its accuracy. A welcome addition is the inclusion of smoke as an obscuring force. **LAND/AIR**

OPERATION MARKET-GARDEN ★★ \$51, £19.99

A tactical/operational simulation of the World War II airborne operation ("Moose's Ploy"), this game suffers from poor graphics, determining the road network is a lesson in frustration. Also, moves may not be adjusted to real-time, and overall, the clarity and subtlety of our interface leaves this simulation. **LAND**

RAIL WEST ★★☆☆ + \$35, £19.99

A strategic simulation of railroad expansion in the United States during the 19th Century, this is not a wargame per se, however, its economic "warfare" and educational value make it a fascinating product. **ECONOMIC/LAND**

SHIRAZ CHANGE AT CHECKMATE ★★☆☆★ \$37, £19.99

A very playable simulation of the Civil War Battle of Chancellorsville, this problem brings out the difficulties of the confused conflict in the densely wooded terrain. **LAND**

STAMMEL: BATTLES FOR TORRELL ★★ + GDM, £14.99

Similar to **CHECKMATE**, this tactical operational simulation of World War II shows battles suffer from the same defects. Detailed and complex, the graphics and slow execution does it a grievous disservice. The supply and air rules are the most complex yet seen in a computer simulation, but show applicability and stand well over most players. **LAND/AIR**

U.S.A.A.F. ★★☆☆★ + \$37, £29.99

An operational strategic simulation of the Bomber Command over Germany (1941-1945) on a daily basis. Scenarios range from one month to two years. With German production and industrial devastation the key, it is a fascinating process. Highly recommended. **AIR**

**WAR IN BURMA** ★★☆☆★ \$37, £29.99

An operational/strategic simulation of the entire Eastern Front (1941-1945), this game is easily learned and played. There are presents the difficulty despite its size and problems with the artificial intelligence in the later stages of the war, this is an essential addition to the serious wargamer's library. Several other companies are planning Eastern Front detailed simulations, and they may well detract from **War in Russia's** appeal, however, it is certainly the only Atari product with such depth. **LAND**

WARSHIP ★★☆☆ \$59, £29.99

A tactical simulation of Pacific surface naval engagements (World War II). The play and documentation seem to place one much-needed detail as to what is (or should be) happening, and therefore the game's main appeal is to train naval strategists and not to those with a marginal interest. **SEA**

THE MORDOR

The final show

ARISENDS, HERE! THROUGH IN THE ★★ \$51, £14.99

An operational simulation of the Battle of the Bulge, this game suffers from poor graphics, determining the road network is a lesson in frustration. Also, moves may not be adjusted in real-time, and overall, the clumsy user interface leaves this simulation. **LAND**

OBJECTIVE KURSK ★★ + \$39, £19.99

A tactical/operational simulation of the largest tank battle in history. Extremely detailed, although user input is via keyboard and controller actions. Overall, somewhat bland as a result of the game system utilized. **LAND**

OPERATION 'W' ★★ + \$51, £19.99

A tactical/operational simulation of the end war in Europe. More complex than **MATO COMMANDER**, but suffering from the same defects as **OBJECTIVE KURSK**. Both games within the same game space and seem to lack a game "feel", although this game is somewhat the more successful. **LAND/AIR**

That's it. One of the most comprehensive surveys of wargames by the Atari ever published. There are certainly a few missed ones, particularly those released by British companies. We would be glad to hear from any dedicated wargaming reader with an update to clarify any which includes all U.S. games for publication in a future issue. ■

THE PAGE 6 AWARDS

1987

YOUR CHANCE TO VOTE!

Living area readers will know that we regularly hold a Readers POLL (this time of the year) to discover the best articles and programs from PAGE 6 in various categories, but with a lot of new readers for the next issue, those we felt it wouldn't be quite fair on contributors to make issues. Our wider readership does, however give us the opportunity to open up the Poll and find out what was the most popular software for the Atari in 1987 and so the PAGE 6 AWARDS, which will also include PAGE 6 contributions, is born. We will present an award to various people in the categories shown below based on what YOU decide. There can be no better reward for any company or person than to know that the Atari supporting public at large has recognised their efforts.

So get your thinking cap on and fill in the voting form. You may not be able to vote in every category but you can vote in at least one or two, or do it! We want at least one or two, so do it! We want thousands of votes so as an added incentive we will draw three entries out of the hat on 25th February 1988 and send the lucky winners software vouchers worth £25.

Photocopy this page or write your votes on a sheet of paper headed PAGE 6 AWARDS (you can even photocopy the original settings and tear the page out) and send it to us by 25th February 1988. And if you want the chance of one of those £25 software vouchers, don't forget to include your name and address.

THE CATEGORIES

1. Best article/program in PAGE 6 for 1987
.....
2. Best Atari 8-Bit Arcade game
.....
3. Best Atari 8-Bit Adventure/Strategy game
.....
4. Best Atari 8-Bit Serious software
.....
5. Best ST game
.....
6. Best ST Serious software
.....
7. Company/person to have done the most to support Atari in 1987
.....
8. Company/person to have done the least to support Atari in 1987
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SSI



There are several companies that have produced wargames and simulations for the Atari but perhaps the best known is SSI whose products have always been held in the highest regard. Prior to their recent agreement with U.S. Gold there was a flourishing trade in importing SSI simulations with dedicated wargamers thinking nothing of paying \$70 or so for a top-class product such as *War in Russia*. So how does a Company such as SSI gain this sort of reputation and support?

START WHEN YOU ARE SEVEN!

SSI started out in 1979 with Computer Research which was one of the first computer games to provide "support materials" such as instruction charts and game pencils and maps packaging which was copied by many others and still remains a hallmark of SSI products. The company was founded by Joel Billings, an experienced board game player who gained a huge following as war gaming tournaments where he often played in three divisions simultaneously, managing to win all three! He began gaming at the age of seven when he became fascinated with the challenge and realism of strategy board games. After his school education he had to decide whether to go to graduate college but opted instead for writing computer games and so Computer Research was born as a homebased company.

Joel wanted to use the power of computers to enhance the board games by providing animations, quick response and challenging opponents for solo play. It seemed that none of the established companies was interested in this use of the home computer so, based upon a few surveys of the likely market, he borrowed \$1000 and founded SSI. At the time many "low" computer programs, such as those put out by Scott Adams, were being produced in polythene bags with crudely typed

the Ultimate wargaming and fantasy company

labels but Joel felt he was competing against an established board game market and so invested in an innovative first colour booklet-sized box, with contents to enhance the software - packaging which has since become an industry standard for this type of game.

Like many youngsters starting in business, the family helped out and SSI, despite having an estimated turnover for 1983 of \$5 million, still retains close family connections. Joel's sister Susan is the company's operations executive and his mother Luana writes many of the instruction books and has even learned to program herself. Parker Hobson, a professor of English, writes many of the colorful background stories found in SSI rule books. The company is now quite static with several more board members and staff. It's continued growth over the past six years has meant moving four times before settling in a 12,000 square foot facility in Mountain View, California.

BEYOND WARGAMES

Although they started with wargames, and have produced many of the "classics" to be found in *SI*, Dean Smith's survey of war games in this issue, SSI now has a broad range of products including Fantasy Adventures and Sports simulations. Many of their titles such as *Questarc*, *Wizard's Crown* and *Roadwar 2000* are well-known to Atari users and several have won awards. *Roadwar 2000*, reviewed in this issue, was voted as "Best Strategy/War Game of 1984" by a leading American magazine and *Questarc* and *Wizard's Crown* have also recently been awarded similar titles. In all SSI has produced 75 different titles and currently market over 80 programs in 200 different versions.

Never a company to stand still, SSI target over 90 new games a year, including conversions, and use a strong team of internal and external developers to produce their titles. Despite this output they regard quality as paramount and this has led them to an agreement with TSR which promises to be the most exciting event of 1988 for anyone interested in computer wargaming and simulations.



by Les Ellingham



KeepingSSI busy for the next five years!

DUNGEONS & DRAGONS

Earlier this year SSI entered a competition with several other companies in a bid to become the publisher of computer games based on the phenomenally successful Advanced Dungeons & Dragons games developed by TSR. The official Dungeons & Dragons has an enormous worldwide following and any company that could produce computer games with TSR's blessing would be sure to have a very successful 1988 and beyond!

Obviously many companies wanted Dungeons & Dragons on TSI as some very high standards and invited interested companies to prove to them why they should have the privilege. SSI already had a quality background and were able to better their competitors and to win the licensing agreement which will last at least five years. SSI will produce a series of role-playing adventures and, as a result of their marketing agreement with U.S. Gold in this country, the latter will produce five multi-player arcade style adventures all of which will be marketed worldwide. SSI will also be producing Dungeons/Player Aid disks to assist players of the conventional board games.

It won't be an easy task, for TSR will not every step to ensure that the products are of the highest quality but SSI, with their past product history, should have no problems.

A WHOLE NEW WORLD

The scope for the Fantasy Adventure simulations is enormous as TSR have created a whole new fantasy world in which the computer simulations will be based. Enchanted Fungus Kingdom, it will be supported with conventional Dungeons & Dragons board games, novels and calendars the

first of which have already been produced. SSI's first fantasy adventure will be set in the mountains of the Forgotten Realms which take up about 27 square inches of a map measuring more than 38 square feet! If they get the first one right, and there is no reason to think that they won't, there is likely to be a lot of advertising coming your way in the next five years!

MORE WARGAMES

If SSI's wargaming followers are worried that they won't get a look in, they needn't be for SSI promise that the work on the Adventure games will be carried over into a continuing series of wargames that will feature enhanced graphics. In the pipeline are several games from the guys who produced Gettysburg (including one on the Civil War battle of Shiloh) and another on Napoleon's battles in Europe. From other authors there will be a platoon level World War II game and a simulation of the conflict in Afghanistan is also in the works.

A STORY OF SUCCESS

SSI then, developed from a young man's fascination and enthusiasm for board games into a major \$5 million consumer computer company that has just won the biggest licensing deal in the computer industry. Having the right product at the right time obviously had a lot to do with it in the early years but the real story of success is in continually producing software of the highest quality, well researched and well packaged and which does not die. Computer users will be playing wargames and fantasy adventures long after the initial fascination of arcade games dies away and that is what Joel Billings recognized very back in 1978.

The FONT FACTORY



Many readers will know that it is possible to change the character set on the Atari in BASIC and almost everybody has seen a changed character set for it is a technique used in many commercial games. There have been several character designs published in the past but most of them save only the DATA for the revised set of characters and leave the user to define his or her own way of using the new character set. Now Font Factory will allow even those with the minimum of programming knowledge to generate and use their own character sets. Font Factory will write the necessary subroutines for you. All you will need to do is ENTER the subroutines created into your own program and place one appropriately at the start of the program. It is even possible for you to load existing character sets such as those on the PAGE II issue disks and save them for use in your own programs.

The Font Factory is a flexible and powerful character editor. Fonts can be saved on disk or cassette either directly or in the form of BASIC DATA statements. It can even generate a subroutine to install your custom sets into your own programs. The Font Factory runs on any 8-bit Atari with at least 25K of memory and a disk drive or cassette deck.

GETTING STARTED

Typing in The Font Factory is straightforward if you use TTYO 3, just type it in and SAVE it to disk or CASSETTE or cassette. RUN the program and when the program has finished, the main editing screen will be displayed. In the top part of the screen is a window showing the entire character set. In the middle of the screen is a menu of the available editing commands and the editing grid. On the grid, an enlarged view of the character currently being edited is displayed. Below the grid, the internal and ATASCII codes for the character are shown.

There is not room here for a full discussion on the theory of character definition but basically any point plotted in the 8 × 8 matrix used for each character will be shown as part of the character and any point not plotted will be shown as blank. If you do not understand the theory fully, just RUN the program and experiment by making some changes to a character and then saving it. You will see the results on screen and will soon get the hang of it.

We are proud to present Font Factory, not only because it is a good program but because its author, Sarah Keates, is just 14 years of age. Sarah lives in England. The programming of her program and writing out one of the most professional we have ever had and puts many others to shame! Where are the other ladies, then? And how about some of the young (and not so young!) lads writing if they submit programs equally as good.



EDITING COMMANDS

The commands available are shown on screen at all times but for reference and greater explanation are as follows.

← → — Moves the cursor around the grid (there is no need to use CONTROL).

Space Bar — Draws or deletes a point on the grid.

C — Clears or fills the grid. If the program is in DRAW mode, then the grid will be filled in, if in delete mode, the grid will be emptied.

R — Restores the character being edited to the ROM character.

S — Stores the contents of the grid. The character set window will be updated to show the new character.

N — Selects a new character to be edited. If the program is in CHARACTER input mode, type the character you wish to edit and press RETURN. If the program is in ATASCII input mode, enter the ATASCII code of the character. NB: some characters cannot be entered in CHARACTER mode, for example Space (ATASCII 32).

< — Selects the preceding character in the set to be edited. If the program reaches the beginning of the set, it will wrap around to the end of the set.

> — Selects the next character in the set to be edited. If the program reaches the end of the set, it will wrap around to the beginning of the set.

D — Toggles between DRAW and DELETE mode. The current selection is highlighted on the menu.

A — Toggles between CHARACTER and ATASCII input mode. The current selection is highlighted on the menu.

E — Ends the program. This command leaves the user's character set intact.

M — Restores the ROM character set.

Shift 1 — Displays the SAVE/LOAD menu. The character being edited should be saved before using this command.

R A D E F L N R O

SAVING AND LOADING

As stated, Mode 1 will display the sub-menu for saving or loading character sets. This has 8 options which are as follows.

Option 1 - Saves the entire character set to disk or cassette with extension *.FNT.

Option 2 - Saves the entire character set to disk or cassette as BASIC DATA statements. The file will be in LIST format with the extension *.LST.

Option 3 - Saves all characters which have been altered directly to disk or cassette with the extension *.FNT.

Option 4 - Saves all characters which have been altered as BASIC DATA statements with the extension *.LST.

Option 5 - Loads the entire character set from disk or cassette.

Option 6 - Loads a partial character set from disk or cassette.

Option 7 - Lists the directory of drive 1.

Option 8 - Returns to the main editing screen.

A few notes are useful regarding the options. Firstly, the Font Factory includes a routine to calculate filenames. It will not allow you to enter filenames that are too long or contain illegal characters. Font Factory filenames do not need extensions as these are automatically added by the program. If you do enter an extension, the program will overwrite it. There are two ways of entering filenames:

1. Use a filename. The program will add the default device specifier ("D:") and the correct extension.

2. Device specifier/filename. The program will use the device specified (if it is valid) and add the correct extension.

Whenever you save a character set, you will be given the option of generating a sub-routine to load the set. If the set is saved as BASIC DATA statements using options 7 or 4, the loader will be included with the DATA statements, and the program will have the extension of *.LST. This may be added to any program of your own by ENTERING it and then saving the entire program. If the set is saved directly to disk or cassette with options 1 or 3, the set will be saved with the extension *.FNT, and the loader will be included as a separate file in LIST format with the extension *.LST. This information will read the character set from disk or cassette but the DATA will not form part of your program.

It should be noted that if you have saved a partial character set only, the loader will only load the characters which you have altered. The rest of the set will be blank unless you copy the ROM set first into the appropriate part of RAM.

Font Factory really is very easy to use even with a limited amount of programming knowledge. Give it a try, you will be able to give a new look to many of your programs.

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TUTORIAL SUBROUTINES

4. KEYBOARD INPUT

In this issue I am going to deal with one of the most common requirements in programming a home computer, that is keyboard input. There are several ways of obtaining an input in a program, when required and it is worth giving this aspect of your programs a bit of attention as it can give them a professional feel if it is handled well, or give a rather poor impression if done badly.

WHY NOT USE INPUT?

The most straightforward way of getting an input from the keyboard is through the INPUT command, using "INPUT X" for a number or "INPUT A\$" for a string. There are, however, two reasons why INPUT is not my chosen way to obtain a keyboard input. First, for single keystrike entry such as Y/N or single numbers the response is usually slower if there is no need to wait for the RETURN key to be pressed. Then there is also the problem of error trapping which is not easy with INPUT especially when handling strings as the trap works on the whole string after RETURN is pressed and not on the individual keystrokes of the string entry. For these reasons I prefer to use GET instead of INPUT.

DEFENSIVE PROGRAMMING

Before looking at the subroutines themselves let me mention a programming style called 'defensive programming'. In commercial programming where a team may be working on one program this programming technique is essential - each programmer works on his own modules of the program trying to ensure that there is no way that other modules being worked on by other members of the team can conflict with his when they are all combined. This requires a very analytical, protective point of view, and frequently causes the program to be quite complex when simple code appears to fulfill the requirement. Defensive programming is a good technique to adopt in your own programs if you wish to share them widely. In this case you are not proceeding against conflict with another part of the program but against mishandling by the user of your program. It is not easy to make your programs totally crash proof but it is a good aim. What would happen to crash unsuspecting if a determined youngster tried to input 'INVERSE CONTRAM. Y' when the program was expecting 'YES' or 'NO'?

Now to an analysis of the subroutines:-

YES or NO INPUT SUBROUTINE

Line 1000 - The first statement disables the break key to prevent inadvertent interruption of the program. The way to do this is to ensure that bit 7 of memory location 18 is not set (this

In his continuing series, Ian Finlayson provides some routines to handle keyboard input in your program and explains how they work.

means the value in memory location 18 must be less than 128). You may use this during initialization of your main program, if so it is not needed here in the subroutine but it must be reset after a GRAPHIC call.

POKEing 694 with 0 ensures the keyboard is not in inverse and POKEing 692 with 64 makes sure that normal upper case keyboard input is selected.

Line 1110 - Opens I/O channel 2 for input from the keyboard, clears the screen and prompts "Play again? (Y/N)". The program waits for a key press and when this happens returns the key value (in ATASCII) in the variable TTR then closes the I/O channel. If TTR equals 89 'Y' has been pressed and the RUN command restarts the program. Instead of the RUN command we could RETURN to the main program and then GOTO an early line in the program to play again.

Line 1010 - If 'Y' is not pressed we exit the program with a "Goodbye". I have assumed that you are using a disk with a program called MENU on it for selecting your games. You could alternatively just use an END statement to return to Basic.

SINGLE NUMBER INPUT SUBROUTINE

I have not repeated line 1000 here but it is equally applicable for crash proofing this subroutine.

Line 1110 - This line is very similar to 1110 in the YES or NO routine and returns the ATASCII value of the key pressed in TTR. The value of TTR is then reduced by 48 (The ASCII value of a number is 48 more than its face value). A check is then made to ensure that the value is between 0 and 9.

Line 1120 - The value selected is printed on the screen and we return to the main program with the selected value stored in TTR.

STRING INPUT SUBROUTINE

Getting input is slightly more complex than the previous examples as we have a series of characters to deal with.
Line 1120 - Opens the keyboard for input, prints a prompt,

January/February 1988

STAGE

The PAGE 6 ST section



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ST SECRETS

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Robtek have licensed PC DITTO from Avant Game Systems in the U.S.A. to bring to Europe an IBM simulator "that really works". PC-Ditto is occupying the market where it is recognised as the best of the available IBM simulators. Price in this country will be £99.99. Robtek have also released HOLLOWWOOD POKER at £14.95, if you can't afford a trip to India, and several other games at a similar price including DIABLO, SANDOPEP, ALIEN STRIKE and GAMBLER. Also available are SKYPILOT, a professional astronomy program that will set you back £99.99 and HOME PUBLISHER, a low cost DTP program for the small business user at £24.95.

Digita International, a company already established in the Amstrad market into the growing number of software houses supporting the ST with the announcement of four products, two of which are likely to appeal to all home or business users. MAILSHOT is a powerful menu driven mailing program which uses a unique system of on-screen scrolling of labels and forms. WYSIWYG is labelling programs. Features include detection of duplicate labels, automatic sorting and many more. Price will be £24.95 and an enhanced version will be available at £49.95. The second program of interest to home users will be HOME ACCOUNTS, a GEM based home accounting program for £24.95 which looks to be very interesting. Digita are also releasing SPECTRUM ANALYSER which can lock in your MacPro to create an exciting visual image of music.

Signus Publishing Systems Ltd. is a new company headed by Mike Dink, formerly of Haha Systems, that intend to support Desktop Publishing on the ST. The company will import document processing and desktop publishing software from Western Europe and will offer high quality software and hardware peripherals as well as service, training, installation and support. One of the products they carry - Signum - is already recognised as having one of the finest outputs of text and there are similar products coming together with hardware such as optical scanners. More information can be had from Signus at Torrington House, Cotiker Hill Lane, Yarely, Camberley, Surrey.

Frontier Software have an impressive new line up of add-ons for the ST following a sole-distributor agreement with IL. Another British Company of the U.S.A. The range of products include a Seibertronics Expandable RAM Expansion Board which is easy to fit and can be expanded later. Initially the unit will upgrade a 520KST4 to 1MB but more chips can be added up to 4Mb. Price is £179.95. The PhotoScan Scanner mounts onto any printer to produce scanned images of photographs and documents which can be stored in Digas or Publishing Format formats. 30 grey levels and all three resolutions are supported at a price of £189.95. Invisible Check Service plugs under the ST keyboard to keep the clock running even if the machine is turned off. Price £29.95. Finally there is the first alternative to the ST mouse with Mouse Ball II which retails at £39.95.

Bag Bytes enter the ST market with MISSING ONE DICE, a budget game for just £9.95. The program was written by Paul Lay and was the winner of ANNUAL magazine's £5000 dollar programming contest. A fast action chess 'run up with dozens of screens and 'unusually fast game play'.

Creation are another new company which is releasing a unique scrolling shoot 'em up called SKYHIDER that scrolls from side to side rather than vertically. A business game with graphics similar to Goldbrance, it features six minutes of scripted music plus sound effects and animated backgrounds. Price is £14.95.

TANGLEWOOD

TANGLEWOOD from Microdeal looks as if it could be the best available adventure yet to be released for the ST. The program will cost £19.95 and looks to be worth every penny. Let the pics see tell the story and get hold of the demo disk, if you can.



Also from Microdeal are LEATHERNECK, a command action game, ST SOCCER and FRIGHT NIGHT, an 'Adult Only' game based on the film. All at £19.95. From Microton will be QUICK PAGE, a simple page layout program that can combine text and graphics for single page advertising, press releases, newsletters etc. Works with Epson compatibles and the new Epson laser. Price £29.95.

ST SECRETS

Colm Cox delves into the inner secrets of the ST - beginning with Sound

This is, hopefully, the first of a short series of articles which aim to cover some of the more interesting features of the Atari ST range of computers. In each article I aim to give examples in ST Basic, C, and 68000 assembly language - which I hope will make the examples of some use to everyone.

This article covers the subject of sound. It would be of benefit to have a short description of the YPL2149 sound chip used in the ST so I'll start from there. To save space we'll call the chip the PSG from now on.

The PSG has 3 independently programmable tone generators, i.e. 3 channels. A noise channel can be mixed with each of the tone channels. The noise channel's pitch is under program control and the tone channel's volume is also under control of a program or 8 hardware volume envelopes.

The PSG has 14 registers which control the tone and noise channels. A description of the registers is given below:

REG 0 and 1: Pitch control of channel 1. This is a 12 bit value with the low 8 bits in REG 0, the high 4 bits in the low 4 bits of REG 1. The lower the overall value the higher the pitch.

REG 2 and 3: Data for channel 2.

REG 4 and 5: Data for channel 3.

REG 6: Pitch control of noise channel. This is a 7 bit value, and the lower the value the lower the pitch of noise.

REG 7: Mixes control. This register controls the overall timpan. Each sound channel can be tone only, noise only or tone and noise. This register controls the combinations. Table 1 gives a description of the use of each bit.

REG 8: The low 4 bit control volume of channel 1 but if bit 4 is on then the volume is controlled by a hardware envelope.

REG 9: Data for channel 2.

REG 10: Data for channel 3.

REG 11 and 12: The hardware envelope can last a certain amount of time, called the wave period. This register defines this period.

REG 13: This register defines the shape of the envelope to be used. The envelope in use is glued to all channels, but what are the shapes of the hardware envelope? If you look in the ST Basic Source Book, under the command "WAVE" a list of the envelope shapes is given. What - it isn't there? The early sourcebooks were sent out missing some vital diagrams! For those of us with an early manual, myself included, Figure 1 shows the envelope shapes along with the number to place in REG 13.

So now you know about the registers, how do you access them? It is not possible to access the registers directly but two locations, \$FFFF00 and \$FFFF02 are the answer.

\$FFFF00 WRITE - Register select.

Once the number of the register you wish to access here.

\$FFFF00 READ - Read data, after storing the register number here, reading this location will yield the value stored in that register.

\$FFFF02 WRITE - Store data, after storing the register number in \$FFFF00 you can write to that register by storing the required value here.

\$FFFF02 READ - Always returns \$FF

Note: The above registers are 8 bit registers.

NOW FOR THE PROGRAMS

Listing 1 is an example of using the above method to program the PSG from ST Basic. For the BASIC programmer there is no need to go to these lengths as ST Basic includes the necessary commands, however the Basic

```

10 REM *****
20 REM #          ST Sound chip test
30 REM #
40 REM #          COLM COX
50 REM #
60 REM #          SOUND -- WAVEFORMS -- LISTING ONE
70 REM #          CEM BRIDGE
80 REM #          PAGE 1 (PROGRAMS -- SOUND)
90 REM #          *****
100 REM
110 REM #          TEST BIT PITCH ON CHANNEL 1
120 REM #
130 REM #          *****
140 REM #          TEST CHANNEL 2
150 REM #          *****
160 REM #          TEST CHANNEL 3
170 REM #          *****
180 REM #          TEST NOISE CHANNEL
190 REM #          *****
200 REM #          TEST MIXES CONTROL
210 REM #          *****
220 REM #          TEST VOLUME CONTROL
230 REM #          *****
240 REM #          TEST DELAY TO CHANNEL 1
250 REM #          *****
260 REM #          TEST CHANNEL 2 ON CHANNEL 1
270 REM #          *****
280 REM #          TEST CHANNEL 3 ON CHANNEL 1
290 REM #          *****
300 REM #          TEST WAVEFORMS
310 REM #          *****
320 REM #          *****
330 REM #          *****
340 REM #          *****
350 REM #          *****
360 REM #          *****
370 REM #          *****
380 REM #          *****

```


M-CACHE Microdeal £24.95

**Reviewed by
Mark Hutchinson**

When I read the press adverts about this program I must admit that I did look promising. A cache is used for storing often read sectors, such as the directory. Therefore, instead of waiting for the directory to be read off the disk, it will appear immediately from RAM. Unfortunately it will only work with a hard drive.

The utility is divided into two parts. The first, MCONFIG.TOC, allows you to decide which of the 16 logical drives to cache. You can divide the hard drive into smaller units for greater protection of data and faster access times (nested partitioning). The cache size can be from 1 to 65536 sectors of 512 bytes each. The writing is saved to M-CACHE.PRG. At this point no verification takes place, so if the disk is write protected, there is no error! I have found this to be a common thing with Mikroton programs.

M-CACHE.PRO sets up a cache in RAM, which can only be reclaimed by rebooting. One good point is it will not install itself if it would leave less than 64K. It can be loaded via an AUTO folder and, as the last file, it can be altered by a key press before it is installed.

Quite 'How to use M-CACHE - You do caching?', appears. This is why it has been split in two. Once you have set the parameters of the cache you need de-caching also, it will flag, store and recall the file from RAM itself. I tried it with the manual for STEWRITER (1986) and a smaller (3K) file. It automatically recalled the 988, from RAM, without access to the drive, after the 3K file was loaded.

It works well and I found no strange errors, but does it make the high price, and would you want it? If I wanted to write an article about programming and disk access, this would be a great choice for the tutorial program. However, £24.95 for this one program, two years old (copyright Mikroton 1985), so thank you. If it had been able to access the Public Domain collections, and two years ago, I would have jumped at the chance.



EASITALK ST XLent Software \$29.95

Reviewed by
John S. Davison

A communications desk accessory? Well, why not? If you use your ST for electronic mail or remote database searches it may be able to have instant access to various facilities while using some other GEM-based programs, such as a spreadsheet or word processor. Even if you don't use electronic mail as such, but just tinker around with bulletin boards, Easitalk could be of use to you, as it offers lots of facilities at a reasonable price. You can quickly learn to use the program as it comes with a good quality 68 page instruction manual, most of which is written in serial style.

It runs in either medium resolution color or high resolution monochrome, and offers VTI2 terminal emulation for text-only bulletin boards and screens, and also PRESTEL viacolor emulation in color or monochrome. It handles all PRESTEL features except flashing colours and cursor. In monochrome it uses shading to differentiate between PRESTEL colours.

File transfers can be handled using ASCII or the Xmodem protocol. When using Xmodem you have a choice of 128 or 1024 byte blocks and checksum or CRC checking. The instruction manual contains a list and explanation of Xmodem error messages, about the only time I've ever seen this. Full works, XLent!

A 64K capacity buffer may be toggled on and off to record incoming and outgoing text as required. Amount of free space remaining is shown in a status display at the bottom of the online screen. The buffer can be saved to disk and cleared when required. Buffer contents can't be viewed directly, but only by saving the buffer to disk then reloading it again, and using the 'local' display setting to view the data on the screen. The buffer can't be printed as transmitted either. XLent should resolve this part of Easitalk to improve the facilities.

Viacolor frames may be saved to disk and reloaded later for reference. A frame may also be printed at any time, either in text-only form or as a screen dump as the printer via the ALT-HELP facility.

Full control over the RS-232 transmission parameters is possible, with baud rate settings from 75 to 19200 (including split rates for PRESTEL), parity, stop bits, word size, duplex, and flow control. It's possible to define and save lists of up-to-ten services or bulletin boards you use, together with their phone numbers, user-IDs, passwords, and the name of an associated command file. This may then be used for auto-dialling, auto-login, or even to fully automate a complete communications session, including copy of engaged numbers at specified time intervals. This means you could let Easitalk collect your electronic mail for you at a specified time, perhaps during off-peak periods when phone and contract time charges are lowest.

In summary, Easitalk offers very good value, having facilities only previously available at a much higher price. If you need a versatile low cost communications program this could be the one.

LabelMaker XLent Software \$19.95

Reviewed by
John S. Davison

LabelMaker is a useful desktop accessory providing a quick and easy method of creating, editing and printing labels. It was originally commissioned for use by XLent themselves for producing address labels, so no other suitable software met their needs. You may think \$19.95 is a lot to pay for a program to print labels, but much thought has gone into this product to make it really usable.

As it's a desktop accessory it's easy to call up from within other GEM applications (a word processor, for instance). This makes it eminently suitable for printing one-off labels, or even direct printing onto an envelope if your printer will allow it.

Address (or other) labels may be up to six lines long, plus two further lines for additional non-printed data, comments, etc. Labels can be created and saved to disk as single items, or added to the program's integral database. Surprisingly, you can't delete labels from the database, but this may

be done with a separate text editor or word processor. You can have several different databases if you wish. The advantage of the database is that it has useful search facilities, allowing you to retrieve one or a series of labels matching your search criteria. Also, XLent claim the database format to be compatible with many other word processor, database, and mailmerge programs, so data could be interchanged between them. Format details are provided in the instruction manual.

Included in the package is a printer settings desk accessory. This can be used independently of LabelMaker and lets you send appropriate codes to set up your printer to produce a particular style of characters. As supplied the program allows you to choose character printers from Laser, Elite, Email, Typ, and to use Italic, Bold, and Proportional options. You can also reset the printer, create a lines feed, and toggle 'skip over perforations' and the printer's 'out of paper' detector. They're selected by clicking on buttons in the dialogue box displayed when you invoke LabelMaker.

These default settings are designed to work with an Epson (FS8) printer, but a couple of extra tables are included for use with other printers. By using a separate text editor or word processor you can produce your own printer table. This means the buttons may be customized with whatever names you choose, and to produce whatever character styles your printer can handle.

When printing labels you can specify horizontal and vertical positioning, ensuring each address is aligned with your label stationery layout. You can also state the number of copies of each label required. It handles only single strip label sheets, not the type with several labels in rows across each sheet.

The program also has optional print speedup (using memory buffering), allowing label pointing to continue while you use the computer for something else.

LabelMaker is a very useful program, made even more useful by being conveniently available as a desk accessory. It could save repay its cost in time saved.



Tempus - the Text Editor Eidsoft \$29.95

Reviewed by
Steve Peiffer

Anyone who has programmed his or her ST at all will have used some sort of text editor to enter the programs into the computer. Manufacturers of computer languages usually don't always provide some sort of editor with the language package. Why then would any software house expect a programmer to pay \$30 on top of the expensive language software when the editor is something you get for free?

Unfortunately, the quality of bundled text editors is not all that high. Software manufacturers are understandably reluctant to expend time and effort on a product which is merely to be given away. Tempus, from the German software house Creative Computer Design is an attempt to combine the best of both worlds, but you will have to dig deep into your pocket for it. Is it worth it?

Tempus comes on one single sided disk plus a comprehensive loose leaf manual in a grey ring binder. The manual is well printed and very thorough and clear in its explanations, screen shots are used where appropriate. The disk is not copy protected, the manufacturers having soundly reasoned that no-one would buy a text editor that could not be copied into other disks. You do have to go through an installation procedure the very first time you use Tempus, but it is quick and easy and it only has to be done the once (so that you can only do it once as the installation program is deleted after it is run).

The editor itself is fully GEM-based but has been extensively enhanced in that many of the GEM routines have been rewritten in 68008 assembly language which considerably increases the speed of operation. (GEM itself is written in C). On loading the program you are presented with a file selector, not the standard GEM file selector we know and love!, but a completely revamped selector with many additional features. For example, it contains selectable buttons for all currently available drives, if you want to look at the directory on another drive,

just click on the button. There are also a series of buttons to select all the common filename extensions (.C, .DOC, .TXT, .B etc) so you don't have to keep re-typing the directory line of the selector. This is how the GEM file selector should have been written! Two problems with the standard selector have been put right, typing an underscore into the directory line no longer crashes the machine, and the 'series' button (which contains 'OK' on the standard selector) now contains the name of the operation to be performed (Load, Save etc.). You can also pass an argument line containing the name of a file to be loaded when Tempus is run, if you run it from a shell program. The authors say that Tempus is compatible with currently available shell programs although there was apparently a problem with early versions of Minuscom's Menu+ (later versions are OK). I have been using Tempus with Menu+ for some weeks now without difficulty.

**'one of the finest
pieces of
professional
software'**

File loading and saving has been speeded up— simply tests showed that it took 7 seconds for Tempus to load a 50K file, 18 seconds for Minuscom's ED and 22 seconds for the Word. Up to five files may be present in memory simultaneously and the loaded file is displayed in an enhanced GEM window. The title line of the window, in addition to the file name, contains the current line and column numbers that the cursor is in and these are updated when you move the cursor. This makes it very easy to go to any specified line, but more of this later. A major improvement is found in the window arrows and scroll bars. These are so rapid so that all you do is click on an arrow or scroll bar and hold the button down to scroll through a complete document. Scrolling is incredibly fast— a complete screen of text scrolls smoothly past in under a second.

Tempus contains a full set of facilities for moving around the text very precisely. You can jump to any specified line number, move to top or

bottom of the text, or to the beginning or end of a line— all with equal speed and ease. You can also set invisible markers in the text and so move instantly to and fro between different areas of the text— a feature I found to be extremely useful. All the usual block and search/replace facilities are there, and are carried out so quickly as to be virtually instantaneous. The editor can even build a cross-reference for any specified string. Once the list is built, clicking with the right mouse button on an entry in the list moves the cursor instantly to that line in the main text.

Tempus has many other features, too numerous to discuss in detail here, but I will just mention briefly that it can do cursor print your text files, that there is an inbuilt programmer's calculator, that a digital clock is displayed at the top of the screen and that it can use alternative fonts designed with DIGAS. The facilities of Tempus are accessed either through drop-down menus or via the function keys, and all facilities are also available from the keyboard using Control-key or Alternate-key combinations. If you use screen text strings frequently these can be assigned to one of the function keys used in conjunction with Shift or Alternate. These and many other extensible features of Tempus can be saved to disk as part of an installation file loaded whenever Tempus is run.

I can only think of one missing feature— there is no facility to automatically change the case of a letter or word on which the cursor is resting, you have to delete and retype it. It would also have been nice to have one or two disk utility features present, such as disk format and file deletion and rename, but this is just nitpicking. There is one small but irritating bug— you cannot get the apostrophe (') from the keyboard. The reason is that the inbuilt clock can be toggled on or off with the Alt+ combination, but the ' key behaves pressing Alternate has the same effect. Alt is not lost though because Tempus can display a character table similar to the Word, and you can get the apostrophe from there. I can live with this in order to use this amazing program.

Having run out of superlatives, all I can say in conclusion is that if you are at all interested in programming the ST you will find Tempus very useful indeed. Go out and buy what must be one of the finest pieces of professional software available today. It is worth every penny.

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BASE TWO

Published by Antic Publishing,
Distributed by Electric Software
£59.95

Reviewed by Matthew Jones

Base Two is, according to the press release, an 'elegantly powerful, but easy to use ... database for the Atari ST.' It is intended to be a powerful database without all the complications of a program like Superbase Personal and to this end, it succeeds very successfully.

IN OPERATION - TWOMAKE

The American version of Base Two, which is the version received for review, comes in a standard A5 ring binder which contains a 64 page manual. A disk in the package contains the software, which includes a database-creator program, TWOMAKE, and the database manager program, TWOWISE. A shell program, TWOSHELL, allows switching between the two programs.

Before you can use a database, you must design the layout of the input screen using TWOMAKE. This is done in a very flexible manner, which is becoming standard amongst CRM databases. You are given a blank screen, and can position the fields (for definitions of terms see my previous Superbase review) by clicking at the desired position with the mouse. Base Two then allows you to give a width of up to 65 characters to each field. You can then use 'lines' on the data portion of the field, so that it can be up to 99 lines deep, or 75 characters wide (with no tabs), up to a maximum of 5000 characters per field. A field can also be used without a data area, i.e. just as a text box for its title.

The data type in the fields can be 'implicit' (assumed numeric until a date or text is input), 'alpha', 'numeric' (with number of decimal digits setting) and 'date'. A formula can be added to the field, which is processed in a very logical fashion. A separate window opens for the formula, and you can either type directly in, or you can click on a field in the main design window to reference a field. Thus you could generate a formula for 'total' by choosing the Formula, then clicking on the 'total' field, typing '*', then clicking on 'VAT'. Pretty simple. The drawback is that the only operations that are available are '+', '-', '*' and '/' for square root - but these should be adequate for most purposes.

Also configurable are the height, colour and style of the characters in either the label or data parts of each field. A point of note here is that the standard size character on a monochrome screen will be twice the size when a colour monitor is used. Standard size on a colour monitor will be small on monochrome. To me, this is a drawback, because I frequently switch monitors, and so would suffer from this problem. I understand why the problem occurs, but it can be programmed around - so I consider this a fault.

The maximum number of characters any record can hold is 5000 characters, the maximum number of fields is 100. Base Two keeps all the records in memory at once, so the maximum

Fig. 1. The Base Two database manager.



'simple to use but also powerful'

number of records depends on how much memory you have, and how full your records are (Base Two compacts the data internally).

An option that has been carried over from the previous version (DB Master One) is the Split option, which gives standard layouts for mailing lists, checkbooks (sic), collections, and recipes. I do not consider these very useful, except as a learning aid.

A nice part of the new program is that if you decide that you wish to alter the layout of the record, by adding or deleting a new field, or changing a line, it can first be the whole file. Another good feature is the use of keyboard alternatives to the more consistent mouse, something that will make it usable in the long term.

THE DATABASE MANAGER - TWOWISE

The actual database manager, TWOWISE, takes a record definition created by TWOMAKE, and allows you to put data in it. Entering data is very simple. You start by clicking in the field you want to start at, then type the data in. Text data is fully word-wrapped (on multiple line fields) and cut, copy and paste of blocks are available. Press Return and you move to the next field. When you have gone all the way round, the fields start to invert to indicate that you have been there before (but does not stop you editing further). When you are satisfied, the Control-A key (Add) is pressed (or a mouse used) to enter it into the database. You then start again with the next record. As all the data is held in RAM, you should save the data to disk frequently to ensure its safety.

Having added all the record data, you will then want to retrieve it according to certain criteria. Base Two allows you to retrieve data in two basic forms, record format (and edit) and report format. Find All and Find Some allow you to examine the data one record at a time. Find Some allows up to three conditions to be set. There are a set with a window based dialog. You select a field to test with the mouse, then select the condition type - one of 'equals', 'between' and 'contains' - then type the appropriate test data. These are then complicated by

workbooks or case dependencies, if you want all records between 'Jones' and 'Smith', you just type them in and that's what you get. Simplicity is gained at the cost of complex flexibility, but again, this is as much as most people need (and it is still quite flexible), so it is not a drawback. Once you have made the selection, you see above the first match. The next match is displayed after the Control-N key is pressed, and going backwards is achieved with the Control-B key (but you cannot loop round).



REPORTS

Reports are altogether more flexible. Each Base Two data file can have a selection of reports (up to ten) saved with it (to save redefining them every time they are needed). Base Two reports are all done via one report design sheet. I looked at DB Master One at this point, as I remembered it had more options. These options were columns, page, record and 'mailing list'; all are still possible with the new Base Two report designer because it is now totally free format. After selecting Design New Report, a small window opens with columns and line numbers along the top and sides, and you click within it to place a field. You can select the actual field to appear at that point by clicking in the main record window. Alternatively you can enter text, to provide basic comments. Also available are two header lines in which the current page number, time and date can be placed. A separate Report Options dialog allows setting of the record length, paper length and width, margins, printer initialization string, soft field tabs, horizontal and page length tabulas. Base Two is avoid leaving large amounts of white space on the page - when an address has only two lines used of seven, the rest field can start on the fourth line), summary only and continuous pages.

Also selectable is the order in which the records will be produced. Up to three sort fields can be specified, with selectable subtotals and new pages, and the order can be ascending or descending. Last, but not least, the search parameters are set using the same technique as Final Items. When a search of the definition has been specified as desired, you select Report Print. You will be asked to name the report that you just created (up to 25 characters), and asked to select the device to send it to. The report can be sent either to the

screen in nice windowed display with small characters, the printer, or to disk (suitable for word-processing).

An extra facility is the DIF (Data Interchange Format) output. This is similar to the Report selection, but much more limited. This allows you to send data to another database or spreadsheet, but does not allow importing, so the flow is one way only.

DB MASTER ONE

Base Two has grown from DB Master One, the 'battered' database that came with early STs. The authors have also written databases on the Macintosh and IBM PC, apparently very powerful ones. I was interested to compare the two SE programs, and struck by the basic similarity. Only two new menu titles have appeared, one for DIF, and one for HELP (which used to be at the bottom of the screen anyway). The principles of operation are basically the same, but they have been improved all over. Selection dialog have been tidied up, and I have come across no bugs (which I have been using it DB Master One had more). A new feature is a menu option to set the data and time - useful if you do not have the control panel routine.

THE MANUAL

The manual is very well produced, and while not massive, covers the functions of the program well. If you had the original DB Master One manual you may remember the rather patronising introduction about the Happy Valley School library fire, causing the loss of the catalogue. Fortunately this has been dropped, and the manual is very much more professional. Sections include a tutorial, references for each program, and general information about the database. The only criticism I have is the lack of an index.

PROBLEMS

Base Two is not without problems, but they are minor. During my period of use, I kept accidentally creating fields in reports just at the right hand edge while going for the slider bar and missing. Because they were at the edge of the window they were then hard to spot - until they appeared on the reports. This is not major, and may just happen to me, but the ease of creating new items makes it unacceptable to this sort of thing.

As mentioned above, the format created is resolution dependent, and this could be a problem for some people. A mouse nudge in the Escape key does not clear the field you are entering, so I would expect a GEM program to do.

CONCLUSION

My first impression of Base Two was that it was incredibly simple as a database - simple to use and simple in functionality. As I have become more familiar, I know that is wrong; it is simple to use, but also powerful in functionality. Not as powerful as a program like Superbase, but providing everything the average user needs. The only limitations on database size is RAM, and this has to be considered. If you are investigating databases, but believe that others may be too complicated, scrutinise Base Two. It may well be worth it.

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IMG SCAN

Ladbroke Computing
£99.99



This has to be one of the most innovative accessories for the ST yet. It's a device for scanning and digitizing images without using an expensive video camera. In fact it's not video based at all, but works on a similar principle to a fax machine. This means IMG Scan can only digitize printed material. It's capable of handling photographs, drawings, pictures from magazines, and similar items.

To achieve this at such a low price the designers obviously had to make compromises. The main one was that they only provide the software and optics of the scanner - YOU have to provide the scanning mechanism. This doesn't mean you need a degree in mechanical engineering, as you may already own the necessary equipment without realizing it, your printer!

This isn't as easy as it sounds, just a product of lateral thinking. Consider this for a moment - a dot matrix printer can reproduce acceptable pictures and graphics by building them up from rows of dots. What if we could reverse this process and cause the print head to become a 'read head', and scan an existing printed picture as a pattern of pixels in memory? Well, it's now possible - IMG Scan does just that.

In fact IMG Scan goes one better than that. It doesn't simply read data from the paper - it actually measures and digitizes the image brightness levels at many points along each line. This makes it possible to digitize an image containing varying continuous tones such as those found in photographs.

The only requirement is that your printer should be capable of handling one-time variable line feeds - no problem for most graphics capable dot matrix printers. IMG Scan comes pre-configured for use with Epson compatible printers, but you can easily reconfigure it for your own printer. My Star 8010 worked fine on the Epson setting after some initial experimentation with its DIP switches.

The package includes an ST cartridge and image cable, a disk containing scanning and auxiliary software, a photocopied picture for test scanning and an inadequate eight page instruction booklet (with a small supplementary README file on disk).

THE HARDWARE

Emerging from the cartridge is the 'image cable' - it really is a pair of flexible fibre optic cables each about three feet long. These cables are clipped together at their free ends, with the two exposed fibres constituting the 'read head'. With the cartridge plugged into the ST's cartridge port and the gears turned on, a dull red light can be seen shining dimly from the

end of one of the cables. Apparently IMG Scan uses infra-red light to illuminate the image it's scanning, with the light source contained in the cartridge. This is good design, as it provides immunity to variation in ambient light levels.

The other cable 'reads' the light reflected from the image and directs it to an infra-red sensor, again located inside the cartridge. Drive circuits must then convert this analogue signal into digital values and feed them to the software for processing and display.

Before using the system you have to remove the printer ribbon, and attach the free end of the image cable securely to the print head, with the fibres pointing straight at the paper. The optimum position can be found with help from the scanning program. With white paper in the printer the end of the image cable may be moved back and forth until the lowest possible reading is obtained on a scale displayed on the monitor. You then fix the cable in place.

The main problem here is that Ladbroke provide no means of attaching the cable to the print head, merely suggesting you use sticky tape. With a bit of thought I'm sure they could have provided something better, perhaps based on Velcro pads?

You also have to be careful that the cable isn't stuck on any of the internal parts of the printer during scanning. Forget this and you could end up with a nasty (and possibly expensive) mess on your hands.

THE SOFTWARE

The disk contains a number of programs, the main ones being those involved in scanning. The scanning program comes in two versions, for high and low resolution displays. The test-run program handles 16 shades of grey and is more advanced than the high-res version, which currently only operates in a simple black/white mode. A new release with grey



A scanner could cost you up to £1000 and although digitisers are more reasonable you still need a video camera. Is there a cheaper alternative? John S Davison finds one that seems to do the job

task support is promised soon, available free to registered users. I used only the low-res version for this review.

The scanner program is mainly mouse controlled, with keyboard input necessary only when you want to change its basic operating parameters. It has a menu screen and an image display screen, the former containing the system's main controls and the latter used for viewing scanned images.

Before a picture is scanned you have to calibrate the system using the scanner program's 'Auto-Grey Adjust' feature. This involves performing a single pass calibration scan across the picture's area of greatest contrast to determine the picture's distribution of grey tones.

A full scan may then be done. With the top of the picture level with the image cable, a click on the 'scan' box causes the menu screen to be replaced by the blank image screen and scanning begins.

The scanning program drives the print head back and forth across the picture. On each left-to-right pass the image cable digitises a strip of the picture producing up to 320 data points, each one to represent a shade of grey. These are used to plot pixels of the appropriate shade on the screen as the scan progresses. It's fascinating to watch as the picture slowly grows into a recognisable image before your eyes.

After each pass the paper is advanced, the print head retracted, and the process repeated. This continues either until you interrupt it or a full screen image (200 lines) has been generated.

Printer and screen scan line widths may be varied independently, so it's possible to 'squeeze' and 'stretch' the image to some extent during the scan. There are also zoom and positioning controls allowing parts of a picture to be picked out and displayed on-screen in different sizes. It takes up to about 6-7 minutes for a complete scan depending on the image size required.

It's possible to interrupt the scan at any point, make the picture lighter or darker, and continue scanning where it left off. In fact, this can be done with completed images too. The program contains clever facilities for adjusting and recalculating the grey scale to produce a constant range to your liking or to bring out the image's finer detail.

COLOUR IMAGES

IMG Scan digitises to 16 grey levels, but the ST hardware limits you to displaying only eight of them. This is achieved by gaining levels, which results in loss of image detail. To recover the detail you can use shades other than grey. In fact, you don't



have to use grey shades at all as it's possible use colours instead. By assigning a colour to each of the 16 grey levels via on-screen RGB sliders you can achieve up to 16 different colours. It's not the same as a true colour scan, of course, but with care and the right subject you can produce pleasing results. The disk contains several examples in grey shades and colour, showing just how impressive the results can be.

The completed image may be saved to disk as raw data, or in DEGAS or MICROSCOPE format. This opens up the possibility of further editing and embellishment using other programs. It also gives compatibility with many other graphics oriented utilities now available - including desktop publishing systems. So it isn't there's a few nice methods of getting digitised photographs into your publications.

The disk also contains a utility called AIM, designed to improve clarity, extract features and add special effects to scanned images according to the IMAGE file. There were no instructions whatsoever for using it, and my attempt to load it was greeted with a message saying it needed more than the available 512K to run in. Hey, it sounds interesting.

Other software on the disk includes a utility to convert image data into AIM format and back again, and one to convert image or AIM files to POSTSCRIPT format for printing on a suitably equipped laser printer. There's also a simple 'picture show' program for displaying the three sample images provided.

IS IT PRACTICAL?

Yes, it works - and surprisingly well. It takes practice to produce good results, but it's well worth the effort. The basic hardware and software does everything Lathbrink claims, and if they're true to their word there's even better to follow as the software is developed further.

It's worth noting that all software updates will be available free to registered users, a very enlightened and welcome approach by Lathbrink.

One thing they really must do is produce a decent instruction manual - talk about spilling the ship for a bit/porth of her! And a quick and effective method of attaching the image cable to the print head is desperately needed too.

There are minor niggles though and if you need an inexpensive method of getting digitised pictures into your ST then this is it.

TERRORPODS

Psychosis
£24.95Reviewed by
John Davison *jr*

"It's been a long match ... as the sun disappears over the horizon, the remaining grey blackness of Galien becomes apparent. Following the intense heat of the day, the onset of night adds the bitterness of sub-zero temperatures to an already hostile environment, and the stark interior of the D.S.F. appears almost hostile."

"Deep melancholy is suddenly smothered by the shrill scream of a siren. The information display systems have gone crazy, an extraordinary array of lights flash uncontrollably. Good grief! ... What's happening?"

Your vehicle being frozen ... It can't be! The Terrorpods ..."

So starts the latest release from Psychosis, originally announced at the same time as the brilliant "Barbarian" which convinced me that Psychosis finally had it second. Does Terrorpods come up to expectations?

The packaging, as always with Psychosis, games is absolutely superb. The glossy box contains the two program disks, a posive (yet another piece of Roger Dean artwork) and an instruction sheet. The scenario of Terrorpods is not as complicated as that of "Barbarian", so this time we are not treated to a novella. Instead, you have to make do with the rather difficult-to-handle instruction sheet. Why is it difficult to handle? Well for a start it's rather vague and incomprehensible in some areas. Secondly it's inconsistent, measuring two feet by one foot when fully spread out. This tends to get in the way a bit if you have suddenly forgotten how to do something at a vital moment.

On loading the game you are presented with an animated title sequence involving a little guy leaping out of some sort of vehicle and into the cockpit of a Terrorpod which is leaping over. The cockpit of the Terrorpod then closes and the huge mechanical beast strengthens up to his full height. A loud thunder bolt (sampled sound) causes the screen to go white and then fade out revealing a second title screen showing the picture from the box cover. This

screen is not as impressive as it's counterpart in "Barbarian", but it's still a good picture. This screen soon fades out returning you to the animated sequence as you are prompted to insert disk B. Very slick and impressive ... what will disk B bring?

When the game finally loads you are asked to select your nationality. Why you have the choice between American and English as well as the other languages I don't know. What's the difference? The game screen is surrounded by instrument panels in shades of red and orange. The various instruments show the amounts of fuel and various minerals required for functions such as shields and weapons systems. The majority of the screen is taken up by your outside view of the planet Galien. This view consists mainly of a gradually shaded grey ground, and some occasionally drab grey mountains on the horizon. Dotted around on the ground are various mining installations and diggers which you will have to visit on trading missions later on in the game. In the sky looms the large Terrorpod space craft, which is also shown in various shades of red.

Movement around the planet inside your D.S.F. is best controlled with the joystick, and weapons are fired using the mouse. The keyboard is used for selecting various functions such as communications, trading and the different types of weapons (either photons or missiles). The game contains some amazing sound effects, especially connected with these weapons. When a photon is fired there is an excellent

sampled sound followed by a loud sampled explosion. All of the sound effects are digitized samples in fact and they add greatly to the game.

So far it would seem that Terrorpods is, after all, merely a demonstration of Psychosis' ability in the graphics and sound departments. Indeed they are excellent, but it seems to me that the actual game has been given second priority, and not as much thought has gone into it as the scenario features. Terrorpods, however impressive it may look and sound, is merely an elaborate shoot 'em up game.

Reading through the instructions and the book that comes with the game, Terrorpods sounds like it ought to be a really complex, imaginative and interesting game, however, after playing it for quite a while, I couldn't help feeling that the game is very "thin" in it's content. It always seems that there should be more to it, but there isn't. Your main aim would appear to be to destroy as many Terrorpods as possible using the missiles, and if you run out of resources you have to send your little "digger" out to trade with one of the various installations. That however, would appear to be all there is to it. This is a shame really, because the graphics and sound are superb, and the theme of the game sounded very good. It just seems that the game is a mediocre implementation of the plot. Don't get me wrong, Terrorpods is not a bad game, but I feel that it could have been better than it is.



MISSION ELEVATOR

Eurogold/Starline
Distributed by
Ariolasoft
\$19.95

Reviewed by
John Davison *jar*

Foreign secret agents have hidden a time bomb in a big hotel. The bomb is hidden somewhere on the sixty second floor. It is your job, playing the part of agent Trevor, to enter the building on the ground floor and work your way up, collecting clues and hints to crack the code.

I have a feeling that this is similar to the arcade game "Elevator Action", which was popular in America but rarely seen in this country. The game is, however, very playable and quite addictive. The screen layout is similar to most platform games, with various floors above you with enemy agents roaming about dressed in long black raincoats and their wide-brimmed hats. Because the floors are elevators, which must be used to reach higher floors. On each floor of the hotel there are various



doors which can be opened with the key from exceptions, and other things such as clocks, tables, plants or stairs.

The various doors each have sensors behind them, for it is an enemy agent or a punk rocker! Appropriate digitized sounds accompany some people as they appear at the doorway, for example, when the Nan answers the door, she is accompanied by a shrill squeal! Behind one of the doors you should find the porter who will give you the emergency door key. The hotel is split into eight levels each consisting eight floors, and to move onto the following level you must go through the emergency door, using the key obtained from the porter.

The whole game appears quite simple at first, but if you set out to retrieve all of the hints and tips it can become quite complex. Having a

notebook handy might be necessary as you get more involved with it. You can obtain hints from various places throughout the game. My favorite is in the bar, where if you buy the correct drink from the barkeep, he will give you part of the secret code, however you become drunk and the game's controls are reversed. If you try to do any more than move, you are informed that "you are still drunk!"

My only dislike of the game is the "computer prisoner" which slowly comes up on the screen informing you that you have failed. It then clears the screen and prints another message. This becomes very tedious after a few times, and there is no way of skipping the section. If you get to a point where you have mistakenly worked out how to do something and you are then killed off before being able to do so, you normally want to go straight back to the game. You probably won't want to hang around for some silly computer forcing to repeat itself yet again.

Other than this minor quibble there is nothing else I can say against the game. The graphics are fairly good, and the sound effects are equally pleasing. Overall I think that Mission Elevator is a game where the programmer has taken a little more care - and it shows!

BACKLASH

Novagen
\$19.95

Reviewed by
John Davison *jar*

As the PC's show, Novagen software announced two titles - Demolish, the much awaited sequel to Mercury, and an ST only game entitled "Backlash". As the show, Backlash attracted a lot of attention with its superb graphics and immense speed. Although the game is not out as the time of writing, preview copies were available for review. I didn't very much of this version includes all of the features of the final version, but I would imagine that it is pretty close.

Backlash has been described by some as the sequel to Demolish, the Barcelona type game which Novagen released on the eight bit computers many years ago. However, although the screen layout and controlling methods

are the same, Backlash is most definitely much more of a "Master" than its predecessor. The screen consists of light grey ground and blue sky. On the ground at regular intervals there are small round grey shadows which help to give the impression of movement when there is nothing else on the screen. In

"a smash hit"

the centre of the screen there is a "heads up display" which is both your aim sight and a form of radar. The various aliens come in all shapes and sizes and each is very well drawn and extremely smooth and quickly animated. The fireballs which are fired by both you and your adversaries all cast shadows as do the enemy craft. Upon destroying anything it explodes into many spinning pieces which fly outwards at great speed. Each of these pieces cast a shadow as well. As you can imagine, the screen does get

rather full as usual? However the action is not slowed at all by the immense number of animated objects.

Unlike most games Backlash does not have any form of real plot. The game description merely states: 1. This is a fast action arcade game. 2. Objective is high score. 3. Radar Sight's head up display shows enemy locations. 4. Action is continuous with increasing difficulty. 5. Five lives to start. Extra life awarded for every 10,000 points.

Overall Backlash looks very impressive, however I think that it is a little boring to play at the moment. This is because you do not really have anything to strive for, such as higher levels, only a large score. It could also do with a little more variety, such as bigger space craft to chase after, or a "warp" section as in the original Demolish. However, I hear that the finished game will be 95% expanded onto a single sided disk! So, I imagine to can expect many more bonuses in the final version. When the game is eventually released, I have no doubt that it will become a smash hit.

DEATHSTRIKE

Talent
£14.95

Reviewed by
John Davidson *jr*

It had to happen, eventually didn't it? A version of "Saramba" was bound to turn up at some time. Deathstrike is Talent software's first attempt at an arcade style game on the ST, and let's hope that any others they plan on doing are better than this.

The game loads with a fairly mediocre picture and some irritatingly boring music, which is on a par with the music on early Paradise Entertainment games such as *Warzone* (i.e. awful). You are then given the opportunity to turn off the music (which I would imagine you will find an essential thing to do, as it drove me crackers after a while), or to turn off all the sound effects, or both. You then press the joystick button to begin the game.

The scrolling is one point about Deathstrike which I like, it is smooth, and the area of screen which scrolls is quite large, unlike many games which I would mention. The graphics of the mountains are flat and uninteresting being in only one or two colours which gives the screen a very dull look. The various things on the ground such as Red Clumps and rocks are fairly boring and colourless, and are not that well drawn. The spiders are unattractively coloured, and your space ship is reasonably detailed, being a grey oval with a large rocket engine at the rear.

Deathstrike has no new ideas at all, it is merely a straight imitation of *Saramba*, involving just bombing things on the ground, shooting missiles and destroying dual installations when fuel is required. So overall, all I can say is if you like *Saramba* then you might like this, but personally I think that the game is uninspired and boring, it is not another game which does not stretch the ST at all. The programmers have obviously not tried to take advantage of the ST's superior graphics. Unless you feel you desperately need a *Saramba* clone (which I would imagine is highly unlikely) I am afraid that this is yet another game I cannot recommend. +

AIRBALL CONSTRUCTION

KIT
Microdeal
£19.95

Reviewed by
John Davidson *jr*

After the tremendous success of the original game, author Eddie Solo and graphic artist Pete Lyon have got together to produce an extremely comprehensive game creator, enabling you to create your own customized versions of the classic game.

Inside the fairly large box you will find a short but helpful manual and the single *Airball Construction Kit* disk. Included on the disk are two programs, the game designer, and a recompiled version of the original *Airball* game.

The designer program is GEM based with several pull down menus at the top of the screen with options to edit objects and various other details. You can also examine rooms which have already been created. The whole thing seems rather daunting at first however, once you have got the hang of the many functions and options, the program is quite simple to use and you will soon be

tracing out versions of *Airball* in no time!

The graphics, as in the original game, are very impressive and since you have filled a room with objects the screens begin to look really quite professional. The editor is very comprehensive and powerful, not only using the pull down menus, but also several keyboard commands to scroll through the hundreds of different objects at your disposal. All of the details of the original game are available to you, including the different status, the skeletons, coffin, snakes, circles, eggs and many others. They're all there, and only a few keystrokes away.

The manual suggests customizing the game which comes on the disk before progressing with any ambitious projects of your own. Having changed this version, you can place the vital objects anywhere you like in order to make the game as difficult or as easy as you please.

Overall I think that the *Airball Construction Kit* is absolutely superb, and it is great value for money at a price of £19.95. If you liked the original game, and you are feeling creative, then I would imagine that you will thoroughly enjoy using this excellent piece of software. It is definitely one of the better releases to be made available for the ST in recent months. +

SKULLDIGGERY

Nexus
£19.95

Reviewed by
John Davidson *jr*

SkullDiggery is basically a revision of the old classic "Boulderdash" and it isn't exactly the greatest game ever to be released for the ST. In *SkullDiggery* you take the part of a "bravey cave man" who has an appetite for treasure. You must run around the one hundred caves using the treasure and avoiding the waiting skulls, the crazy ghosts and the vicious bats.

The graphics are not very good at all. For a start they are medium resolution, giving only four colours and the gain in resolution does not make up for the lack of colour because *SkullDiggery* looks more like a Spectrum game than an ST game! The graphics are boring and dull, and the scrolling is

the worst I have ever seen. It is worse, in fact than the scrolling on *Clanster* (and that was awful). The sound is NOT brilliant during the actual playing of the game, however, when you finish a level and pass through the door to the next level there is a sampled effect of a large door creaking open. On the high score table there is also a sampled sound. I think it's supposed to be a short burst of an electric guitar, but again it is not very good, and it appears to have been put in as an afterthought.

Other annoying little "features" include the protection which causes the disk drive to spin continuously and becomes very irritating. The only saving grace of the game would appear to be the simultaneous two player option where both players run around either helping or hindering each other getting the treasure. This does not make up, however, for the poor quality of the game. For what it is I think that "SkullDiggery" is horrendously overpriced and I would steer clear of it. +

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BUBBLE GHOST

ERE Informatique
£19.95

Reviewed by
John Davison *for*

A small ghost in an odd castle floats from room to room atop his soap, which is as light and fragile as a soap-bubble. If walking can block the path of the ghost, the same cannot be said of the bubble, which bursts all too easily!

This is another game from the French company ERE Informatique. From loading up this game, you can tell that it is something a little different to anything else available for the ST at the moment. It could be described as an arcade adventure, but it is something more than that. You play the part of the ghost, who has the task of moving the bubble around the many rooms of the castle.

The game loads with a fairly impressive picture, and a digitized voice welcomes you to Bubble Ghost. The game begins with you floating in a fairly empty room, with the soap bubble hovering in front of you. In the far wall



is a doorway, through which the bubble must be blown. Moving the mouse about moves your ghost around fairly quickly, and pushing one of the shift keys on the keyboard causes him to pump his lips and blow. If you are behind the bubble, this will cause it to drift off in the direction you blow it. Your ghost can be rotated left or right using the mouse buttons, because in later rooms you will have to negotiate some quite difficult obstacles such as green heads and large spikes! Normally the ghost is facing the left hand side of the screen so rotation is necessary. To blow the bubble towards the right hand side of the screen, you must turn your little ghost totally upside down! There

are lots of nice features in Bubble Ghost, my favourite being the way the ghost goes red when he's been blowing too long. This all seems a bit 'cute' but it is nice to see that the author has put a little thought into the game.

The graphics in the game start off looking a bit bland, however they improve from screen to screen. Blending is used to a good effect, and all of the screens are bright and colourful. The sound effects are also fairly good. The sound of your blowing is very realistic but I do not care much for some of the 'droning' background sound effects which become a little irritating after a while.

This game came out of the blue with none of the usual pre-release advertising and so I didn't really know what to expect. However, I now think that it's an excellent game and my opinion of the ERE Informatique has been given quite a boost because of it.

Bubble Ghost is a refreshing change from a lot of the run of the mill arcade adventures which are being released by the dozen for the ST at the moment. It would appear that a lot of thought and care has gone into the creation of this game. I highly recommend it.

SPACEPORT

Reline
Distributed by
Ariolasoft
£15.99

Reviewed by
John Davison *for*

Yet another of those games that had to turn up eventually. This time it's a version of the old classic 'Port Apocalypse' which was released on various eight bit format years and years ago.

For those of you who aren't quite sure what I'm on about, the basic plot of Spaceport is to fly your space chopper down underground and rescue the trapped engineering staff. Your space chopper is armed with 'Disco optic type 2 machine laser' and a 'Bore-Yamaha Plasma mini generator' to help you overcome the various nasties floating about. In the screens you will find all sorts of obstacles which must be



navigated in order to reach your objective.

To be quite honest, I did not like Spaceport at all. The game screen is much too small, being only a relatively tiny square in the centre of the screen into which the mediocre graphics and spikes go. The scrolling is pretty terrible and the rotor blades on your chopper don't even look as if they're going round. As you move around the underground chambers the graphics of the various nasties, rocks and vegetation do not improve at all, and the little man running around on the landing pads are

only several pixels high and look like little matchstick men complete with bright red heads! The sound effects are fine and pathetic and the tune on the title screen starts off sounding as though it would be quite good, but once it gets going it's awful.

When the game is running, anyone who didn't know better would probably be very surprised to find the game was running on an ST. This is the sort of thing which puts people off the ST. There are far too many games coming out which are of an unacceptably low standard. The ST would appear to be the 'in' machine with software companies, with them all scrambling to release something. In this mad dash to produce a product, the quality seems to be forgotten and games are released which do the ST no justice whatsoever.



Perfect Match Microdeal \$19.95

Reviewed by
John S Davison

There aren't too many educational programs around for the ST so it's good to see this one from Microdeal. Perfect Match is a computerized version of Television's combining memory training and knowledge testing in one enjoyable game.

The disk contains 30 sets of 24 questions and answers in different subject categories, such as science, geography, sport, etc. Three of them cover biblical subjects, which could put some people off. At the start of a game you can elect to use a single category or take items chosen randomly from them all.

The computer then chooses 12 questions, awarding points from the selected category. A question and its matching answer are on separate cards, giving 24 cards in all. The computer shuffles these and deals them face down on the screen. You then have to find and match the question cards with their corresponding answer cards — and it's not as easy as it sounds!

One or two players can take part, each taking turns at finding matching pairs by selecting cards with the mouse. Selected cards flip over and their text shows up into windows on the left of the screen. This reveals a question and an answer, or two questions, or two answers depending on how skillful (or lucky!) you've been. You have to say whether the pair matches or not, i.e. if it's a question with its CORRECT answer. It's possible for a question to be displayed with an incorrect answer, so you have to be careful. This juxtaposition sometimes produces amusing results, adding a touch of humor to the game.

Points are scored depending on your answer to the match-to-match questions, with 100, 10 or minus 10 awarded according to how well you do. After answering, the text scrolls back onto the cards and they're flipped face down again with correctly matched pairs blanked out. The program has a couple of Help features to make things easier, and a points penalty can be levied on players using these, if required.

The game is visually pleasing, with neat animation-effects as the cards are

dealt and turned over. Sound is adequate, being limited to card shuffling, dealing and flipping noises, a short fanfare when you correctly identify a pair and odd blips and Murpys when you don't.

Where most of the supplied categories you can make your own using the supplied microdealer program. This makes it of general educational interest as you can set questions on any subject at the appropriate level of difficulty. It's a pity you can't use fewer than 24 cards or use simple graphical shapes on them, as this would make the program suitable for young children too.

Overall, I liked Perfect Match. Whether used for educational purposes or just something different from the usual shoot-em-ups I think you'll enjoy it too.



King's Quest III - To Heir is Human Sierra \$24.99

Reviewed by
John Sweeney

Sierra have been making adventures for a long time — they produced such classics as "Ultima" and the Golden Palace" and the "Wizard and the Princess" back in the early days of adventures. Since then they, like Infocom and others, have devoted a lot of effort to improving their games, taking advantage of more powerful machines, and making the games better and better. They have, however, advanced their games in a different way to most companies. While the rest of the world devotes itself to producing bigger and better games, Sierra have been happy to stick with their principles, but again adequate, pattern. What Sierra have done instead is concentrate on producing true GRAPHICS adventures or, as they like to call them, 3-D Animated Adventure Games.

Sierra take full advantage of the ST's capabilities to produce excellent pictures of the locations AND you have to move your character around the screen to interact with them. If you

want to GOIT DRAFTER from the top of the well you have to walk across to the safe, if you want to walk down the path from the castle you have to manoeuvre your character, Gwyltles, along the narrow trail, ascade-style, going in front of and behind various boulders some of which obscure your view of the route! They have also implemented numerous unusual sequences in response to your commands. So, if you type LOOK UNDER BED in your bedroom then Gwyltles goes down on hands and knees and looks under the bed! If you walk past a mirror your reflection can be seen doing likewise. If the wizard catches you shirking your duties he may punish you by making you do exercises. Gwyltles does the exercises on screen for you!

The graphics are used to provide many of the problems in the game as well. One screen, for example, is a skill test homesteaded with crows — you have to steer Gwyltles carefully up and down the lanes and through the crows.

Let's do a little company comparison: the Magnus Sorolls and Infocom, and talk about Graphics Adventures and Text Adventures. They are wrong. These are all Text Adventures, either with or without pictures. This is a TRULY Graphics Adventure.

The first part of the game consists of exploring the Wizard's tower and the land around it, finding various spell ingredients, avoiding all the deadly substances and mixing all the spells without the Wizard finding out what you are doing. Most the ingredients and the formulas for the spells are documented in the instruction manual in exquisite detail — "add two-drops of rosd spirit!" Once you have all the spells you must destroy the Wizard and find a ship to take you back to Daventry, the location of King's Quest II. Unfortunately the land has fallen into disrepair under the rule of a terrible dragon which has captured the Princess — you'll never guess what your next job is!

The game is not always completely logical and I found some of the scaling slightly misleading — some of the furniture should be shown as rather shorter, and the eagle should be drawn a lot bigger. The box says "The most fun you'll ever have playing Adventure Games". They're right! The King's Quest series may not be as deep or as complex as some of the other offerings on the market, but they are definitely fun. And without doubt King's Quest III is the best yet.

Highly recommended!



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"In the year 2000, bacteriological warfare has ripped apart the very fabric of American civilization. Cities have turned into unplowed prairie, the highways into battlefields."

ROADWAR 2000

The screen fills with a small portion of a map of North America. Your gang is represented by a car in the middle of the screen (the complete map is the instruction booklet). You press Q to check out your gang's status and discover that you have one backup agent on standby by an Automator and seven Bodyguards, enough food to last four days and enough fuel to travel nine square miles. To survive in this frightening future you will need more men, more food and gas, guns, ammunition and medicine, not to mention more vehicles to carry them all.

Your prime options are Q(key) to find out who's running your current location, W(key) to try and find more transport to commandeer, L(key) to search for supplies, and P(key) to gain recruits, special supplies such as medicine from special people such as healers and, most important, clues about your quest. Unfortunately the people running the city will choose variously object to virtually all of these activities if they catch you at it! Their objections will normally take the form of an attack. In this kind of fight you play to par - first to back and watch the results flash up on the screen.

Your sole objective at this point in time is survival! Apart from the bacteriological war which has been going on, someone has been dropping nuclear bombs on the major cities to life is neither easy nor pleasant. If the local residents don't get you, then you can be sure that the cannibals, the mutants, the diseases, starvation or the roving road gangs will! You should expect a number of false starts before you learn enough to survive.

Next item on the agenda is to get control of a few towns yourself, since until you do so the police that by now give you your mission. Once you find out where the GUB (Government Underground) hideout is situated you should get there as soon as possible since only then can you start on your real mission - to find right mixing scientists/agents and bring them safely to the GUB so that they can save the world. Some you will find easily, some you will get clues about and have to search for long and hard. For the last one or two you will be given a Radio Division Finder which makes life very so much easier!

The list of commands available includes F(h) (Turn), H(key) (pick up medicine), T(transfer supplies to or from a cache), and E(mploy Status) which tells you which cities you control and how much progress you have made in your quest. Travel between the cities is done via squares at a time across terrain such as roads, farmland, deserts, plains, forests, etc. All activities, including travel (which is affected by terrain) take time. In bad weather they take even longer. As you make each move the time and date are updated. Each night your men eat up food, each square you move (approximately 75 miles) your vehicles eat up gas. Keeping up your supplies can be a full time job in itself!

John Sweeney concludes his look at two similar games - last issue he tackled *Autoduel*

There are numerous locations where special things happen - you may find towns where they are handy with cars and improve your vehicle characteristics - make note of these, or where you find useful companions. You will need a doctor to reduce your casualties, a politician to help you in your recruitment, and a drill sergeant to improve the quality of your men - after each encounter a certain percentage of your surviving men will be promoted up through the ranks from Recruit to Dragoon to Commando to Bodyguard and finally to Automator. You will also have to make divisions. Will you let your men visit Disneyland or Fort Knox? Will you let them gamble in Las Vegas? When you reach your country how much wine will you distribute? The right divisions will improve morale, the wrong ones will lose you men. You will also learn which places are dangerous, either because of the accidents on, for example in certain parts of Mexico, because of the food!

NOW IT'S GETTING GOOD

Given all the forgoing, you already have a perfectly adequate game, but I haven't got to the good bit yet! The other main element of the game is the fights with the road gangs. You have three options for playing these. Your first choice is whether or not you want a detailed, tactical fight. If you decide against this the computer will very quickly play the fight out for you and tell you the results. Although this is easy and quick it has a number of drawbacks. First, you can't apply any of your skill to improving your chances in the outcome could usually be better, second you don't have the opportunity to capture enemy vehicles and third it doesn't change your limit of six vehicles.

I found the limit of six vehicles very restrictive and the only way to raise it is by playing out and surviving a detailed, tactical road combat - each win raises it by one up to a ceiling of 15.

If you have played at the rules and don't yet feel ready for

the full combat, there is a middle route. See Fire-to-destroyed, tactical combat, say Yes to auto-deploying (individually placing each of 200 men into the top or interior of each vehicle can be very tedious if you don't), and also say Yes to Quick Combat. This overcomes the first drawback as you can save minor parameters to control how often you see and which parts of the enemy cars you wish to aim at. A little thought here should improve your gang's chances. The computer will then play the fight out quickly for you.

Before declining the Quick Combat option and playing the full detailed combat you should carefully read the manual at least twice and study the Vehicle Table. You should also not expect to win your first few fights - make sure you save beforehand (the whole game is so deadly that you should save frequently anyway). The instruction booklet is generally extremely good, and you should read all the notes from former programmers carefully since they contain many clues (there is also a good clue in a useful location on the back page). However, in the explanation of moving and boarding especially I feel it could have been a lot better. There is a lot of detail left out, and no examples. You will need to experiment a lot to fully understand all the movement, firing and boarding rules.

The abbreviations shown on the screen are SP for speed, AC for acceleration, M for manoeuvrability, B for braking. You will need to watch these carefully and understand their interpretation in order to master movement - the faster you are going the more moves you get during each movement phase, but the less likely you are to be able to turn. You are highly likely to lose cars during your first few fights by crashing them into obstacles such as wrecks or buildings! If you can't tell which way something is facing check the screen for its FC or Facing - this number correlates with the compass points on the map and tells you which way you are going. Also the use of News car) and Quick) in transfer operations is rather undocumented but clear - use Q rather than N if you want all the options.

GET READY FOR THE FIGHT

So, once you have placed your men in their vehicles and armed them (Brooms and crossbows only in this game I'm afraid, you get the chance to deploy your vehicles around the board. You will now have a bird's eye view of a small part of a large warlike map. The terrain will depend on where you were when you were attacked, it could be a city maze of buildings and roads, hatched ground with trees and fences, an oilfield complete with derricks, rails and road, a road littered with wrecks, or one of many other terrains, each with their own tactical problems. At this point the only thing you know about the enemy's position is that they are somewhere off the screen to the right, so your main concern is placing your vehicles in such a way that they can avoid both each other and the immediate obstacles once the fight starts.

The rest of the battle consists of movement phases (including running), firing phases - each vehicle can fire two volleys so it is important to swing them round so that at least two of the sides of each vehicle have a view of the enemy, transfer phases, which allow you to move men up and down within a vehicle, or even between two vehicles if they are adjacent (this one of course is deadly), and a boarding and unloading phase - you control the boarding. If you have vehicles

adjacent to enemy vehicles you can try sending men across to capture the enemy vehicle - if they get across then the computer removes the vehicle and lets you know what's won.

There are 20 different vehicle types from motorcycles, through sports cars and limousines, right up to buses, tractors and trailer trucks. Each one has 21 different attributes, some of which, such as protection factors and manoeuvrability, can be improved if you find and/or lose the right items. These factors affect not only the movement of the vehicle but also details such as how many men can fire out of one being - from 2 on a motorcycle up to 26 on a bus (which can be quite devastating at close range), how many men can board from each facing or from the top, how many men and supplies can be carried, how many bombs they need and so on. The detail is superb and makes the detailed road combat into a complete sub-game in its own right - especially when you have a dozen vehicles, carrying hundreds of men, on each side.

A LITTLE TRIVIAL?

The only slight criticism of Roadwar 2000 is that the quest is a little trivial compared to the scope of the game. Trying to find the fifth and sixth scenarios across over 120 cities since you have mastered the mechanics of the game and built a super-gang can go on a bit but even though I have finished it I keep going back to have more detailed road fights! One detail I might want you about - each time you die and restart (rather than reload a saved game) it re-initialises and moves the QCM.

I played Roadwar 2000 on an IBM PC, then checked out how it looked on an ST at my friendly neighbourhood Atari shop - liaison. The same interfaces have been completely reworked for the ST. On the PC the battle results scroll up line by line, so if 200 lines is a battle you get 200 lines scrolling up at 2 or 3 a second! I made some notes that what they should really do is simply display the total statistics at the end of each round and, to add behind, on the ST all results are flashed up instantaneously in windows - magic! The only catch on the ST is that it gives TEND time. Make sure you set the speed as slow as possible to start with or you'll never work out what's going on. I would rather they had included an option to allow you to control the passage of events with the space bar. The ST also tends to use the mouse to pull down windows and point at commands. I personally find that this technique is not efficient if you wish to issue lots of single key commands in quick succession, the keyboard is much better - that is what it is designed for after all! Unfortunately they have not implemented all the commands on the keyboard, for example you can press F to search for People but the submenus you are presented with will NOT allow keyboard input.

Roadwar 2000 is without doubt an excellent game of its type - it won't be everyone's cup of tea because of the level of detail and the fact that you need to study the rule book so thoroughly, but if you give it a chance I am sure you will get addicted.

An Atari 3-bit version is planned but has not yet been released. Watch out for it and watch out for Roadwar Europe - coming soon!

ROADWAR 2000
SSI (US GOLD)
Disk Price £24.99 (ST)
Price and availability of XL/XE version not known at present.

UPDATE

XWORD (ISSUE 28): Here about an update to an update! And an apology for a stolen back! Last time we gave you an update to Designer Labels only it had nothing to do with Designer Labels, it was all about XWORD! Whoopey. To all those who are slightly confused, it was not our fault!

MIDBASE (ISSUE 28): Many thanks to Andrew Stevens for the following suggestions for using MIDBASE with a 1000E. This allows MIDBASE to be used with a Ramdisk giving instant access to the two modules of the program. It makes use of the RAMDISK MOVER program from Issue 28. Follow these steps (and a back-up):

1. Rename MIDBASE.MGR to MIDR2MGR.D8 and rename MIDBASE.U7L to MIDR2U7L.D8
2. In line 285 of INTRO change MIDBASE.MGR to MIDR2MGR.D8
In line 1886 of MIDR2MGR.D8 change MIDBASE.U7L to MIDR2U7L.D8
Delete line 1890 of MIDR2MGR.D8 and re-enter as ? CHR(12)
3. Load the Ramdisk Mover program (RAMOVE.COM) onto the same disk as the three database programs and make sure you have the full DOS 2.0 on the disk.
In line 3068 of RAMOVE.COM change MENU to INTRO
4. Use DOS 1.0 SETUP.COM to set up an AUTOMOUNTS to run RAMOVE.COM.

On boot-up, the regular 1000 will take 61 seconds to set up the database programs in Ramdisk and to display the main menu. Transfer between the Manager and Utilities sections of MIDBASE is now instantaneous and all that is now required is the disk drive in your Data disk.

*** STOP PRESS ***

3-D ANIMATOR (ISSUE 28): We are still working on all the problems with this one! Here is the new fix. For the BRXL, change Listing 1 so that the PTEXT=1600 in line 68 reads PTEXT=1738. Apparently there is more free RAM to an BRXL than to a 1000E!

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THE ULTIMATE



Our Flight Expert John Davison reckons he has flown just about every flight simulator going, so we got him on a real one on the Microprose stand at the PCW show! Not so easy, John!

At the PCW Show a few months ago there was an 1800 on display guaranteed to make the flight simulator fan drool - the fabulous Microprose Gunship Attack Helicopter Simulator. If you haven't heard, Gunship is Microprose's finest flight simulation product to date. It's very similar in concept to Digital Integration's Tomahawk, being a combat simulator based on a Hughes AH-64 Apache helicopter. The Gunship software has recently been built into a 'real' flight trainer rig, a massive machine standing about 8 feet high and weighing nearly one and a half tons! It's no wonder the Microprose stand was so popular.

LINK FLIGHT TRAINER

The original hardware was built in the USA by the Link company sometime in the 1960s. Yes, it's one of the legendary Link Trainers used to teach instrument flying techniques to many thousands of pilots. You'd never guess its current appearance, though. At some stage it was converted into a helicopter trainer, a job it fulfilled until the early 1970s, when it was donated to a flying club in the USA. Its history from that point is unclear until about 3 years ago, when it was discovered (while doing the weekly overhauls of a nearby diving equipment shop) it was found by inventor and computer technician Barry Poole, who presented the shop to let him take

IMATE SIMULATOR

it off their hands. Marty then reconditioned and rebuilt it in his garage as a hobby project, taking 18 months just to get the trainer's instruments and basic movements working again.

He then decided to bring it completely up to date by incorporating modern computer technology, custom designing and building special electronics to interface the trainer's flight controls to the onboard computers. A customized IBM PC-AT clone does most of the work, running the Quimbly software and driving a specially designed soundboard. There's also a Commodore 128 involved somewhere in the works. (Was, an Atari?)

Unlike the original Link Trainer, Marty's machine provides the pilot with sight and sounds of his surroundings - by courtesy of the Quimbly program, of course. Graphics are displayed on a Sony 19 inch colour monitor in front of the pilot, while the sounds of engines, rotor, and weapons receive full stereo reproduction through the integrated 16 watts per channel sound system.

The entire cockpit control panel has been redesigned to interface with the Quimbly software, so the pilot can use real panel switches instead of a computer keyboard to operate the program. Although the monitor displays the Apache's essential instruments, the panel also carries a number of 'real' instruments such as altimeter, airspeed indicator, etc. And to start the engines there's a proper ignition key!

The pilot controls the Apache using authentic cockpit pedals and collective and cyclic pitch control sticks. These affect the program just as a computer joystick would and cause the display on the monitor to react accordingly. The horizon line, hills, and sky revolve, and the scenery pans across the screen if you turn, with ground details sliding under you mechanically as you fly over them.

But now for the clever bit - the controls are also linked to the trainer's motion system. The cockpit is able to physically pitch or roll up to 10 degrees up/down or left/right and to horizontally rotate through 90 degrees, so the pilot gets a physical sensation of movement as well as seeing it on the screen. It's a flight simulator fan's dream machine.

BY INVITATION ONLY

Thanks to the efforts of the Editor I was lucky enough to get an invitation to fly the machine. (I always knew Hillary had a car!) Marty Peak himself was there acting as instructor, and he carefully explained all the controls to me before closing the door and shifting the hand that over my head. This provided complete isolation from the outside world - I really was in a simulated world of my own! Marty directed me from outside and we both wore headsets so we could communicate during the flight. Marty's microphone was also linked to the public address system on the stand, so everything he said could be heard by the watching crowd. The stand also had cameras aimed at the simulator's monitor, giving everyone a pilot's eye view of the flight. It also meant that any priggery by me would be VERY public!

Marty talked me through the starting sequence, and with the rotor spinning a noise pull on the collective pitch lever caused the ground to seemingly drop away and we were airborne. Then, a forward movement of the cyclic pitch control caused the whole cockpit to tilt forward and the horizon to rise on the monitor, and the Apache began to accelerate rapidly

forward. Following Marty's instructions I flew a series of manoeuvres designed to locate an enemy ground target. At one stage I was accelerating along very close to a mountain and had to take rapid action to avoid hitting it, causing the simulator to pitch, roll and wobble in an alarming manner. It felt much more on the inside than it appears from the outside. I mean, you!

Suddenly, we found an enemy tank. I selected a Hellfire missile with the appropriate panel switch and loaded the firing system onto the target. A squeeze on the firing trigger caused the missile to streak away, and after what seemed an eternity it blew the enemy to smithereens.



ENGINE FAILURE

Then Marty told me I was about to have an engine failure, and would have to perform an emergency landing. Under his guidance I uncoupled the rotor from the engine and got the Apache in a steep climb, the helicopter equivalent of a glide. This resulted in a rapid descent, cushioned as the last moment by a judicious touch of the controls. Emergency landing! Semi-controlled crash, more like!

When Marty opened the door I staggered out with loose thinking and head checking. To prove I'd survived the ordeal I was presented with my 'Quimbly Test Pilot' wings.

The Quimbly software isn't out in Atari format yet, but has received more reviews on other machines. Even this short experience I can see why - it's got all the hallmarks of a classic simulation. An ST version should be in the shops by the time you read this, but don't hold your breath waiting for an Amiga version. Microprose say there won't be one (shame on you, Microprose). If the ST version's anything like the one I flew here it should be a real treat. I hope to give it a detailed review as soon as I can lay my hands on a copy.

Finally, I'd like to thank everyone on the Microprose stand for making my visit such a memorable one, with special thanks to Marty Peak and Fred Schmidt for providing the material for this article. And thanks, Len, for making it all happen.

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ORIGINAL SYNTH

The sound capabilities of the Atari 8-bits are seldom held in high regard by any but the most avid Atari fans, but surely the fact that a version of the POKEY chip (which is the heart of Atari sound generation) is responsible for the music on some top coin-op games, including *Demolition*, means there is a great deal of potential hidden away somewhere. Hopefully, this program will help realise some of that potential.

ORIGINAL SYNTH utilises the Atari's 'volume only' method of sound production. A full explanation of this is given in the book *Do It For Atari* but here is a brief explanation to help you understand how the program works. You should be familiar with the BASIC SOUND command, if not you can look it up in many reference books or the BASIC manual. One of the parameters that may be set is 'volume'.

If an odd distortion number is used with auto-pitch and positive volume, a 'click' will be heard. The volume of the click will be equal to the difference between the previous and the new volume. For example, if you specify volume 0 and then volume 15, the resultant volume will be 15. If you then specify 15 again, the resulting volume is 0 (15 - 15). If a great many of these clicks are produced in succession, a musical tone can be produced. From BASIC only a few lines can be produced but when using machine-code, the loop must be slowed down since at full speed only dogs would be able to hear it! Original Synth makes use of this feature to produce some very interesting sounds.

THE DISPLAY

When the program is RUN, you are shown a graphical view of the ADSR. This is how the volume of the note changes as the note is played. Unless you have changed anything, the volume will start off at full, decay to half volume, stay at half for a while and then fade away to silence. This can be altered to produce special effects but more about that later. Heavy calibration on the ADSR display is equal to one second of real time.

If you press 'V', the display will change to show the current waveforms. The waveforms control how the note actually sounds. For example, brass instruments typically produce a triangular waveform. This program cannot synthesise an instrument exactly, however, since the waveform of an instrument varies as the note is played but it can give an approximation of different types of instruments.



THE MENU

The lower half of the screen shows a menu of options. I will explain each option in order:

Sound Type - When this is set to FULL the ADSR is enabled. When set to FLTR the volume remains constant and the note is pure.

Distortion - When enabled the screen is still displayed as the notes are played, resulting in a more fragmented, less musical, tone.

Light Show - When enabled, each note is accompanied by coloured lines moving up or down the screen.

Configure - If you find that you are using a certain combination of waveforms and ADSR frequently, choose this option to save the combination to disk. When you next run the program, that combination will automatically load.

View menu - Scrolls between the ADSR and waveform display. **Exit** - Exits either the waveforms or ADSR, depending on which is currently displayed. Note that in editing mode the cursor is only one Graphics 8 pixel and may be difficult to locate.

For **Waveform Editing**, move the flashing cursor around the screen with joystick 1 or the cursor keys and alter a point with the fire button or by holding the Return key. To alter the length of the waveforms, position the cursor and hold the space bar. Shortening the waveform generally makes all notes higher and lengthening it lowers all notes. This is not always the case though, since altering the number of points present may counteract this effect.

ADSR Editing takes a different form to the waveforms because there are 512 possible points for the cursor. The joystick and cursor keys move the cursor 1 point at a time while TAB and SHIFT + TAB move the cursor 20 points right or left respectively. Holding the fire button or Return key pins a point after which the computer pins the points with a line. Up to 64 points can be placed at any one time. Holding space will delete a point providing the cursor is on a point previously set. This can be determined by the Point Set message on screen which will show whether the point at which the cursor is residing has been set.



Listing 1

```

00 0 0000 000000000000000000000000000000000000000000
01 0 000 0 "FILE CREATOR.BAS" 0
02 0 0000 0 "MUSIC.SYNTHAS" 0
03 0 000 0 " " 0
04 0 000 0 " " 0
05 0 000 0 " " 0
06 0 0000 000000000000000000000000000000000000000000
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EO - After choosing which type of EO you require, you will be presented with a directory of wordfiles on ADSSKs as appropriate. Choose which file you want by typing its number. If you are saving a new file you will be prompted for a filename. Just type the name and NOT the "D:" or asterisk. Pressing the Escape key will abort the operation at any time before the file number is chosen. Be careful! The program is only prompted against the "FILE NOT PRESENT" error and no other disk error is accommodated such as "DISK FULL".

PLAYING MUSIC

This is what all that editing is for! Press **START** to start music mode and the computer becomes a 32 column piano keyboard as shown in Figure 1. **SPACE** is the lowest note and **RETURN** is the highest. **E-INV** and **Q-RST** are the 'white' notes while **R** and **I-DEL** are the 'black' notes. Pressing **OPTION** at any time will return to the main menu. The notes played by this keyboard will sound according to how you have set the wordfiles and ADSSK. I have provided several examples which you can load in from your disk, but you are free to design as many as you wish!

I have found that playing music with this program has helped me understand the layout of the piano keyboard and the intricacies of visual shaping. As an added bonus it has improved my finger keyboard coordination and so increased my typing speed and accuracy considerably. I hope it will bring you enjoyment and benefit in a similar way.



Figure 1 - Notes on the Keyboard

TYPING IT IN

You will need a disk with at least 128 free sectors and it is recommended that you start with a freshly formatted disk as this can be used to substitute Original Syntex.

1. Type in Listing 1, checking it with **TYPE** 1, and save it with the filename **D-CREATOR.BAS**
2. Type in Listing 2, again checking it with **TYPE** 1, and save it with the filename **D-SYNTHAS**.
3. Ensure that your disk remains in drive 1 and is not write protected and then load and **RUN** **D-CREATOR.BAS**. This will create an **AUTOMUS.SVN** and several other **DATA** and support files (13 in all) and then will the run **SYNTAS**.
4. **CREATOR.BAS** need only be **RUN** once, after which you may either re-load the disk or type **RUN** "D-SYNTHAS" whenever you wish to use the program.

TURBO BASIC

MAGIC WINDOW

by Les Howarth

Here is a good example of how fast TURBO BASIC can handle players with an unusual effect which could be used in your own programs. You are confronted with a blank screen on which is written an invisible message. As the characters are the same colour as the background you cannot see them. A player routine is used as the "magic window" to reveal the message. One possible use for this effect would be to create an invisible maze and then use a joystick to move the window in order to find your way round the maze but there must be several other applications.

HOW IT WORKS

Two players are used. Player 0 is used as a frame while Player 2 is used to create the magic glass. Both players are stored in PMR. I should point out that line 00 must be typed in first to ensure that PMB is the first name in variable name table otherwise the program will not run.

By moving the data within PMB, the players are moved vertically quite fast, so fast in fact that the players are moved from the bottom to the top of the screen instantly. PBI graphics are set up as PBI0: SETUP on line 540. Here is where PBI0 is re-directed to the PBI storage area. Turbo Basic automatically closes arrays and strings when DIMed but in this instance we need PMB to be filled with letters. Line 590 is a quick fill routine which can be used to fill any string with any character. 0B is the shape of the window while 0E is the frame.

There are a few examples included of the special features of Turbo Basic which I will mention in this brief run-down of the program. The dashes in line 100 are obtained just by typing 2 dashes only, when listed you will find all 50 dashes. One thing to note, if you want to put in your own message, it has three in a row color at the end of each print statement.

Lines 110 to 380 are an infinite loop. The IF statements on lines 180 and 200 are NOT followed by a THEN. Make sure you type the colors where you would expect THEN to occur. The only jump out of this loop appears on line 180. By pressing START, SELECT, or OPTION, the program goes to PBI0C: SLOW on line 380.

The SOUND statement with no parameters turns off all sound. PAUSE is a quick way of producing a delay instead of using a FOR/NEXT loop.

NOW FOR THE MAGIC!

The 'magic' is performed in line 430 where the PRIORITY register is set so that the playfield (in this case capital letters) has priority over Player 2. So those the screen is out! What really happens is that wherever Player 2 is on the screen, the Player only covers the background and not the text thus leaving each character.

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YOU CAN DO THIS!

So there's another example of Turbo programming. Can you do better? We'll pay you £20 for a good example of Turbo programming. It must use the features unique to Turbo and be well structured and it must fit on one page. Please also include a brief explanation of the program. Anything will do, but try and make it something that uses the unique features of Turbo Basic.

WHAT IS TURBO BASIC?

Turbo Basic is a new Basic language for the Amstruc originally published in the German magazine Happy Computing who retain the copyright but have released the program to the public domain. It adds over 60 new commands to Amstruc Basic, runs three to five times as fast, is totally compatible with Amstruc Basic and comes with a compiler to compile any Amstruc Basic or Turbo Basic programs to run as machine language speed. You should be able to get a copy from my service of Public Domain software such as your local user group or the PDSB's Secretary Shop.

The DUNGEON

Alternate Reality
The Dungeon
Datasoft US Gold
48k Diskette
Price £19.99

Reviewed by John Sweeney

About eighteen months ago I got a copy of a new game called *Alternate Reality - The City*. It looked very good at first, but in-depth playing of it highlighted many bugs and shortcomings. Despite having excellent sound and graphics, and a great basic concept, it wasn't much of a game - just lots of mapping. The documentation did, however, list at least scenarios and in my review of it back in issue 20 of Page 8 I expressed high hopes for *Alternate Reality* if they actually developed it into a game. I have since learnt that *The City* was actually bought in by Datasoft and hurriedly finished off to meet a deadline - that explains a lot of things.

The Dungeon, on the other hand, was written by Datasoft and properly

GAME OF THE YEAR!

developed and tested - both as a program and as a game. The result is that they have removed every single shortcoming I found in *The City* and have produced a superb Role Playing Fantasy Game. It is without doubt the game I have enjoyed most so far this year.

The game starts with your abductees in another reality. You stand before an archway surrounded with ever-changing numbers. You step forward through the archway and the numbers freeze to determine your Stamina, Chara, Strength, Intelligence, Wisdom, Skill, Wealth and Hit Points, plus various other characteristics such as Speed about which you are not given full information.

You find yourself in a *Dungeon* corridor. The top of the screen has colourful bars displaying your Status, Level, Stamina, Experience Level, Hit Points and Current Location. There is also a small area opening to indicate the passage of time. Press F immediately to Pause or now will keep pausing and eventually you will be attacked by something nasty! The bottom of the screen contains details of what is going on, all in very readable outline looking text. If you are in an encounter with someone it shows a list of your actions - Walk, Search, Leave, Attack, Charge, Aim, Transport (= Talk), Offer, Muff, Trick, Heal, Switch Weapons, Turn and Run and so on. These are always presented in easy to use lists - just press the corresponding number to choose your action. Anything which a demon of the *dungeon* says also appears down here - and some of them have quite a lot to say! As well as the numbered lists of actions, you also have available to you the commands Cast spells, Drop Items, Examine spells or items - Inventory, Use an Item, Pause the game, Go on Item, Show the current game position, and Quit. These are always active when relevant and many of them display lists through which you may scroll (Forward) or (Backward). You can also scroll back or forth through your status screens, using the SELECT and START keys, to view your wealth, current weapons and weapons, your apparel, active spells, current curses and diseases.

All of this information appears instantaneously on request and overles, without destroying it, the current screen contents - all this makes the user

interface extremely easy to use so that you can concentrate on playing the game rather than trying to fight the programming!

In the centre of the screen is a graphics window which shows your view down the corridor. This is a three-dimensional view of the corridors, chambers, archways and doors ahead of you. As you move, using either the arrow keys on the keyboard, or the joystick, your view of the *dungeon* scrolls smoothly by. Your compass if you have one appears to the left of this and is updated instantaneously as you turn corners. The details of the stonework make the *dungeons* most realistic, and this is further enhanced by the clever use of colour to differentiate between various parts of the *dungeons*. Furthermore many parts of the *dungeons*, such as the Crystal Caverns and Administrator's Tomb have completely different walls.

The 3-D scrolling was the main focus of *The City*, in *The Dungeon* it is far better - smoother, better looking in the distance and more varied.

As you head down the corridors of the *dungeon* you will undoubtedly encounter various of the inhabitants. It does take about 15 seconds to load an encounter (this is the only pause in the game, apart from a similar load as you enter a new area of the *dungeons* - all other responses are sub-second). You will then be presented by a picture of the character facing you in the corridor and a list of possible actions.

Your moral behaviour is important in *The Dungeon*. You will never get far unless you join some of the Guilds and learn their spells. But there are good-guy Guilds and bad-guy Guilds and they will only have you if you conform to their view of morality. Giving food to paupers, not stealing from people you meet, and going to chapel regularly are an absolute must if you want the Guild of Light to have you. On the other hand, if you do do these things there is no way that the Dark Wizard's Guild will touch you with a bony pole! The instructions say that being a good guy is harder in the store screen, but being a bad guy is only hard being a good guy so I don't know what kind of problems you may have here if you are evil, but I can assure you life is not easy for a low level good guy!

Priority encounters may help you

gain information or enhance your moral standing in the community. Unfiredly uncommon usually and in a light! The fights are fair and deadly. Although you can pause them if you need to think, or speed them up by pressing the space bar, you basically have four seconds to determine your next action before the other guy gets in his own blow or spell. There are a tremendous range of weapons to buy, acquire after fights, or find as treasures in *The Dungeon*. Choosing the right one to use against a particular enemy may mean the difference between life and death. You must also choose how vicious your attack is - a Charge can do lots of damage but leave you open to attack, an *Aura* may do even more damage but takes longer, or you may choose to use an artifact - there are dozens listed in the manual and lots more special ones which aren't. There is the Trump Card of Death, the Hypnotic Eye, the Wand of Fear (provided you have a Crystal to power it), the Silver Horn and so on. Or you can use a scroll to enhance your weapon, or, if you have joined a Guild, you can cast a spell. There are over thirty spells listed in the manual, and others which are not! You could try and enhance your armor with a Potion from Fort, spell or throw a Lightning Bolt on a Gold Mine at the enemy - again learning which spells are effective against which enemies is critical to your survival! Especially when there is a group of them and they keep summoning their friends to help!

Whoever's *Life Points* has longer survives and wins the battle, and so the Winner the Spells. This is your main way of acquiring the treasure artifacts and coins which you will need to survive the game. But the really good treasures come from exploring *The Dungeon* thoroughly. Hidden throughout *The Dungeon* are over thirty special artifacts, often guarded by particularly nasty creatures. Some of these items are required to complete Quests in order to finish the game, some enhance your abilities - but you will have to watch your statistics carefully to spot what some of them do, some are superb weapons or armor, some are deadly traps! There are also over thirty special locations where you get a full colour picture of the interior. These include places such as the shop you will find just around the corner from the start, equally useful but harder to find places such as the *Dwarven Smithy* and the *Weapons Blacksmith*, and numerous places you will need to visit to either learn about or complete various Quests.

The *Quests* form an important part of the game. You don't need to complete all of them to finish the game, but they are all worth doing - although where they

conflict, you will need to decide on the right course of action! For instance the *Golden Ring* wants you to retrieve half a *diamond ring* which the *Trolls* have stolen from him. Surprise, surprise, the *Troll King* wants you to retrieve half a *diamond ring* which the *Goblins* have stolen from them! Whom should you trust? Or should you get both halves for yourself! But then what would you do with the halves!

Your final objective (although it is not actually stated in the manual) is to reach the *Drawing to Revelation* on the fourth level of *The Dungeon*. Revelation will be a future scenario of *Alternate Reality*.

This is not easy. Your first task will be survival. If the monsters don't get you then the disease, poison, curses, and deathtraps (like going through a *stone way*

'should only take a few score hours ...'

will into a room you can't get out of without a key) will. And don't back on finding the *Fontains* which heal, cure disease and remove fatigue, or the *Potion Brewery* to help you in the early stages of the game. All these are well hidden where low level characters have no chance of finding them! One place which is worth looking fairly early on is the *Dwarven Smithy* on the second level - one of the few places you can get money from! Your second task, once you have acquired enough experience points, by destroying the monsters, so that your statistics have increased to an adequate level, is to find enough Gold to join a Guild and learn some spells. Learn *Carriage Key* early on - there are lots of locked doors!

From there on you are on your own. *The Dungeon* is vast and full of interesting problems to test your ability to map. There are unique rooms, rotating floors, secret doors and all the usual paraphernalia of *Dungeons*. You will find all sorts of wandless areas to try and find your way out of - the *Tantric Maze*, the *Lamp*, *Palace's Puzzle*, the *Hall of Mirrors*, the *Puzzle of the Three Doors*, *Wooden's Maze*, the *Room of Confusion* and the final and deadly *Guardian*. The *Guardian* is a series of rooms on the third level, each guarded by a powerful demon, leading to *Death's Door* - the entrance to the fourth level where you finally solve some of the mysteries of *Alternate Reality!*

You are provided with a map showing a list of the rooms and corridors near the starting area plus the secrets around the first level (useless for beating a hurry - but to the info areas of the *dungeons* - but beware, the map isn't entirely accurate). You will need to map the whole *Dungeon* in detail to stand any chance of success - and because of the many confusing areas and traps you should always work in pencil on a photocopy! The first level covers 44 x 64 squares - each successive level is a quarter the size of the previous one.

Complete all the quests, join all the appropriate guilds, find all the magical artifacts, fight your way to the fourth level - that's all. Should only take a few score hours if you are good! For a final challenge you could try fighting the *dragon* on the third level (*The Great Wyrm*) - the only way to complete the game is to fulfill the quest the *dragon* sets you, but to make for a good fight - he has about 1000 Hit Points!

You should be aware however that the initial version of the program has a number of bugs in it. If you have a copy that says V2.0 in the bottom right-hand corner of the screen while it is booting then you should immediately apply to your retailer for an upgrade. You must have V1.1 if you want to finish the game. V2.0 has two FBI agents that prevented you from bringing your character in from *The City*, plus a number of more devious bugs which make it impossible to continue play once you get deep into the game.

There are also a couple of areas in which I felt the game was slightly unfair. Firstly, the *Gargoyle's* first stibble still doesn't make sense to me so I include here the answer - if you get stuck just go three letters back in the alphabet to work out what it is: VKLSEJHFM.

The second problem is payment; currency in *The Dungeon* includes Copper, Silver, Gold, Crystal, Jewels, etc. For some strange reason certain inhabitants insist on being paid in a particular currency even though most can be exchanged, e.g. one silver equals ten copper. Some of the decisions are also fairly arbitrary about what they actually want. You may save yourself a lot of time if you are aware that no-one ever minds being paid too much, as long as it is in the correct currency.

The third problem is the *Dwarven*. This rather nasty beast, not surprise you, such in your most valuable artifact - without which you cannot finish the game - and when defeated once into a maze on the floor with no trace of your artifact. For this reason if no other you should

continued on page 47

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SAVE frequently. Even worse you will eventually find yourself burnt by Devocon after Devocon - loads of them. There IS a way to get rid of them. And you can do it without moving from where you are - think about it - that's all the help I am giving you!

Finally, the River Stone. The manual tells you you can cross only at midnight. It would have been much kinder of them to name 'the midnight hour' - any time where the hours figure is zero.

The only complaint I have about the game is the lack of a proper SAVE routine. The City provided none (yes, you could SAVE, but that ended the game and if you died on your next attempt you couldn't restart again). Datanoid have provided a much better SAVE for The Dungeon, you can SAVE and carry on playing in order a minute, and if you die you are really only LOST and can come back to life. However they obviously don't really like providing this facility so they penalise you by taking a point off one of your statistics and putting you back at the entrance! Since they provide you with a backup utility and recommend you use it they clearly see the need for a proper SAVE. Why then do they not allow it within the game? The

game is so deadly you DO need one - so here is how you do it...

Use Save() regularly. If you die, switch off and boot up your favorite disk sector editor (I'm sure Page 6 has one in it's library somewhere). Find the second sector on your Dungeon Character Disk. You should see the names of your (up to) four characters in the sector. The 7th and 10th bytes refer to the first character, the 20th and 14th to the second and so on. The 7th byte will contain FF if the first character is OK, 7F means LOST, or 8F if there is no first character. Just set 7F back to FF and the corresponding byte (10th for the first character) to FF as well. That's all. You can now re-boot The Dungeon and you will find yourself back at your last SAVE position.

As an aside, if you look at the third sector you may spot all of the first character's statistics laid-out neatly in hex. You may be tempted to increase them. Shame on you! But don't try it. There are lots of clever check-digit routines built into your character. If you change anything it will notice and refuse to use that character ever again. The only safe bytes to change are between the 7th and the 10th in the second sector - you have been warned!

Alternate Reality - The Dungeon can be played either from scratch, or by transferring an existing character from The City. To provide a challenge for those who bring in a strong City character, Datanoid have had to make the Dungeon quite hard. You may find therefore, if you start with The Dungeon, that your first few characters die fairly quickly! Don't despair - in a little while, not a few hours! Your first objective as a player is to learn how the dungeon works and where the magical artifacts are hidden. The game is very well designed in that respect. Once you have mastered enough of it you can start a new character and provide himself very quickly with some superb weapons and armour at no cost whatsoever. In fact, because of the different bonuses to your statistics, I suspect you can build a far better character starting from scratch than by transferring from the City.

This is without doubt one of the best games this year and if they keep getting better at this rate then the next November of Alternate Reality is going to be astounding!

So, if you enjoyed The City you'll love The Dungeon. And if you didn't you should have a look at this anyway - it really is wonderful.

Nigel Llewellyn shows that Indoor Bowls can actually be fun!

THE BOWLS TRAP is a computer game that simulates the indoor bowls game. It is a simple but challenging game that can be played by one or two players.

It is the first day of the World Indoor Bowls Championship, when the players' friends (technical term for bowls), decide not by one to choose chosen by running about the different coloured rinks (technical term for play area). It is your responsibility as head umpire to capture bowls used by tactically placing bricks on the rinks and trapping them.

PLAYING THE GAME

First connect a joystick to port 1 of the computer. The title screen shows the game in action, as played by the computer. The play area is surrounded by a brick wall and is divided into six different coloured segments, which represent the six rinks.

On pressing START the play area will be cleared and a bowl will be placed in the area. By pressing the fire button, a brick will be placed behind the moving bowl. If the bowl reaches a brick it will change direction. If the bowl is completely surrounded by bricks and cannot move, it is trapped and the computer will randomly a new bowl in the play area for you to trap.

The coloured segments correspond to different points values, with the middle segments having the most points. Your score is increased by the value of the segment that the bowl was trapped in. Each game requires you to trap twenty bowls.

There are two best score objectives. The highest score and the least number of bowls used.

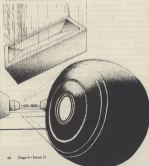
Although simple to play, the game requires a vast amount of practice in the timing of when to place the bricks, as bricks can only be placed while the bowl is in motion. Practice a lot and you will begin to get the idea. You might even get a high score! Who said Indoor Bowls was slow and boring!

BOWLTRAP

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00 2 NEW *             BOWL TRAP *
00 3 NEW *             BY *
00 4 NEW *             NIGEL LLEWELLYN *
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20

THE

NEVERENDING STORY

THE BOOK

Michael Ende is, probably a stranger to English speaking readers, but he is well known in his native Germany. He has worked as an actor, a playwright, a director and a film critic, but is probably best known for his novels in the 'Jim Knopf' series and the award-winning 'Momo'.

In 1979, Ende published a book called 'Die unendliche Geschichte'. It immediately became the number one bestseller in Germany and stayed in that position for three years. It has been translated to many different languages with an English version being published in 1985 as 'The Neverending Story'.

'The Neverending Story' is about a fat little boy of about ten or twelve with the unlikely name of Bastian Balthazar Bux. Bastian is the classic 'fat boy' at school. He is no good at sports or at school work and always gets teased by his classmates.

In the opening pages of the book, Bastian hurries into an old bookshop while trying to escape the local bullies. When the shop-owner is distracted by a telephone call, Bastian feels compelled to take a book called 'The Neverending Story'. He runs from the shop as fast as he can, then realises that he can't go to school or go home because he'll be caught for stealing. His only option is to walk into the school attic where he settles down to read his ill-gotten prize...

Moldymore is slowly being devoured by an all-consuming nightmare known as the Nothing. The creatures of Moldymore are naturally concerned and decide to send a messenger to ask the Childlike Empress for her help to overcome the Nothing. The messenger is a will-o'-the-wisp named Blubb.

Unfortunately, Blubb's sense of direction isn't very good and it becomes lost in the Howling Forest. It finds three other travellers camped in a clearing in the forest and sends directions from them. The other creatures - a rock dwarf named Fvrlvntschlack, a tree named Ghurlik and a night-bird named Voodaandoo - reveal that they are on the same mission as Blubb. It seems that all Fantasia is being consumed by the Nothing and when the messengers realize this, they set off with renewed vigour to find the Childlike Empress.

As days pass, the messengers start arriving at the Ivory Tower - the heart of Fantasia and home of the Childlike Empress. Much to their surprise, they aren't the first to arrive. The High Stones which circle around the Ivory Tower is already clogged with messengers wanting to see the Childlike Empress. Unfortunately, no one can see her because she is ill. It seems that the destruction of Fantasia began at the same time as her illness and all are concerned that there is some connection.

The best doctors in Fantasia have examined the Childlike Empress, but none can find a cure for her illness. When the last

Garry Francis gives the background to an unusual adventure in a review that almost matches the title!

doctor, Canon de Mack, cannot, finishes his examination, he announces that a hero is needed to search for a sorcerer for the Childlike Empress. A German boy named Atreyu has been selected for the task. He will be given AURYN to help in his quest. This is the badge of someone writing on orders from the Childlike Empress and everyone in Fantasia knows and respects it.

And so it is that Atreyu sets out on his lone Arma in search of a sorcerer who can cure the Childlike Empress. At the same time, in a different part of Fantasia, the darkness condenses into a great shadowy form - the Great Old!

Atreyu's journey takes him through the Silver Mountains, the Singing Tree Country, the Glass Tower of Balin, the flaming steeps of Salamander, the forest plains of the Newborns, the jungle swamps of Marmoset and the Howling Forest where the four messengers first met. After a week's riding, he has a dream which indicates that he should seek Morla the Agent One who lives far to the north in the middle of the Swamps of Sulfur.

Atreyu rides to the Swamps of Balnear, but loses Arma in the muddy black water. Only AURYN saves Atreyu from a similar fate. When Atreyu finds Morla, she tells him that the Childlike Empress needs a new name to cure her illness, but no one in Fantasia can give her that name. Maybe Uryala in the Northern Grails can help, but it's much too far for Atreyu to journey within his lifetime.

Atreyu plots on. After a few days, he finds his path blocked by the Deep Chasm in the Land of the Dead Mountains. An enormous spiderweb is stretched across the chasm and in it struggles a great white bird-dragon, named Fulkor. The bird-dragon is being attacked by Ygramul the Maw, a monster made up of innumerable small seed-like insects whose combined forms keeps taking different shapes each

as a spider, a hand and a scorpion. Because Araya is wearing AURYN, Ygraval reveals that her line causes death within an hour, but the poison also allows her to wish himself to any part of Fantasia. Araya lets himself get bitten and wishes himself to the Southern Oracle. Fortunately for Fallos, he overhears Ygraval's explanation and he too wishes himself to the Southern Oracle. Gernok arrives at the oracle a short time later, only to find that his quarry is gone.

Araya and Fallos become partners, but collapse under the effect of Ygraval's poison. They awake sometime later in the care of two little Gnomes. Ugl, a healer, has cured them of Ygraval's poison. Her husband Enggwook, a scientist, has been studying the Southern Oracle all his life and tells Araya about the three gates that he must pass through to get to Ukolata - the Great Middle Gate, the Magic Mirror Gate and the No-Key Gate. Araya sets out and, to use a long story short, makes it through all three gates. When he takes the advice of Ukolata, he discovers that only a human child from beyond the borders of Fantasia can give the Childlike Empress a new name. With this knowledge, he returns to Fallos and together they fly off in search of the borders of Fantasia.

They fly night and day until they encounter the four Wind Giants - Lin from the north, Bawero from the east, Shook from the south and Mispokil from the west. They tell Araya that Fantasia has no borders, but as they start to fight for power, Araya loses his hold on Fallos and falls into the sea.

When Araya regains consciousness, he finds himself tumbled washed onto a beach, but he has lost AURYN. He heads inland, only to see the strangest procession of night-hubs, hobbits, ghosts, witches and magicians. He follows the procession until they fling themselves at the Nothing. Araya is tempted to follow them too, with great effort, he fights the attraction of the Nothing and runs with all his might in the opposite direction.

He soon reaches the deserted Spook City, where he finds the Gernok, who is now chained up like a whipped dog. The Gernok does not recognize Araya and tells him how he can reach the world of humans by leaping into the Nothing, but if he does, he will not be recognized by humans. He will be a lot!

Araya now realises why humans have stopped coming to Fantasia: to give the Childlike Empress new names. The more of Fantasia that is destroyed by the Nothing, the more her food the human world and the more unlikely it is that a human child will visit Fantasia. It is a vicious circle from which there is no escape.

In the mountains, Fallos recovers AURYN from the ocean depths. With AURYN to guide him, he is able to find Araya and rescue him from Spook City. Together, the two adventurers fly to the Ivory Tower to report their failure to the Childlike Empress. To Araya's surprise, the Childlike Empress considers his quest a success, for his adventures have been shared by a human child who was seen in listening to their every word. The human seed only will the Childlike Empress by her new name and Fantasia will be saved.

Bastian knows the Childlike Empress is referring to him, but he lacks the courage or confidence to utter his new name. Besides, how could the characters in a book know that he exists?

The Childlike Empress has one last trick up her sleeve. She leaves three of her seven powers to cure the Araya and Fallos and the remaining four carry her from the Ivory Tower in a glass liner. They travel in silence for many days and nights until they reach a plateau at the summit of the Mountain of Destiny - the highest mountain in all Fantasia. In a smaller, cold-looking mountain in the middle of the plateau she confronts the Old Man of Wandering Mountain. The Old Man

does not speak to her, but writes in a book. And as he does so, the events that he records actually happen. For he is the great chronicler of Fantasia. The Childlike Empress, the Old Man himself, Araya, Fallos and all Fantasia are recorded in this book. The book IS Fantasia. And it sits in 'The Neverending Story'...

This is NOT the end of 'The Neverending Story', for it has not end, but a beginning. In purely physical terms, Michael Ende's book is divided into 28 chapters. Each chapter begins with a letter of the alphabet from A to Z in strict alphabetical order. The Childlike Empress' meeting with the Old Man of Wandering Mountain is not even halfway through the book. There are still over 200 pages to go! In the next few pages, we discover WHY the book is called 'The Neverending Story' - for it truly IS neverending. There's also another great revelation that I'd prefer to keep from you until you read the book for yourself. And you should!

Bastian does eventually call on the Childlike Empress' new name and in doing so, he becomes a part of Fantasia. The remainder of the book tells of his adventures there, the changes in his personality and his battle to return to the human world. If you thought the first half of the book was fantastic, then you ain't seen nothing yet!

Bastian's adventures take him through Perlin, the night forest and Gool, the Desert of Glaces where the brilliant Gnomes live. From here he passes through the Temple of a Thousand Doors and on to the Silver City of Arragoath where he proves his superiority over all others and meets Araya and Fallos for the first time.

The three friends set off to find out how Bastian can find his way back to his own world, but he becomes increasingly pig-headed and uncooperative for reasons that I don't reveal here. As the travellers wander through Fantasia, they build up an ever increasing army of followers who worship Bastian as their Saviour. They have encounters with the Ashans, Nayaks the sorcerers and the Three Deep Thinkers before eventually reaching the Ivory Tower.

The Childlike Empress has gone, so Bastian sets himself up as the new emperor. The increasing friction between Bastian and Araya causes a war between the two. As with all wars, there are no real winners, just losers. The war's culmination finds Araya wounded by Bastian, the Ivory Tower in flames, hundreds of Fantasiacs killed or wounded and Bastian's followers in tears.

Bastian rides off in anger until he comes to the copy-surrey City of the Old Emperors which is inhabited by the Know-Notthings. From here, Bastian's downhill slide takes him across the Sea of Mist to Dame Fyral's House of Change and Yot's Minefield. By the time of his final encounter with Araya and Fallos, Bastian has forgotten everything including his own name. It is only with the help of Araya and Fallos that he is able to drink the Water of Life and return to his own world.

The book has a happy ending, but be prepared to shed a tear or two, for it's a real tear-jerker.

THE MOVIE

The popularity of Michael Ende's book was so great that it was inevitably turned into a movie. In fact, it was the most expensive film project ever undertaken in Germany.

The film of 'The Neverending Story' was created behind locked doors in the Bavarian studios of Munich Celisgardsburg between 1982 and 1985. It took an international team of fantasy film specialists supervised by special effects guru Brian

Johnson. The end result was a complex combination of miniatures, full size models and elaborate studio sets, puppets, animatronics, mechanical special effects and stunts, matte paintings, sculptures, photographic special effects, special lighting, the biggest blue screen in the world and just about every other trick in the book. Oh, and some live actors too.

The movie is remarkably true to the book, especially considering the technical difficulty of fantasy film making. The scenery, characters, place names, events and even the dialogue are very close to the book, but there are some significant differences. (For a fascinating insight into the making of the movie, see "The World of 'The Neverending Story'" published by Paper Tiger (1984).)

The pre-production artwork included *Blubb* in the film, but it was omitted from the final shooting. The other three messengers appeared in the film, but were given the simpler and more pronounceable names of Rockhelter, Night Helt and Trossy Woosy. The land of Pantastien was also renamed to Pantasia.

The Ivory Tower does not appear as described in the book because it could not be built in the studio and all the construction would have been lost when photographed. Various ideas were tried before the final concept of a blooming pond was chosen. Garmt does not appear as a character in the film, but has a human form and Ayraps does not have green skin.

The storyboards were done for the movie with Yggemul, but the special effects people said it would be too expensive to create. The script was changed so that Father could be introduced by reciting Ayraps from the *Songs of Sautara* just before the Garmt got him.

In the book, Ayraps must pass through three gates before he can see Uyatata. Only the first two appear in the film.

The scene with the Wind Giants was not used because the movie's realisation of the Nothing was more impressive than the ghostly personification of the Wind Giants would have been. The scene with the ghostly procession was also left out of the movie, but the essence of the scene was achieved by the reappearance of Rockhelter who had just lost his little brothers Night Helt and Trossy Woosy to the Nothing.

The episode with the Old Man of Wandering Mountain does not appear in the movie either. Instead, Bastian calls out the Childlike Empress' new name without her having to make the trip. The second half of the book is not included at all. In fact, it would make a terrific sequel. The film leaves itself open to be sequel by including the closing remark "Bastian made many other wishes and had many other adventures before returning to his world. But that is another story and shall be told another time."

THE ADVENTURE

Just as the book inspired a movie, so too the movie inspired a computer game. 'The Neverending Story' is a disk-based Adventure which was originally written by Ian Weatherburn and released by Ocean Software Ltd. for a variety of computers. The Atari version was advertised, but I'm not sure whether it actually made it to market. Distribution was later taken over in Australia by Interactivision under the Dansoft label. This is the version I bought, so that's what I'll review here.

'The Neverending Story' is a traditional text Adventure, but does include some nice graphics in a more unusual screen layout. The top three-eighths of the screen has a "Commander" picture of the Ivory Tower. This never changes. As you move around the landscape, a smaller window is superimposed over

the left hand side of the main picture. The smaller picture shows your current location or a character that you've just encountered.

In a similar manner, every time you pick up an object, a picture of it appears somewhere over the right hand side of the main picture. You can carry five objects and have one travelling companion at any one time, hence you can have up to the main picture on the right hand side of the screen plus the picture of your current location on the left hand side of superimposed over the main picture.

The remaining five-eighths of the screen is devoted to text. Room descriptions always start with a large fancy letter, but this is NOT in colour as in the screen shot that you may have seen in advertisements or reviews. The text uses a redefined character set which is reasonably attractive, but very difficult to read. This is not helped by some atrocious spelling and punctuation.

One problem with the text portion of the display is that a long room description or a list of objects in a room can cause some of the text to scroll off the screen before you get a chance to read it. If you don't type anything for about 10 seconds 20 seconds, the program prints "You wait!". This happens even if you are in the middle of typing a command and once again, some of the previous information scrolls off the screen. This is very frustrating if you take extensive notes like I do. Fortunately, it doesn't have any effect on the game. It is NOT real time.

The parser allows multi-word input, but its understanding of English is pretty dismal. It has a very small vocabulary and only looks at the first three characters of each word. The whole game can be finished using only one and two word commands, so keep your commands simple to save a lot of trouble.

The game is accompanied by some really horrible music. It is supposed to be the popular Giorgio Moroder theme music from the movie, but it is so awful that you'd hardly recognise it. Atari owners deserve better. So does Giorgio Moroder.

The music plays increasingly all the way through the game and really gets on your nerves. You can turn the sound down of course, but then you lose the keyboard click. I like to have the keyboard click, so I did a bit of experimenting and discovered an undocumented command to turn the music off. Just type NOMUSIC (without any spaces) to turn it off and MUSIC to turn it on again.

I should also point out that the disk is copy protected, so you can't (theoretically) make a backup. But more Dansoft! As a harddisk computer user, I know never to use an original disk without having a backup, so I created the copy protection and made a backup just on principle. In doing so, I made some interesting discoveries. Most importantly, the game switches out the Operating System and loads its own (which is just a rip-off of Atari's anyway), hence it will not run on the older Atari 400/500 computers. Another bad move Dansoft!

The plot is remarkably close to the movie. You could probably complete the game without having read the book or seen the movie, but it would certainly be harder to play and wouldn't make much sense. You really need to be familiar with the storyline up to a lesser extent, the philosophy embedded within the story. That's why I've gone to so much trouble to summarise the story in this article.

The Adventure is divided into three parts, each being loaded from disk when needed. The first part covers Ayraps's adventures up to the Southern Ocean and includes most of the important events from the movie. However, it is chock full of red herrings and some of the events in the movie can be avoided

Garry Francis' ADVENTURE HINTS

THE NEVERENDING STORY

without affecting your completion of the game. The aim is merely to get to the Southern Oasis.

The second part leads you to Spook City where you lose ALBYN and Fulkor. This part is considerably different to the others, as it covers very little of the story and has lots of new objects and locations. This is probably a good thing from the Adventurer's point of view, as this part of the game has the best puzzles. The aim is to find the golden key. This is not terribly difficult except for some really horrible bugs in the game. For example, you can go up from the library even if the planks haven't been removed. There are situations where you can get killed in the darkness even though the glowtube is present. You can pick up the pencil a number of times and have the coin appear more than once. You can get the key from the lion-shaped room without killing the lion, although I won't tell you how. The logic behind the spider web doesn't make sense, it makes a different one depending on which way you enter the room.

Anyway, once you've found the golden key, Fulkor will reappear. All you've got to do is find him and you're ready for part 3.

The third and final part takes you to the Ivory Tower where your aim is to rescue ALBYN to the Catalina Empire. This part is fairly easy because there are hardly any puzzles. However, there is a large, three-level maze which is a bit tricky to map. The horizontal directions don't present too much trouble, but some of the vertical directions are a real pain. Don't be surprised if you go up a staircase and find yourself at the level below!

Overall, 'The Neverending Story' is a bit of a disappointment. It has a poor puzzle, a limited vocabulary, terrible spelling, grammar and punctuation, dreadful music and quite a few bugs. Despite this, it is enjoyable in a generic sort of way. It is fairly easy to solve if you've read the book, or seen the movie, but it's probably not a good game for beginners.

Fortunately for Demosth, there are Adventure addicts like me who will always buy new Adventures no matter how good or bad they are. Maybe we're just stupid!

HINTS

I haven't had any coded hints in the last couple of issues, so here's a quick one on how to use them for the benefit of the newcomers. First of all, scan through the questions until you recognise one which describes the point where you're stuck. Then match the numbers with the words in the attached list to get a hint. Simple, isn't it?

Next Issue

Everybody's heard of 'The Power'. It has been heralded as the greatest Adventure of all time - "... brilliant graphics ... superb puzzles ... better than Indiana ..." Well don't! It's more like the greatest waste of all time!

Lots of people have been contacted into buying 'The Power' (see by Page 8) only to find that the game is full of bugs, the power is not to crash but and the puzzles are unfair. Many people are requesting help with 'The Power' (see anything else currently on the market. So, if I can think of one thing by next issue, I'll have a full list of hints to help you out of the trouble spots. See you then.

Garry Francis, 18 Harving Road, Earlwood, N.S.W., Australia 2266

PART 1

- 1. Don't know what to do here? 1:20
- 2. Nothing shows from the doorway of bedroom? 19:15
- 3. Can't open door? 2:10,12
- 4. Can't see the black robe egg? 19:14
- 5. Can't find the Southern Oasis? 3:20
- 6. Can't find Fulkor? 12:10
- 7. Still can't find the Southern Oasis? 14:20,15,16
- 8. Can't get past the spiderweb? 14:11,10,11
- 9. Can't find the crystal? 22:12
- 10. Can't enter the maze? 17:14
- 11. Still can't enter the maze? 17:14,16
- 12. Can't open the glass box? 17:10,11,16,12,16
- 13. Can't get the small fragment of glass? 17:14
- 14. Still can't get past the spiderweb? 14:11,10,11,9
- 15. Can't find ALBYN or Fulkor? 21:10
- 16. Don't know what to do here? 14:10,11,12,11
- 17. Can't see the planks? 19:17
- 18. Can't read out what the paper says? 14:14
- 19. Can't see to the dark? 17:10
- 20. Can't get down the wall? 17:10
- 21. Can't open the cell door? 19:10,10
- 22. Can't get past the door? 11:10,11,17,11
- 23. Can't see the spider's prison? 14:10
- 24. Can't get past the spider's web? 14:20,14
- 25. Getting killed by the spider? 17:10,14
- 26. Haven't found the golden key? 19:10,11
- 27. Still haven't found the golden key? 17:10,10,16,14
- 28. Can't find Fulkor? 12:10,11,10,14

PART 2

- 1. Don't know what to do here? 14:10,11
- 2. Can't open the enormous window? 10:11,10,10,10

PART 3

- 1. Can't find ALBYN or Fulkor? 21:10
- 2. Can't open the small window about 19:11
- 3. Don't know what to do here? 14:10,11,12,11
- 4. In the Catalina Empire disappointed with you? 5

1:11	22:PERCENTENT	11:1606	46:1177
2:12	21:187	44:10106	46:101606
3:13	14:122	41:1211	46:1011010
4:14	18:1114	40:1211	46:1011010
5:15	20:16	41:11016	46:1011010
6:16	17:11016	40:111	46:1011010
7:17	38:1411	40:110	46:11010
8:18	17:1016	41:1011010	46:11010
9:19	11:1016	41:1011010	46:11010
10:20	11:1016	41:1011010	46:11010
11:21	44:111011	11:1011010	46:11010
12:22	11:1011010	40:111	46:11010
13:23	40:111	41:1011010	46:11010
14:24	11:1011010	41:1011010	46:11010
15:25	40:111	41:1011010	46:11010
16:26	40:111	41:1011010	46:11010
17:27	40:111	41:1011010	46:11010
18:28	40:111	41:1011010	46:11010
19:29	40:111	41:1011010	46:11010
20:30	40:111	41:1011010	46:11010
21:31	40:111	41:1011010	46:11010
22:32	40:111	41:1011010	46:11010
23:33	40:111	41:1011010	46:11010
24:34	40:111	41:1011010	46:11010
25:35	40:111	41:1011010	46:11010
26:36	40:111	41:1011010	46:11010
27:37	40:111	41:1011010	46:11010
28:38	40:111	41:1011010	46:11010
29:39	40:111	41:1011010	46:11010
30:40	40:111	41:1011010	46:11010
31:41	40:111	41:1011010	46:11010

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SOFTWARE REVIEWS

Paul Rixon meets Pirates ... Droids and Snooker Players!

various parts along the African Barbary coast, or better still, putting a stop to the evil wrong-doings of the notorious Bloodthirst. Impressed by this dramatic build-up I donned my shipper's cap, boarded the "American Star" and ventured forth into the great unknown.

Following the loading procedure and a side page with apt musical accompaniment, I was invited to read the ship's log (which served to reiterate the instructions) and was then presented with a map of the Barbary coast and nearby islands. Underneath the map, data relating to my available supplies and current location was shown, and this was updated on subsequent screens to the screen. Having chosen my destination by positioning an arrow over the required port, I confirmed my selection, and waited while the disk revolved for what seemed like an eternity (Cascade obviously recognizes this problem as they suggest making notes in the manual!).

A seemingly useless picture of the ship's cannon eventually appeared with the prompt "To Port". Believing this indicated yet another lengthy disk screen and finally a greeting from "Thames the master tradesman" from Tangier, plus the option of visiting the screen, having the ship repaired, trading at the port or moving on to the next location. Well, as it is a trading simulation I decided to "do business" at the port and the display switched to a cross-sectional view of the ship's hold. Positioning an arrow cursor over an item in the hold, such as Medicine, Silk or Cassia, revealed a "window" and an offer for the goods in question. It was then up to my skill and judgement (ha!) in deciding whether to accept or refuse the offer, or to dicker for a better deal. Naturally choosing the latter option, I was awarded a raw gold piece increase, but on pushing my back too far

the tradesman refused to deal any longer. After offloading the remainder of my cargo and undoubtedly getting ripped off in the process, I paid a visit to the buying market, which was much the same as the selling one, except of course that I had to haggle for lower prices rather than higher ones. A few gold pieces (gg) lighter in the pocket, I took my chosen stock of Wood back to the ship and decided to check out the screen.

Here, there was food, arms and cannon balls for sale, as well as extra crew members for hire. I cooked up with Rod Herring sandwiches and attempted to obtain the crew upon which the shipowner demanded a 500gg bribe for the privilege (by now I was brooding on stars and credits was strictly forbidden, so I set to sail and arrived at the next "niche location" where I hoped this someone would appreciate the Wood I had brought from Good news! Wood was in high demand and I scored nearly 22000gg for the lot!) Investing all of this in Silk turned out to be a wise decision, as I later managed to flip this for a cool 40000gg! What an easy life, I thought, definitely spending the whole afternoon on Tobacco and discovering a potential loss in store at the next port. It was better back at the following location, where my financial assets rose to just 500gg short of the magic seven figure. This was some pat right in a quick deal on Medicine.

Already I had raised sufficient funds to pay off Bloodthirst, so having unobscured plenty of funds for the crew I made for the islands, where it was rumored Bloodthirst lie in waiting. Here enough, there he was and I was asked whether I wanted to confront him in battle (in which case, what would happen to Katherine I wonder?) or hand over the loot. Anything for a quiet life I thought, and reluctantly parted with the cash only to live happily ever after within the colorful confines of the high-tech table. That is, until the computer was switched off because although the drive had desperately to permanently record my achievements, side B of the disk hadn't been reached!



PIRATES OF THE BARBARY COAST

Cascade Games

Disk \$9.95 ST Disk \$12.95

1 player/1 joystick

"While docked in Casablanca, your ship is attacked and plundered by 'Bloodthirst the Pirate', a blood-thirsty rogue who terrorizes the seven seas. He has taken your daughter Katherine and demands 50,000 gold pieces for her safe return."

And as the scene is set for PIRATES OF THE BARBARY COAST, a new trading simulation from Cascade Games in which you have ten thirty days to raise the necessary ransom to secure the release of your daughter, by dealing at the

Okay, so that was the game, now where's all the 'Action, adventure and derring-do as the high seas' claimed in the sales hype? Well, what I haven't mentioned is the bank which can take place if you are lucky enough (!) to meet a Pirate on your travels. It must have been the Pirates' dry off when I played the game, but I can reliably inform you that there is occasionally a battle - although you can choose to flee from it - and if you manage to sink the enemy you can either pick up the ship's accumulated booty or vend its log for cash.

A battle consists of firing timber barrels locking cannonballs at the Pirate ship as it sails across the horizon. You have to select the cannon elevations in a very simple fashion to the battle scenario in 'Mushdood II', that is, if you manage to load one or all of the different cannons in time. This sequence involves selecting lead, canon, powder, cannon, pistol red, cannon, brass, cannon, elevation, cannon and fire in precisely the correct order - realistic as it may or may not be, it certainly becomes extremely tedious after a short while, especially as the cannons seem to automatically reload themselves when you exit the screen. As I have already discovered though, you can sail away from potential conflict in the safe knowledge that it's just as easy to complete the game without the bother. This can also be said for the 'treasure', that is supposedly located on one of the islands. Searching for it can expose the crew to disaster, and since they are expensive to replace it's not a good idea to make the effort.

No, having made it into the high seas table you can either have another go or better still, turn off and try something a little more exciting - like Yoga or Chess. For instance! Giving credit where it's due, I should mention that each of the locations is nicely drawn in graphic adventure style (although they do tend to get obliterated by the pop-up windows) but I'm afraid the sound is little more than adequate and, in contrast to the over-imaginative blarney, the game plays somewhat solitary.

While it is certainly an ethical improvement for Cascade Games since the days of their ill-reputed 'Narcotic 87, PIRATES OF THE BARBARY COAST' is unlikely to appeal to any but the progeny of Alaricins. Full marks for an original concept, but not quite the action-packed strategy extravaganza I was expecting!

An ST version of the game is available but I have not seen it. I suspect that the graphics may be better but that the game is very similar in play.

DIZZY DICE

Players
Cassette
£1.99
1 player
1 joystick



DIZZY DICE is a computer fruit machine played like a conventional fruit machine, which obviously means spinning the reels in the hope that they will display a winning combination of symbols when they come to rest. In the unlikely event of a win, you can opt to pocket the prize money or alternatively throw discretion to the wind and gamble for a higher amount. This feature is implemented by a 'roulette wheel' (looks more like a rotating tambourine!) - you must correctly predict the symbol on which the wheel will stop to collect the bonus. It's up to your gambling sense whether to go for a higher bonus or a more probable outcome.

All the usual features are included such as Hold, Collect and Gamble, with the exception of Madge. An additional feature is the 'dice game' in which you can win up to £200 by guessing whether a throw of the die will yield a higher or lower outcome than the bet, or if it will

be the same. Also, you can select either normal or bank mode at the beginning of the game. In bank mode you commence play with £20 and try to increase it to \$100 - to break the bank! Achieve this and the bank limit is increased on subsequent successes up to a maximum of £1000.

If you dislike games that involve a lot of screen changes, you'll be pleased with DIZZY DICE as all the main functions are crammed (without being the operative word!) into just one screen, this being reasonably well laid out with a neatly liberal use of colour. The use of sound however, is rather less than spectacular with the instructions page and main game sequence accompanied by the most awful racket you are ever likely to hear! Incidentally, the help card illustrates a screen shot showing a cartoon style view of the fruit machine, although it doesn't actually seem to appear in the Atari screen. Methinks it's about time the Teaching Standards people put a stop to this misleading practice.

To sum up, DIZZY DICE doesn't offer anything radically new over Mastertronic's 'Vegas Jackpot' or indeed the multitude of type-in listings that have appeared in various computer magazines over the years, but for compulsive gamblers with a cash flow problem it is a reasonably entertaining alternative to handicapping. And at this price, you can afford to take a gamble!

L.A. SWAT

Mastertronic
Cassette £1.99
1 player
1 joystick



A terrorist gang has taken over the West side of Los Angeles and it's up to you, as Special Weapons And Tactics (SWAT) team leader, to defeat the badlads and rescue the hostages.

First of all it's a venially scrolling job (Gambler style) through downtown L.A. where you may just notice the odd robot hurling a grenade in your direction. Belay that, but waste not for snipers taking pot-shots as you pass, and don't get too close to a terrorist - a close encounter can be an extremely painful experience! Your machine gun is

going to get a lot of use on this mission, but you must be careful not to blow away any innocent civilians.

Eventually you'll make it to a crossroads where a quick reaction time will prove to be a useful asset, as the badlads mount a final desperate attack. After a while a captor will appear clanking the hostages, and you've got to blast him away from the scene without harming the victims. Then it's on to the next level where the gang have now recruited new members, ensuring plenty more action to keep you occupied. The blarney mentions something about appearing on Network Television, but whether this is an actual feature of the game remains to be seen.

L.A. SWAT may not be in the best possible case but it is a reasonable, uncomplicated commando shoot 'em up with moderate graphics, adequate sound and a mild addictive quality. It's bound to do well at the price.

ARKANOID

Imagine

Cass. \$8.99/Disk \$13.95

1-2 players

1-2 joysticks/paddles

keyboard

Anyone for Breakout? Yes, folks, what-a-brick, bouncin'-n-ball fever is back upon us, courtesy of Imagine.

Forget all the blather on the inlay card regarding space ships and missiles - ARKANOID is essentially an enhanced version of the Atari classic. For the uninitiated, the program displays screens after screens of multi-colored bricks which are destroyed when they come into contact with the ball. This happens around the play area rebounding off of the bricks, the three perimeter walls, and a flimsy, much shorter 'wall' - better known as a bar. You have to position the bar in the path of the incoming ball - otherwise a life is lost - and ultimately eradicate all of the bricks to progress onto subsequent levels.

Doesn't sound like much of a game by today's standards, right? That's why Imagine have thrown in a few extra goodies along the way. Colored bricks, a large proportion in fact, conceal round capsules and if you destroy the appropriate brick, the capsule floats downwards presenting you with the opportunity to catch it and benefit from one of several special effects, depending on the colour of the capsule and the letter it bears. For example, a 'P' lets you have a bonus life, an 'E' elongates the bar and an 'L' transforms the bar into a twin-bar-busting attack ship.

Conspicuously emerging through one-way doors at the top of the screen are a varied selection of nipping missiles. The intention of these is overkill, but it's not a good idea to admire the graphics for too long - if the ball reaches above mazes it is deflected in a random direction at increased velocity. Thirty-two levels later you are given the chance to confront the 'Demonium Changer', or so I'm told! The playfield is very colorful (boasting a highly patterned and very imaginative background), although the bar and ball are slightly disappointing, as are the bricks which are simply solid blocks of colour. There isn't any music (pity about that) but the few existing sounds are of noticeably quality and suitability.

The game's overriding strength lies in its immense addictiveness, and if you consider this property to be more important than its originality (have there ever should never a blind eye to the perhaps over-inflated asking price and waste no time in adding ARKANOID to your arcade collection. ■

POWERDOWN

Mastertronic

Cassette

£1.99

1 player

1 joystick

Can you destroy the isolated scattered fortress of inter-galactic anti-villain Argon and put a stop to his evil antics once and for all? You can find out by purchasing POWERDOWN, a game which comes from the keyboard of Graham Andrew. If the name sounds familiar, that's because his work has appeared in past issues of PAGE 6 (remember Gaspar and Supply Blaster?). He has now advanced into the wonderful world of commercial programming with this game, which adds to the ever-growing list of bargain titles from Mastertronic, who are presently the most prolific publishers of budget priced software for the Atari.

POWERDOWN is a game of the vertically scrolling arcade genre

combining a mild dose of the well-trodden shoot 'em up philosophy with a requirement for strategic skill, a degree of dexterity and just a sprinkling of good fortune. Your aim is to infiltrate the fortress, to destroy Argon and to shut down the power source by manoeuvring your trusty space ship through numerous screens (in your own time), exploiting the inevitable defence system and tapping at appropriate moments.

Naturally, Argon's fortress is carefully guarded against penetration by his invincible army of Argonoids together with death rays, lasers, gunfire and combination locks. However, the Argonoids turn out to be a blessing in disguise as they transform solid white walls into impregnable red ones. They can also be confined to specific areas of the fortress by tactical spelling and closing of doors and are needed ultimately in order to gain access to Argon's control room. 'Shields' are also a necessity and their deployment is crucial to success in the game. An ingenious and possibly unique feature is the 'television scanner' that is used to discover a combination lock code - it took me quite a while to figure out the meaning behind this one! Although sixty minutes is the time limit allowed, I

ON CLUE

Mastertronic

Cassette

£1.99

1-2 players

1 joystick



Next one game but two this time from Mastertronic is a package aimed at all you green brain aficionados out there who are too tired to hazard an expedition to the local snooker hall and haven't enough room for a real table due to all that previous Atari equipment.

ON CLUE complements the bar-crank of snooker simulators for the 8-bit Atari and also includes Pool as a separate, though virtually identical program. No need for me to explain the rules, suffice to say that all the regular-uses apply and Mastertronic have included a vague notion of 'lines' on the inlay. Dealing with Snooker first, the table is not green as you

might expect but black for reasons of clarity, and in such 'Steve Davis Snooker' by CDS, this choice of coloring works well and is preferable to the bright green of the first Atari Snooker simulator by Thors BMM. In case you're wondering how the black ball is distinguished from the black table, this is achieved by a white circle around its circumference. The yellow and brown balls look suspiciously like different shades of goat to me, but otherwise all are reasonably recognizable (unless you've got a black and white television of course). A rather blocky cushion in bright red has an adverse effect on the visual 'feel' however.

Playing a shot involves positioning a small cross-hair cursor over the point at which you intend to aim the cue ball, setting the desired ball-spin and power level, and finally hitting the trigger while simultaneously crossing your fingers in expectation that the ball may, miraculously, travel in the required direction. There's no telling really, so you might as well adopt my own established strategy of hitting the cue ball as full power into the object ball and hoping that it will end up in a pocket!

Talking of power, the program seems to assume an exceedingly over-sensitive

managed to complete the mission in around half an hour (real time) but not, I hasten to add, before a great deal of practice and experimentation!

In a welcome departure from central Macroeconomic policy, the instructions are very informative and I'd be more than happy to see this practice adopted in their future releases (Macroeconomic are you listening?). Sound effects in the game aren't worth throwing a party over, but they're on a par with the majority of recent budget titles, and the graphics are very good indeed! Animations is in abundance without any sacrifice to response time, the scrolling is 'typical' Amiga (super!) and there's plenty of colour and detail.

Although I could criticise the slightly irritating delay encountered when obtaining a new ship and the lack of an alert facility, these are really only insignificant points in a game raring with playability. What's more, POWERDOWN is thoroughly addictive, immensely challenging and if that isn't enough, will only set you back a mere £1.99! I can't think of any better reasons to immediately rush out and buy it, can you?

attempts towards its aim. Consequently, even at full blast the cue ball struggles to travel the length of the table. It also has the annoying habit of suddenly accelerating after a collision, which doesn't say much for the realism but at least it comes in handy on occasion! Nine levels are available at which to play the computer - level one creates a computer blunder every time whilst level nine won't give you a look in if you so much as dare to miss a single pot! As time the computer is a little loopy-winded in deciding on its shot, although perhaps this is intended as a touch of deliberate realism!

You can always choose to play against a human opponent - although you'll have to share one joystick as there is no provision for a second one to be used - or you can watch the computer battle it out against itself. No prizes for guessing who the winner will be, but if you can overcome some of the 'impossible' pots the computer is capable of you should give up enough games immediately - there's a luffy cheque waiting to be won at the next international competition! If not, never fear, for there is a chance to get your own back, as an odd facility enables the setting up of balls in any desired

MISSING ... ONE DROID

Bug-Byte
Cassette
£1.95

1 player
1 joystick



Despite their experience, Bug-Byte are not a company noted for exceptionally high quality software and they have yet to produce a serious threat to their competitors in the battle of the budget barrels, although their last release - CHICKEN CHASE - was a step in the right direction. MISSING ... ONE DROID is Bug-Byte's latest offering and has been released under license from Amiga. The author - Paul Lay - is no stranger to POWER, and you will undoubtedly remember his fantastic game 'Machno Madness' that appeared in issue 24.

This one is written entirely in machine code (not an obvious statement to make when discussing Bug-Byte) and

formation and game continuation from this point. This opens up all sorts of possibilities, such as re-living famous situations, practicing your potting technique and of course, setting up the table in your favour in an attempt to beat the computer! When you can't beat 'em, cheat 'em!

Pool is based around the same program as Snooker, except of course that the balls are coloured in accordance with the game requirements, and all of the appropriate rules apply. I discovered a slight bug whilst setting about in Pool odd mode when I suddenly found myself with four cue balls on the table, followed shortly afterwards by an irreparable lock up, although I've tried this option since without any such drama so it would not appear to be a major problem.

Having compared ON CUE snooker with Steve Davis Snooker it is apparent how remarkably similar the two games are. The CDS game still holds the edge over ON CUE in my opinion, due to the latter program's cosmetic inferiority and lack of a table-speed facility, although with the added bonus of Pool and a price one third that of the CDS game, ON CUE represents excellent value for money.

boots up from cassette in around one hundred seconds. A disk version is also mentioned on the inlay, which hardly seems necessary for such a short amount of code. Now for the customary elaborate story, which tells of how Roney the Droid has become separated from his Droid companions due to his impetuous tendencies - he has foolishly manipulated himself into a topo-dimensional construct and promptly disappeared into a construct universe! Inevitably, tells him that if he keeps active and lights off the missiles, the construct universe will become over-stressed and reality therein will flip him out of the construct and back to his pals in the real world.

Into the game itself, which runs in a similar vein to Robinson 2084 and opens up with a title page almost identical to the 'Marchy Madness' one, complete with scrolling message, reverberating colours and futuristic sound track. A press of the START key reveals Roney in a blank void, all alone (ahh). Enter the misted helmets, right, left and centre, whose intent is pure old Roney's destruction. This is where you enter into the plot, guiding Roney around the screen to avoid various shots, and blasting them with Photon missiles at every available opportunity. Close one screen and it's onto the next level of increased difficulty.

That's really all there is to it. Each collision with a photon decreases your score and energy level, whilst a successful hit increases the score, and extra energy may be obtained by collecting heart symbols. The existing graphics are very well done but are lacking in quantity and variety, with large and clearly displayed PMCs, together with the scrolling message, adding interest to an otherwise forgettable scene.

I can only describe MISSING... ONE DROID as a completely programmed reworking of an aged game concept that would merit unreserved praise as a magazine listing, but one that is for the simplistic and monotonous to warrant a DAD, recommendation in today's competitive budget market. Apologies, Ben!



IOCB's - easier than you think!

This issue, as promised, we will delve into the working of the IOCB block. This block is controlled by certain locations in memory and if these locations are POKE'd correctly then some great things can be achieved.

When you connect the tape or disk lead into the input/output socket of your computer you have given yourself a choice of eight communication channels, 0-7 (remember OPEN #1, etc.). Each channel has sixteen bytes of memory reserved for it in ROM, from locations 500 to 996. You will be told by various handbooks that you can use all channels for your own use except channel 0 because this is reserved for the screen editor. This is not true, in the 'Forced Read Mode' demonstrated in my last column showed.

Channel 0 to 3 can be used as well. Number 0 is mainly used by the PRINT statement to input characters to GRAPHICS 1 and 2 (for example, PRINT #0, "TEXT"), but can be used as an I/O channel in GRAPHICS mode 0. Due to public demand, I once wrote a column of PEEKs and POKEs in which I mentioned location 505 which would amend GRAPHICS 0. A window would be placed in this mode, normally a full sized screen, and PRINT #0s would have to be used if printing was required on the screen, while PRINT would display to the window.

The last channel, channel 7, is another complicated channel. If you use this channel as your own and try to send something to the printer, an error will occur. LIST (to us from a device) will use this channel, even if it is already open. When finished, LIST will close it. LIST, LOAD, LPRINT, RUN, and SAVE all use channel 7. LOAD and DROS commands close all channels except 0.

WHAT CAN WE DO?

Now we know about the IOCB, let us see how we can use it to our advantage.

Firstly we must let the computer know that we require to use a channel. This is done by

```
OPEN #A,B,C,D
```

where A = the channel number you wish to use, B = a command to be implemented, C = an auxiliary code, normally 0, and D = filename (e.g. D:FILESPEC.TXT or C:FILESPEC.TXT).

Although only C and the filename is used by the computer to open the streams, it is handy for future reference to use this approach with cassette based files. Do not worry for the moment about variable B, I will explain this in a later article.

If we go back to the last column regarding closing screens, we can now use a channel to transfer all our stored screen data to or from cassette or disk. Let's assume we have opened channel #1. We can PUT a single byte that had been stored in the variable Z through to our peripheral by PUT #1, Z or we

could transfer a string by PRINT #1, A\$. The opposite of these commands are GET #1, Z and INPUT #1, A\$. respectively.

When we have finished transferring data the computer will add an END-OF-FILE marker and the channel should then be closed by using CLOSE #1.

Listing 1 is a program that will open a file named 'IOCB.BEEP' on the disk and place the contents of the screen into this file. The screen is then closed and all the information is taken from the file and placed back onto the screen (note how slow it is). The program can be easily amended for cassette users, but do not forget to reset the tape to the start of the file.

DOING IT IN MACHINE LANGUAGE

All this can take some time if we use Basic. What we need is a basic machine language routine to speed things up. Fortunately, within the operating system of the ATARI there is such a routine which we can access and let it do all the work for us. No need to panic about Assemblers just yet! This routine is the Control Input/Output which calls the Serial Input/Output to drive the serial bus and peripherals. That sounds like deep computer philosophy and I am sure that you have visions of a program with yards of illegible DATA statements, a USB command that does nothing but you have no idea how, and you may think that this is just another mystery that will be relegated to the realms of 'Life, the Universe and Everything'. Would it confer joy? The USB call has only half a dozen op-codes and they are explained fully in Table 1. All that we need to do is to let the CIO know what IOCB we will want to use and the computer will do the rest!

You will note that I am using the PUT variable statement. The reason for this is a limitation to the PUT string statement. Although the string can be dimensioned to the full extent of spare RAM it needs to be (having no workspace of course), the INPUT statement does not generally read strings greater than about 118 characters. This necessitates a FOR-NEXT loop similar to GET. As CIO handles only one byte at a time, it is easier to use PUT-GET routines for fast access times.

ALL IS EXPLAINED!

And now, finally, the long awaited explanation of fast I/O access. As you will notice in Listing 2, line 0820, the code is very short. Listing 1 is the new routine and Listing 3 is the retrieval. Both are very similar in nature and need few changes (aren't I kind?). The graphic mode and screen codes are noted, as is the amount of bytes to store, and the screen memory positions to start from. Both of these programs can be used as a basis for any transfer of large amounts of data, such as files.

The USB call into the program is controlled by the CIO routine at location 58494 (IOCB). You must tell the routine what IOCB block you will be using (0 in the programs), then

Table 1

ATASGE	DECIMAL	OP-CODE	REMARK
5	184	FLA	CLEAR STACK
5	184	FLA	CLEAR STACK
5	184	FLA	GET HOUR CLOCK NUMBER
█	178	TAX	TRANSFER TO A REGISTER
█	75	SNP	SET SYNCHRONIZING AT
█	80	BSL	LOAD BYTE
█	238	BSL	STORE BYTE

The stack is like a column of post-up pieces that you would find in a wall server restaurant. The last to go on top is the first to come off. When a calculation is called via OMR, the computer places new items of information for its use on the stack. These are not used and then are taken off by P.A. The third is the FOUR number (10) and this is transferred to the R register. The program is sent (transferred) to an initial routine in the Operating System at location 34545 (22F75H = 80). This routine will do all the work for us.

Table 2

INPUT/OUTPUT CONTROL BLOCK.

This consists of eight channels (0-7) each of 16 bytes, from location 832 to 956. The byte offset that starts is added to the IOCB location, as given below.

OFFSET BYTE SIZE

0	0	Index to device name for current OPEN file.
1	0	Device number (1 for D1, 2 for D2).
2	0	Action to be taken during open command, in our case 11 for PUT, 7 for GET.
3	0	Area reserved.
4,3	2	Buffer address for data transfer or the address of the OPEN file. In our case the Display Line pointer.
4,2	2	Address of device's PUT or GET routine.
8,5	2	Buffer length for PUT/GET routines. In our case the number of PUT's and GET's.
10	0	Used to specify the action.
11	0	Used for device setup.
11,5	2	Channel number for NORTH and POINT.
12	0	Byte within sector for NORTH and POINT.
13	0	Same.

use the offset to set the IOCB defaults. The offsets are detailed in Table 2 and the low workings are explained in Listing 2. The listings will work just as well with the counter if the device designation is changed from D1 to C.

One last point should be noted. While running the program, the computer is always updating the screen. If the screen was turned off, the computer would appear frozen. In fact up to 97% faster in some cases, so use this little code.

P = FREE (956)FORB 95A0 - This will turn off the screen.

PNACK=95A0 - Turns on the screen.

ARE YOU STILL THERE?

During the summer months I have received very little correspondence. Does this mean that there are no more beginners reading this column? Or has everybody suddenly become shy? S.A.E.'s as usual to me at S. Hollywood, Flaugh, Dallas BT10 66L.

Listing 1

```

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
04 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
05 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
06 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
07 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
08 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
09 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
11 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
12 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
13 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
14 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
15 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
16 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
17 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
18 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
19 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

```

Listing 2

```

00 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
02 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
03 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
04 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
05 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
06 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
07 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
08 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
09 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
10 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
11 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
12 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
13 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
14 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
15 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
16 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
17 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
18 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
19 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
20 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000

```

Explanation of Listing 1

Line 0000 opens the output "PICADAVE" to disk.
Line 0001 places the DISPLAY's mode field in location 07, initial the screen from location 700 to the file.
Line 0002 finds the top-DRAM and the screen pointer for the graphics work (point using 7) to will change with different modes in each mode with a different amount of memory.
Line 0003 sets the variables for use later on.
Line 0004 changes K0 to 14 and sets an I/O Channel for location 00.
Line 0005 (not shown) should be in 16 bytes further on. Its function is PUT.
Line 0006 works out the high bytes of the address.
Line 0007 works out the low bytes of the address.
Line 0008 Places the two bytes in the output I/OB offset.
Line 0009 works out the number of bytes used by the screen. This is the same as the number of PUT's we will use.
Line 000A places the number of PUT's on the output I/OB offset.
Line 000B Activates the graphics mode routine, held in an address location with a constant.

Listing 3

```

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
04 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
05 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
06 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
07 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
08 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
09 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
10 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
11 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
12 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
13 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
14 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
15 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
16 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
17 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
18 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
19 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

```

Revision C for Cassette

by Alec Benson

Regular readers will recall that we published a disk version of Revision C BASIC a few issues ago and, as promised in the last issue, we now present a version for cassette users. Why should you need Revision C BASIC? Well, since ROSSL's hard Revision B BASIC which, unfortunately, has a few bugs (including a particularly nasty one that adds a number of bytes to your program when you save it, sometimes making it impossible to run the program on other machines).

Before you rush and type in the listing, check to see if you have Revision C already — some machines do. Type ! FERR00104. If you get the answer 00 you have the dreaded Revision B! So get typing!

MAKING A HOOT TAPE

Type in the BASIC program, checking it with TYPING if you go, and CREATE a copy. First, get yourself a new tape. RUN the program and follow the directions carefully to create a hoot tape. Now rewind the tape and re-test whilst holding down the START key. Do NOT hold OPTION down. Press RETURN after the beep and Revision C Basic will load and run automatically.

After installing in the Revision C does not use any of the memory that is normally used the BASIC programs. Revision C will remain in memory till power-off as the RESET key is trapped.

MORE DEMO MAGIC

from Chris Fox

Most of the demos you see involving 'flashing' colours involve some sort of manipulating of the display list but here demo-master Chris Fox shows that you don't need to manipulate the Display List at all, in fact you don't even need to use one! No Display List, no Amtic, so how is it done? Ah, that's a puzzle for you to solve, as a secret to be kept from all but the few. Given if the secret proves too difficult to discover, type it in anyway, it's a member of Chris Fox's pieces of magic.

```
10 0:REM *****
11 0:REM 0:REM *****
12 0:REM 0:REM *****
13 0:REM 0:REM *****
14 0:REM 0:REM *****
15 0:REM 0:REM *****
16 0:REM 0:REM *****
17 0:REM 0:REM *****
18 0:REM 0:REM *****
19 0:REM 0:REM *****
20 0:REM 0:REM *****
21 0:REM 0:REM *****
22 0:REM 0:REM *****
23 0:REM 0:REM *****
24 0:REM 0:REM *****
25 0:REM 0:REM *****
26 0:REM 0:REM *****
27 0:REM 0:REM *****
28 0:REM 0:REM *****
29 0:REM 0:REM *****
30 0:REM 0:REM *****
31 0:REM 0:REM *****
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37 0:REM 0:REM *****
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41 0:REM 0:REM *****
42 0:REM 0:REM *****
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58 0:REM 0:REM *****
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93 0:REM 0:REM *****
94 0:REM 0:REM *****
95 0:REM 0:REM *****
96 0:REM 0:REM *****
97 0:REM 0:REM *****
98 0:REM 0:REM *****
99 0:REM 0:REM *****
100 0:REM 0:REM *****
```


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