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ATARI

USER

Issue 82 £1.95
October/November

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**'The magazine
for the Dedicated
Atari User'**

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BAT PACK

Super scrolling fun
in the caves

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SUBMISSIONS

PAGE 4 welcomes and encourages its readers to submit games, programs and letters to publication. Programs must be submitted on disk or cassette. Where possible, programs should be submitted on one file on one disk. We need to see complete user instructions and do not have space notes for submissions. If submitting programs, include a program to verify you called it. Applications should be made to all published programs and include all addresses being made at the end of the latest month issue of the issue of the latest software.

All letters, articles, programs and other material for NEW ATARI USER is accepted on the understanding that all contributors will retain copyright in any work submitted but will allow PAGE 4 to publish it. Where necessary, we will contact you to clarify any points. We will not be held responsible for any loss of material or for any damage to any disks or cassettes. We will not be held liable for any errors or omissions made by subscribers.

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Editorial copy date is 14th October

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Mailbag



in



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ADVENTURERS

Following the recent closure of The Adventurers Club Ltd., three of the original reviewing team have decided to form a partnership and to start The Adventure & Strategy Club. The club will continue in a similar style, quality and format as before, but will be under entirely new management, with no obligations to its predecessor. We will continue to produce the Reference Book of Adventures, built up from bi-monthly packs of new and updated material, and covering a wide range of subjects associated with adventure, strategy and role-playing games. The Reference Book includes a new section, comprehensive reviews of all types of adventures, hints, tips, solutions, maps, letters and articles.

Members will also have free access to the club's bulletin, by mail or by telephone, and the opportunity to purchase a selection of software at discount prices.

The first issue will be published in September and further details can be obtained from Russ Miller at the address below.

The Adventure & Strategy Club, 17, Shevlin Road, London, E12 6HT

ANY STOCKISTS?

I am trying to compile a list of retailers that stock Atari 8-bit software. If your readers could send me details of their local dealer with name, address and telephone number and a basic idea as to what sort of software they stock I would be most grateful.

I know this may seem like

a strange request but many of us do have local dealers that we don't use regularly, but either never don't know of them, or all that software is lying there with only one or two people buying it. Who knows if demand in the High Street business then maybe software companies will take an interest in the Atari 8-bit again.

James L. BISHOP,
R.I. Cloughs Close, Postle-
rict, West Yorkshire, WYS
17E

I don't know what sort of response you'll have to this, but it is a great idea to get together a current list of stockists. Who knows what sort of resources are buried in shops around the country. If you do get a list together for any and let us have a copy so that we can publish it and let other users know.

NO START

I have a 1300E and recently the **START** button became faulty and will not work while trying to load a game. Do you know of any other buttons I could use instead, or of any other way I could load a game without using the **START** button.

David Coombs,
Dunfermline

*Sorry, David but you'll need that **START** button to load machine language tapes. Quite often the problem can be cured by cleaning the contacts on the keyboard. You'll need to take the cover off by removing all the screws on the bottom and then you'll find that the keyboard can be lifted up to reveal a ribbon cable joining it to the main board. Very carefully ease the cable out of its socket and remove*

the keyboard entirely. Then carefully clean both sides of the contacts with some cotton wool or a cotton bud stick and lift the cable by sliding it back into the socket. Make sure it is all the way home and then replace the cover. Five times out of ten you'll find that the problem with the **START** key has been solved. If this doesn't work then your only other option is likely to be a new keyboard but these are now quite hard to find.

US SOFTWARE

I just finished reading issue 54 of New Atari news and noticed the letter from Mark Goodall. The mystery software he is looking for is called **Starting Descriptions** but produced by Electronic Arts. I know because I own a copy of the game. It is very good but now quite tough to find. I have the addresses of three places in the USA which supply the 8-bit Atari as follows:

American TechnoVision
1200B, Inverness Street
San Leandro, California
94578

B & C Computer/Video
5857 Miller Road, Suite
Clare, California 95020
San Jose Computer
2278 Alamo Court, San
Jose, California 95122

Teled Computers
280 Hollister Avenue
Berkeley, Inverness Park, MD
21148-2818

I know that American TechnoVision has **Starting Descriptions** but for 99.99. I hope that this information will be of use to Mark and your other readers.

Also tell Mr Goodall that Dean Dettner was produced by Accolade Software and distributed by US Gold. If Mr Goodall needs any help with the **Golden Obelisk**, I own copies of the 1984 and 1985 books of Atari software by Arpan Inc. The book gives titles, descriptions and ratings for most of the great Atari software produced in the 8-bit heyday.

Paul White C. Marshall Jr.
Chicago, Illinois

THE XF551 DISPELLING THE MYTHS?

I own and use both 1050 and XF551 disk drives and appreciate them both very much, however, the XF551 is clearly superior. In issue 48 I was appalled to read the scolding authoritative letter regarding the XF551. As the XF551 already has a much maligned reputation it was disturbing to see so much wrong and misleading information contributing further damage to that machine and the IBM community in general.

There are two significant components of the XF551: the drive mechanism and the interface circuit board. The drive mechanism is a 500K, 2 sided, 40 track per side, 500 RPM, 5.25" unit, which is apparently of the IBM standard type. It is rated at 300 RPM and has its own on board circuitry, which I believe controls this speed, on the microprocessor on the interface board. So changing the ROM on the interface will not affect the fixed speed of the mechanism.

Of the reputed XF551 incompatibilities I think the speed of the drive is an over-emphasized issue.

There seems to be a lot of worry about the 500 RPM in terms of copy protection disks. True there are protection schemes that check the speed that sectors are loaded but this would also affect modified 512's and 1024's. Anyway, 500 RPM is only 4.8% faster than standard, which is almost insignificant. I only have two disks in my entire collection which won't load on the XF551 and I am not convinced it has anything to do with speed. There are other possibilities of the machine which may be the cause of some incompatibility (i.e. a different operation characteristic and microprocessor and the presence of a configuration block).

Most people think of a

drive as performing two basic functions; reading and writing information. In fact it performs a third distinct function; formatting. Contrary to what you may have read, the XF551 does not use the so called "loading hole" for controlling the speed. The hole is more correctly called an "index hole" and for the most part is ignored in the XF551, except during formatting. At that time its use apparently relates to the location of the beginning sector of each track (recall hard sector floppy disks).

During reading and writing, the index hole is ignored. This can be simply verified by XF551 owners by covering the hole with tape on a formatted disk. Revolution speed remains constant despite the hole being covered. The XF551 can read and write on side 2 of a disk if already formatted, but can't format side 2 if it can't see the index hole when the disk is flipped. If careful not to scratch the disk, you can use a hole punch (hook) to provide the extra index hole opening through both sides of the black plastic jacket (but not through the physical disk inside). If you don't know what I mean, check a recent PAGE 8 disk which has two index hole openings. The XF551 can format those on either side with no problem if kept PAGE 8 will let XF551 owners know where to get them).

I have no experience with the US double or can't I recall your comment regarding it's double density sector skew problems on the XF551. However, it occurs to me that, most probably no commercial software exists that would use that format. Any disk you might receive in that format is therefore unlikely to be copy protected. For me on the XF551 simply means that the US double format disks with sector skew will fit also copy in an XF551 sector skew formatted disk.

Regarding the 5.25" drive mechanism on the XF551 I

not as simple as stated, the both mechanisms, most plus here the same assigned function, except for pins 20 and 21. On the 5.25" mechanisms they are "data error detect" and its "ground error pin" respectively, but on the 5.0" mechanism they are "spare". The 5.25" mechanism is 40 tracks per side but the 5.0" mechanism is 50 tracks per side. The XF551 interface can only handle 80 tracks total, to handle the 5.25" mechanism the interface needs to be modified. There have been at least two different modifications available in the U.S.A. for that purpose. Apparently they require changing the ROM and a 24 pin plug as well as the drive mechanism.

Finally, let me just say that the XF551 is an excellent drive for the serious 5.25" enthusiast, so is the 1050. I use Superdisk 5.1 quite (on 5.0 compatible but handles single/double) double and 2 sided densities in standard or fast load rates) which allows the XF551 to really fly. There's been a lot of lingering misinformation spread about the XF551 which has hurt all 5.25" users. I hope the XF551 "history" on happy now that it is no longer manufactured and now will say what 5.25" drive is. I wish I had the strength to purchase several units they were still available.

John Stroup,
Hawthorn, Australia

Many thanks for your comments John. Most of the usage problems of the XF551 stem from their's (mostly lack of) documentation and complex nature of the workings of the drive. The 1050 just came out of the box, some plugged in and, with a quick look at the manual, many got on. With the XF551, all the promises of double sided, double density storage didn't appear to be there, at least for those who did not know enough to find these features. For the beginner an advanced disk drive with inadequate documentation

is a nightmare.

The only good thing I could take issue with is the question of the drive speed and its effect on copy protection. The speed difference is not "insignificant" on certain software. The UK company Database developed one of the most sophisticated copy protection techniques more years ago for the good processor Superdisk. Since this was a great program but if you 1050 or 511 was running just slightly out of speed they 2 or more years then it wouldn't load - a real pain. Database subsequently introduced this copy protection on their own games so there are a number of commercial programs that currently won't run at 300 rpm. Another problem is the matter of loading in the disks. There is absolutely no need to go to the lengths of cutting corners and index holes. If the drive is properly configured it will automatically come to both sides of the disk.

The XF551 is a good drive, perhaps more so for those who understand their own hardware. Engineers might not find it so easy to use all of the features but that is only because its lack of documentation. If you find one, bug it enough, you won't go far wrong.

TAPE PROBLEMS

I own a 1388B and X712 tape recorder. When I saved a program in HSTED format so that I could combine it with other programs I tried to load it with EXTER "C" but it would not load the program. It gave the error 143 but the cables are good and properly connected. Could you HELP?

B. Manning
Newry, Ireland

The error is usually due to a poor quality tape. Really there is nothing that you can do but start again. We did publish a cassette copy machine a while ago which often and you can tell whether a tape had been successfully before taping out your program and it might be wise to use a utility such as this.

APX

So, here we are in the closing months of 1991 - some twelve years after the Atari 400 first straggled onto the computing scene, and almost nine years after the first edition of *EDGE*® first arrived, and even longer computer magazines have survived as long. Probably none can claim to have commanded such an enthusiastic following.

A recent report on the 1991 Atari Shareholders meeting by *Atari Inlandia Magazine* reveals that the 400 is still in production. It is currently selling in South America, Eastern Europe and the Middle East. In the States, the 5-1/2 Atari is still supported by a small number of commercial organisations, such as *Fireworks* - publishers of the Diamond G405 system reviewed in *EM* 844 - and a nationwide network of user groups. Here in the UK, there continues to be a trickle of new software releases from the budget houses of Zappella, 18 Tpc and others, however, the majority of programs currently available originate from those 'good ol' days' of the last decade - many having re-emerged at drastically reduced prices.

Again, however, not all have fared too well with the *Sourcebooks* and *Private User Group*, after many such 'sales' in their catalogues. Recently, they announced the availability of APX software in a series of specially-labelled collections. *Sourcebooks* Atarians may not recognise the abbreviation APX, but it was once a key component of Atari's *Masterdisk* software support. The letters stood for Atari Program Exchange and the concept was an attempt to involve users in supporting their own machines. The basic idea was that if someone wrote a piece of software and thought it might be of interest to other users, they would send it to APX. A panel of reviewers would then decide whether or not it was worthy of inclusion in the APX catalogue, which was itself widely distributed to other Atari owners. By keeping costs to a minimum - simple packaging, 'standard' user manuals (drawn up by users) standardised and without spending hours of testing and development time - Atari could market APX software at a much lower price than was otherwise stated. The only catch was that Atari would not guarantee the programs in any way - they were offered on an 'as-is' basis with copies of the manuals accompanying the material (though software from APX was a gamble but it could sometimes pay off. Some programs became so popular that they were subsequently released into the regular Atari line-up - authors had the incentive of a share of annual prize money worth a hundred thousand dollars!

What sort of programs were found in the APX? The answer is, simply, almost any and every kind! There were games, utilities, educational programs, music and special applications. Let's take a closer look at some of the best entertainment titles released by the APX.

EASTERN FRONT 1942 was written by Chris Crawford for the Atari line and published by APX in 1982. It's a simulation of Operations Barbarossa, the German invasion of Russia during World War II. The game is relatively complex and re-creates the conditions of the campaign including terrain, seasons and the various types of military units involved. Each turn covers one week in history in which the player must assess the strategic information displayed and decide on

some early user written software now available again
reviewed by Paul Rixon

the movement orders for his troops. The smooth multi-way scrolling graphics were considered innovative at the time of release and this helped *Eastern Front* earn the respect of many war game fans alike. It was later marketed as a full-priced package and is probably the best-known war game to date.

PHOENIX is the title known as part of *Corvus Of Mars*, a 'classic' vertical shooter that admittedly appears rather tame by today's standards but was more thought to be rather good! *Phoenix* runs along similar lines to its predecessor - the task is to manage a space craft rapidly descending through a series of increasingly hazardous enemies. You must dodge enemy missiles, obtain fuel for when it's needed later and carefully negotiate the winding passages. There are few skill options, and a maximum status level of defence. The game is addictive, and the graphics aren't too bad at all!

GUARDIAN earned author Scott Lushig of Hawaii first prize in the summer 1982 APX contest. The plot sets you in control of a laser-equipped spaceship battling to save your planet from an enemy attack. The screen is split vertically into two portions - one for each player. A central barrier separates two opposing space craft, and a newly shaded border defends a line of shields on either side. The objective is to fire your laser through randomly occurring openings in the barrier to break the protective shield and destroy your opponent's Shields. Of course, the enemy - who may be human or alien - is determined to do the same to you! Considering the age of *Guardian*, the graphics and sound are a lot better than you would expect!

Clearly, the quality of APX software differs enormously from one program to another - the games mentioned above are the best amongst those I received from *Sourcebooks*, but the omission of a title shouldn't be regarded as a negative indication. Next issue we will continue to explore the APX, with a focus on utilities and applications.



EASTERN FRONT - one of the all time classics that was first released in the Atari Program Exchange

HOW TO OBTAIN APX SOFTWARE

The APX software featured above was supplied by *Sourcebooks International*, 11 Skiffos Road, Parkerside, Plover, Dorset BH12 2DP. The exact composition of cassette and disk collections is subject to change and full details of current availability and prices should be sought from *Sourcebooks*.

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It covers the more serious side of Atari 8 bit computing, and is essential reading for any Atari enthusiasts.

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Set #3 Type Attack Comair: Mimopy Mach: Morse Code Tutor	Set #6 Player Piano Terry: Space Chase Magic: Melody Box Set #7 Keyboard Dino: Pilot; Tack Tank: Colobacter
Set #4 Querson Simitary: Peo Bowling: Colobacter	

ST Xformer interface£19.95

Atari 8bit interface for Atari ST computer with cable for connection of this disk drive, thus allowing you to load these protected disks.

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EIGHT BITS OF HISTORY

OR, THE WAY IT MIGHT HAVE BEEN

Ed Hall charts the history of personal computers as it relates to Atari.

Pure Science Fiction?

One of the standard plot devices in science fiction is the parallel universe, a good concept involving the creation of a new world every time someone sneezes, or chooses Pepsi instead of Coke. Thus, somewhere there is an Earth where dinosaurs are still running around, and John F. Kennedy was not assassinated, and I am typing out this article on my trusty 8-bit *Tron*.

The soap opera world of personal computing is rich in the field of alternate universes. Let's look at some of them, as they relate to the Atari.

ATARI BUYS OUT APPLE!

In 1977 when Nolan Bushnell founded Atari, the name he wanted to use for his company was "Tronig," but it had already been claimed by a California roofing company. (FYI: "Atari" was a second choice.)

One day early in 1974 a long-haired, bare-footed messenger presented Bushnell at Atari and demanded a job. He was so determined that the company figured it was a case of love him or call the cops.

The kid's name was Steve Jobs and, as so often, happened in

his life, he got his own way. He became employee no. 24, and worked off and on for Atari over the next two years. Though he left the good in 1978 to begin a company called Apple Computer, his relationship with Atari did not end there. Whenever he needed help, whether in the form of parts, personnel, or advice, he often went to Atari first.

Atari at this time was manufacturing arcade games, and riding the crest of the phenomenal success of *Pong*. Nolan Bushnell had turned a \$500 investment in 1972 into earnings of \$10 million the following year. An unconventional man, an engineer filled with the entrepreneurial spirit, he had found success around Silicon Valley as King *Pong*. He often held brainstorming sessions in a hot tub installed in Atari's engineering building. In those days new ideas and concepts were Bushnell's stock in trade. In within a year of *Pong*'s release competition had already become fierce. The videogame industry, and therefore personal computer industry, were so new, so volatile, that companies featured on a knife-edge between bankruptcy and fantastic riches. It was an industry made for someone as unusual and eccentric as Nolan Bushnell. In Steve Jobs he seemed to recognize a kindred spirit. Once, when Jobs was on the verge of being fired, it was Bushnell who stepped in and rescued him. "If you don't want him," he said, "I do."

Even in a company as unconventional as Atari, Jobs stood out as an oddity. In the two-year period he worked there, he took time out for the primal scream therapy and visits to a cross trainer called the All-Crew Pacer. He returned from a pilgrimage to India with his head shaved and wearing saffron robes. He became a fruitarian, following a diet to reduce the formation of bodily wastes. It was a regime which he believed made fasting unnecessary.

Jobs's arrogance quickly alienated himself from his co-workers at Atari, and to keep the peace he was re-assigned to work at night. Sometimes he'd bring along his buddy Steve Wozniak, who played games for fun on the assembly line.

One day Bushnell came up with a new idea for a game and challenged Jobs to build it. For the next few nights, when *War* showed up to play games, Jobs got him to work on the design while he himself did the wire-wrapping. The game, called "Starblast," was a logical extension of *Pong*, and became an exciting classic whose most recent incarnation is "Starblast."

Bushnell offered *War* a job, but *War* was already happily employed at Hewlett-Packard. Like Jobs, he was a college

debug and and electronic justice, but his real love was computers. This interest became supercharged in January 1973 when the first personal computer, the Altair, became available. It was a kit requiring hours of careful soldering to assemble. It came with less than 100 lines of memory; information had to be entered using a row of toggle switches, and its display consisted of a row of flashing lights. Yet within a month the tiny company selling the kits was deluged with 4000 orders.

Woz began building a computer of his own design, using parts scavenged from Altair and Hewlett-Packard. Though he was doing it for fun, John thought it might have commercial potential. Others were sceptical because Woz had decided to go with a brand-new microprocessor, the 6502, since it was significantly cheaper than the Intel 8080, which was used in the Altair and other early machines.

In fact, it turned out to be one of many inspired choices made by the two Steve's. The 6502 family of chips became a stalwart of the personal computer industry, showing up not only in the Apple II, but also Commodore's VIC-01 and 04, and Atari's new 800, 1301, 5200 line.

Undeterred by naysayers, John convinced Woz to form a company which would produce and sell the kits that John had designed. The name they decided upon - Apple Computer, Inc. - reflected John's frustration feelings. It also put them ahead of Atari in the phone book.

It wasn't the first time the two had joined together in a business venture. Back in 1972, when John was still in high school, they had built and marketed another Woz design - three boxes - devices used to track the phone company line, allowing free long distance calls. This time the business was legitimate, though still a sideline. Neither of them planned on giving up their daytime employment at Atari and Hewlett-Packard.

BACK TO THE GARAGE

John immediately began recruiting people from Atari to help bring out the new computer. Ron Wayne became the third partner in Apple Computer, Inc. He designed the first company logo and worked on the technical manual. Howard Canine (who had laid out the original Pong board) did the schematics. Later, another recruit was Bud Holt, who left Atari and became a key Apple engineer.

Working out of the John's family garage, the tiny company produced a small quantity of Apple I's. By today's standards, it wasn't much of a computer. It had no case, no keyboard, and no power supply. It was simply a circuit board whose display output was limited to black and white. John and Woz hoped to make a modest profit, and were astonished when they received a \$25,000 order. John scrambled to raise enough credit to fill the order.

It was a busy, exciting, nerve-racking time. John threw all his energy into the company while Woz was busy making improvements to his original design. Topping the list was the capability to display in colour, so Woz could pay attention to his own computer. By the fall of 1976 he had a prototype of the Apple II ready for the first ever personal computer festival. But bringing out the Apple II involved a significant escalation of risk. First of all it was going to be a complete unit - case, keyboard, power supply which meant a significantly higher production cost.

Secondly, new computers and new computers were popping up as people spent the money that could be made. Most of the early companies offering personal computers had hobbyist origins. They began nervously looking over their shoulders, anticipating the arrival of established companies like Tandy

and Truax Instruments, against whom they felt it would be impossible to compete.

All three Apple partners felt the pressure. Ron Wayne got cold feet and backed out of the company. Woz offered his new machine, the Apple II, to Hewlett-Packard, but his engineers politely declined. Even John was ready to sell. He offered the Apple II to Commodore, but they thought the price was too steep. He also offered it to Atari, but made the mistake of putting his back foot on the desk of company president, Joe Kerman, and was immediately ordered out of the office. At the time Atari was stretched too thin to get into computers anyway. The VIC game system was under development and the company desperately needed capital. It was for this reason that Nolan Bushnell sold controlling interest to Warner Communications.

ENTER THE TWO MIKES

Bushnell did however give John a tip that eventually brought Mike Markkula and Mike Scott to Apple Computer. Together the two Mike's supplied something the two Steve's did not have - experience in running a company - and it was the final component necessary to make Apple Computer a success.

The Apple II was introduced in 1977 like some year as the Commodore PET and the Radio Shack TRS-80 Model B and became an instant success. By 1980 Apple was the industry leader with sales of \$117 million, over 1000 employees, and several new computers under development. When Apple finally went public that year, its market value became greater than that of Ford Motor Company, and Steve Jobs was suddenly worth \$200 million.

But as important as 1980 was in the fairy-tale story of Apple, the previous year was perhaps even more significant. In its 1979 form, John was on a dead-end with Krom, which gained him admittance to the Palo Alto Research Center (PARC), a sort of ivory tower of the computer world, into which Krom had pumped \$400 million towards long-term research. There, John and others from Apple discovered Smalltalk, a visually oriented programming language designed by computer visionary Alan Kay. Smalltalk used windows, icons, pull-down menus, and a mouse. John was so impressed he incorporated all of these features into the Lisa and the Macintosh, both of which were already under development at Apple. Though Krom used similar features in his own computer, the Lisa, it was not a success when it debuted in 1981. It took the Lisa, which came out three years later, to popularize these features. Eventually a graphics-based operating system using the desktop metaphor would be tailored not only by Atari and Commodore, but also by IBM.

The Macintosh became a personal crusade for John, and spent a deep rift in the company. He drove the Mac team relentlessly hard and demanded total commitment from them. He wanted people who had made it with his backer spirit, people willing to go the limit to produce an "incomparably great" product, a computer which would "make a dent in the universe." He didn't want the bureaucrats and traditional engineers who had backed up the Apple II and the Lisa. He wanted mavericks, people who got things right through sheer brilliance, not by endless meetings and committee work. Originally his screen-out people with the "wrong stuff" job interviews were rather strange. "How many times have you dropped out?" and "When did you last quit your job?" were two standard questions. The final test involved playing a game of Defender with Harold Family, a self-taught engineer who was designing the main circuit board for the Macintosh. If you

didn't play a lot of games of Defender, you weren't likely to fit in. Jobs was still visiting Atari in the early 1980s, even though Nolan Bushnell was no longer around. Every few months he would show up to have lunch with Alan Kay in Atari's executive dining room. They had finally tired of S&P&C and joined Atari as its chief scientist. There he was urged to build "fantasy amplifiers." One of the projects he was working on was an "interactive music game," another was an encyclopedia in a Simulink type environment.

Finally, in 1984, with Atari on the state, Jobs finally convinced Kay to join Apple. Kay immediately named John's displacement by writing a memo which compared the alternatives to a Honda with a one-quart gas tank.

The following year was John's last at Apple. The disappointing sales of the Macintosh threw the company into upheaval, and Jobs was finally ousted by another man he had hired, the man from Pepsi, John Sculley.

One can't help wondering how good a game of Defender John Sculley plays.

IBM BUYS ATARI!

Atari not only started a whole new industry in 1972, it helped launch a revolution. First of all, Atari's video games neatly altered the relationship between people and their television sets by changing people's roles from a passive one to an active one. Then, by substituting so many home libraries with a videogame in 75% of American households by 1982, it prepared the way for a far more important device, the personal computer.

If the personal computer was revolutionary, then IBM came to epitomize all that was being rebelled against. "Personal" computer's name designed by people who wanted their own machines, electronic laptops who didn't want to grovel for large dollars in white lab-coats to get computer time. For them, IBM was the victory - rich, powerful and conservative - a company of blue-suited clones. IBM was the Establishment and its products were inspirational computers.

In their early years companies like Apple and Atari could not have been better in spirit than IBM. One day when Atari was studying for a visit from Bank of America officials, Mike Scott had to get a programmer to quickly reprogram the low-score message: "You're Atari" from the Apple version of Breakout. And at Atari, when a visiting rep from Scott visited a program he found bizarre and wondered aloud what stage the program had been on, someone stepped forward with a lighted joint to show him.

But the wild and woolly days began to change as corporate America took notice of the money these firms were generating. Warner Communications, a huge entertainment conglomerate with holdings in the film and record industry, took over Atari in 1976. It took a lot of money into the VCS game unit and brought it to market in 1977. Even then there was a lot of competition and Atari may not have survived without the backing of its parent company. But in 1979 Warner's patience paid off when Space Invaders arrived from Japan and reached a worldwide videogame climax.

By then Nolan Bushnell was gone. He had being named as chairman for a couple of years after Warner took over, but his interest faded quickly. Early in 1979 his position was filled by Ray Kassar, one of the first of a new breed of executives to arrive in the upper echelons of the personal computer industry. Unlike Scott and Markkula of Apple, he had no prior knowledge of, experience with, or interest in computers. His background was not in engineering, but in troubles - advertising

and rage, to be precise. He cut out baby parties, cranked up security and established dress codes. "Marketing" became the new battle cry.

The year that Kassar took over as chairman of Atari was significant not only for the arrival of Space Invaders, but also for the debut of Atari's own computers. The Apple success story was a powerful reason to enter the market, but when Breakout had started a subtle influence upon Woz and the Apple II videogame played a more prominent role in the development of the Atari computers. Since games were already an important segment of computer software, it was clear that any computer produced by Atari, the technologically leader in videogames, would be a formidable game machine. In fact, Atari's computers ended out of its home videogame unit, the VCS Video Computer System, with Steve Mayer and Joe Decort being principal designers of both systems.

Powered by the same microprocessor as the Apple II, the Atari computers used additional custom chips which made them rivalled in the home computer market for sound and graphics. Jay Miner designed the ASIC and CPU chips, while Doug Neubauer did the ROMBI chip. Neubauer also wrote Star Raiders, the game which strengthened the Atari's advanced graphics as well that many people thought the computer just to play the game.

In addition to their game-playing ability, the design of these new computers reflected Atari's mentality in another way. Woz had given the Apple II eight slots which were specifically designed to make it easy to hook up additional circuit boards. The Atari computers on the other hand were basically closed systems, having only a few slots intended for memory expansion. The Apple II's design attracted numerous companies which became rich making peripherals and add-ons. The availability of such items played an important role in attracting the life of the Apple II, and was just another element in the synergy of success which the Apple II enjoyed.

Despite this shortcoming, Atari's computers initially sold well and soon carried out a respectable share of the home market. Nevertheless it was VCS units which accounted for the major portion of Atari's revenues. In 1980 Apple products may have been selling like crazy (\$4.17 million in sales), but Atari's volume of business was even greater (\$4.15 million). In 6 months Warner stock shot up 20%. Some Atari was accounting for well over half of Warner's operating profit, including more than twice more than its record and film divisions.

THE \$2 BILLION TURNOVER!

But even as Atari enjoyed historic profits, it was already sowing seeds which would contribute to its own downfall. First of all, success made the new Atari over-confident; it was making so much money (\$4 billion in sales in 1982) that it came to believe it thoroughly understood the home computer and videogame marketplace. In fact, you see did, it was a time when a new company like Outcome Computer could go from multi-million dollar sales one year to bankruptcy the next.

Even larger companies like Apple and Atari weren't immune to financial trouble, as they were slow to discover. One reason was simply a lack of their explosive growth - they became increasingly bureaucratic and had trouble reacting quickly enough to the rapidly changing demands of the marketplace. However, both Apple and Atari were generating so much revenue that they had a large margin of error. Their smaller companies, Apple II sales carried the company through

the twin debacles of Apple II and the Lisa, as well as the long development period of the Macintosh. At Atari, the company continued to reap huge profits despite its backward policy toward software - a policy directly attributable to Ray Kassar's ignorance of the product he was selling. For the new Atari computers and videogames were simply another consumer product whose success was primarily dependent upon marketing.

EXIT PROGRAMMERS

Atari had decided that the formula for success was in buying the rights to games like Pac-Man, which had already proved successful in the arcade, or spinoffs from movies like "E.T." and "Raiders of the Lost Ark." Atari spent millions acquiring such rights, then fervently protected them through lawsuits.

Consequently Atari devalued the ignorance of its prog programmers. After all, it was marketing, not programming, which had brought in the money. At a time when other companies were treating their programmers like rock stars and paying them six-figure sums in royalties, Atari refused to acknowledge their names and in many cases, as with Star Raiders, paid no royalties at all. When some of them complained, Kassar claimed they were no more important than designers of levels. As a result, Atari lost a number of gifted programmers, who left to start up firms like Activision and Imagine, companies whose software sales soon began to bite into Atari's profits. In 1980, Activision's first year of business, the company grossed nearly \$70 million.

Kassar also tried to keep the workings of Atari's new computers a closely guarded secret. To him, such a disclosure made sense in a highly competitive market. This decision, however, was clearly a mistake in the home computer market, which had a tradition of openness and sharing. More importantly, it simply retarded the development of software for Atari computers, and in one case, as engaged a brilliant programmer named John Harris, that he refused to sell Atari his version of the hit game "Jardislawski."

Despite the impressive growth of the home computer market, corporate America was slow to take seriously the fledgling industry. After all, it had not been validated by IBM. But the spreading profits of firms like Apple and Atari were blood in the water for the corporate leviathan. Soon a Big Blue fin began to circle the upstart firms of Silicon Valley.

BIG BLUE APPROACHES

When IBM finally decided to get into personal computers, they first considered buying a firm already in the market, thus bypassing the costly delays involved in developing a computer from scratch. The group that was put together to explore this option recommended that IBM buy out Atari. The proposal was brought to a Staff Risk, however, because IBM chairman, Frank Cary, wanted only "the best," and according to the advice he was given, that meant Apple, not Atari. Since Apple was sure to resist a take-over attempt, IBM's only alternative was to bring out their own personal computer. They did so in 1981, after a development period of only a year.

It was an amazing feat for a company as deplorable as IBM. Perhaps equally remarkable was the open architecture that it employed, making it closer in spirit to the Apple II than the Atari 800. Such openness was distinctly un-IBM-like.

While the PC was under development, IBM approached Bill

Gates, another computer whizkid and co-founder of Microsoft. At the time Gates was working as a systems of Microsoft Basic for the Atari 400/800, and had a meeting with Ray Kassar scheduled for the next day. Happily Gates cancelled that meeting so that he could meet IBM. Before any discussion could begin, however, Gates was obliged to sign a document which pledged his secrecy on matters relating to IBM, but gave IBM free use of any secrets Gates himself might inadvertently reveal. Despite this inequid agreement, the meeting turned out to be a very profitable one for Gates, as it ultimately led to his company's development of MS-DOS, the operating system for IBM's own PC.

COMMODORE BUYS APPLE!

The success story of Jack Tramiel, founder of Commodore Business Machines, is even more remarkable than that of Steve Jobs. Born in Poland in 1928, he spent a major portion of his teenage years in the Nazi death camps. For him there was no need of a pilgrimage to Berlin to get meaning to his life, and his diet while at Auschwitz was not an experience. He became a survivor, and this experience taught him the survival in the business world, and especially in the personal computer market, where the pressure can be brutal. His friend Tomczyk, a former Tramiel aid, observed that working at Commodore, or any other computer company in those days, was like being in a real-life videogame - one slip, one false move, and you're dead. At Apple, Steve-Jobs frequently cried, "Oh Tramiel, please personal handle my business. Tramiel is not," was once physically attacked by an employee who broke under the strain.

Apart from the difference in their ages and backgrounds, there are many interesting similarities between Jack Tramiel and Steve Jobs. Both are equipped with powerful personalities, both employ confrontation as a management tool, and both are able to refuse to atone their own compelling visions of the future. So powerful was this in Jobs that co-workers at Apple called him "the truth-distorter field." At Commodore, Tramiel provided a brand of hard-core business that became known as "The Religion." Though his rule was paternalistic and authoritarian, he was able to build great loyalty among his top workers.

After coming to America, Tramiel started a typewriter repair shop and soon branched out into adding machines. When the first microprocessors were developed in the early 1970s by Intel and Texas Instruments for use in calculators, it seemed a natural product for his company to get into. Commodore began selling a line of calculators based on a Texas Instruments chip. When Texas Instruments itself entered the market with its own calculators, it crushed most of its competitors and Commodore finally went under.

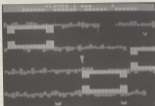
NEXT ISSUE ...

WILL JACK TRAMEL SURVIVE?

WILL ATARI SURVIVE?

MORE ASTOUNDING STORIES

BAT PACK



I t once was a quiet sleepy village in remote Transylvania but recently there have been a number of strange deaths and disappearances. At night, when it was once common to see the odd bat or two flitting around the rooftops, there are now huge flocks of them, some much larger than others. A few villagers have stayed outside all day and followed the flocks of bats as they return home for the daylight hours and have discovered that they return to a large cave just up on the mountainside just outside town.

A group of villagers decide to eradicate the menace led by the one you arrive at the same month you find that you are alone, none of the others have the courage to come even this far. As you enter the cave you find that it is no ordinary cave but something that must have been engineered by evil forces using great skill.

Here is the breeding ground of the bats but you soon discover that it is more than just a natural habitat. Blood drips from the roof and there are strange rooms every so often and you soon discover that traps may be spring which lay awards or mysteriously transport you into other rooms. As you reach the bats you see that the harmless grey bats are turned into evil vampire bats if they are hit by the dripping blood.

This is going to be a torturing journey but one that has to be undertaken if the village is to be saved. From the terror that is worse than death, You bravely continue, hoping that you will find something along the way to help you.

PLAYING THE GAME

Up to 4 players can play in turns, one screen at a time, using a joystick inserted in Port 1. When the game has loaded press SELECT to indicate the correct number of players then press the joystick trigger.

Set the minimum number of bats you wish to remove by moving the joystick forwards/backwards and pressing the button when the desired figure displays. This determines the number of points you score per bat which is 10 times this figure for grey bats and 50 times this for red bats. You must dispose of at least this number of bats to go on to the next screen so don't be too greedy!

You have 3 lives per screen and you lose one each time you make contact with the blood, a sword, or a vampire when you are not prepared to kill it.

To remove a grey bat pick up a cage (C) will appear then catch one. To kill a Vampire move directly over the box of matches to pick it up (M) will display and if you have more left, first make contact with a candle to light it up and avoid the daggers. Pick up a dagger (D) will display and retain a red bat while the light is still on. Note that you cannot hold a dagger and a cage at the same time. To pick up items move your playing figure directly over them. The same applies to collecting bats.

The number of bats you need to dispose of will be displayed and will reduce each time you catch one. When you have disposed of the minimum number this figure will be zero and the exit space (E) will appear in one of the rooms. You can exit the screen when you wish by moving directly over the (E). Play then passes to the next player.

The bats increase to speed the further you go. The game finishes when all players have lost their lives.

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TYPING IT IN

Cassette and disk users should type in Listing 1, SAVE or CSAVE & copy. Run FIRM the program. The program will check each line of data and inform you of any errors. Correct any errors and FIRM the program again until all errors are eliminated. When this is done answer the cassette/disk questions accordingly to create a boot tape or binary disk file.

Cassette users should load the boot tape created by firmly removing all cartridges and then taping on the computer while holding down the START key (CL and BL owners should hold down OPTION as well). Press RETURN and the tape will load and run automatically.

Disk users should clear Listing 1 from memory after saving and running it as above by typing NEW and pressing RETURN. Next, type in Listing 2 and save it on the same disk as the binary file created by Listing 1. FIRM the Listing 2 program with the disk in the drive and the game will load and run automatically.

continued »

by Bill Halsall

We are pleased to welcome back Bill Halsall who has written many excellent games for us in the past. Bill is still keen to include new games but his main problem is a lack of ideas for game plots. His one-time suggestion for a journal of his daughter who was thrown into the film *The Lost Boys*.

There must be many readers who have good ideas for game plots but who lack the programming knowledge to create the game, so how about some suggestions that might spur Bill into writing a few more games for you? Take a look at Bill's previous games and see if you can come up with a plot or two. Send your ideas to PAGE 4 at the normal address, making sure they are clearly marked for Bill Halsall and we will send them on. Who knows, one day your game plot might appear as a brand new listing in *New Atari Users*!

ARTIFACTING

How would you like to see a new set of colours on your Atari? What about a blue red and new vibrant greens, yellows, and purples? And how about an almost endless combination of multicolour characters in graphics II? And all this without using player-rotate graphics as display list interrupts, impossible? Type in the program and be amazed.

It was a phenomenon known as 'artifacting' previously only used on Amstrad programs. This consists of plotting pixels in special striped or checked patterns which, because of the way colours is stored in a television signal, produces different colours than those normally associated with the pixels.

This technique was described by various articles which appeared in UK Atari magazines and has been used in some commercial programs, such as the Ultima series by Origin Systems Inc. Unfortunately, due to the differences in the American NTSC and our PAL-television systems, my British Atari owner would see dull grey stripes lined with the occasional horrible blue or green.

A few years ago, I read an article by Anthony Hall, explaining how he discovered some PAL artifacting ability. The program he presented did show some starting new colour in the high resolution graphics II mode. Since then, I have been surprised that nobody has written any programs or articles to take advantage of these colours (even before ones on the Atari). I decided it was time to rectify this and this article is a guide to PAL artifacting as a result of my own experiments.

Artifacting can be used on either graphics modes II or II. These use the highest resolution available on the 8-bit Atari. Rather than try to plot the special patterns required on a graphics II screen, which is very difficult, the program uses graphics II characters, the artifacted colours being easier to produce and alter.

Diagram 1 below shows the character patterns for the new prism and violet. These patterns are exactly the same except one is shifted four pixels over from the other. The vertical stripes cause the artifacting to occur and the movement by four pixels changes the colour from yellow to violet. With the same complex checked patterns in diagram 2, moving the red character up or down by one pixel will give the green.

Joel Goodwin
explains how to use
artifacting on the PAL
system for true
additional colours

HOW TO USE ARTIFACTING IN YOUR PROGRAMS

As with everything, nothing is perfect and there are some conditions to be met if you are to be able to use and see these wonderful new colours. Firstly, the colour on your television needs to be turned up high. You will be reminded of this at the beginning of the program. The second condition is that the screen needs to be adjusted slightly for the correct colours to appear every time and I have written a routine to do this.

The routine is in lines 15000-15200. Simply include it in your own program and follow these instructions. First, use your character set to redefine, place the location of the character set in the variable POINT and insert a GOSUB 15000 command. This will run the routine to adjust the screen. The user will be asked to press keys 1-6 until the red, green and prism colours displayed match the words underneath them. Only one of these keys will be the correct adjustment and it is usually one of the first three. If you have used different characters for the red, green or yellow colours, adjust the GOSUB 15000 which contains these characters in that order. Also, avoid using the rightmost column as the routine may scroll the screen to the right by 1 to 3 pixels causing anything printed in this column to overlap on the left side of the screen. Whenever you need to issue a GOSUBS-0 command use GOSUB 15000 instead. Note, the routine uses locations 1500-1615 of page six.

THE EDITOR PROGRAM

When you run the program, you will first see the adjustment screen. Follow the onscreen instructions and then press the Space bar. You will then be given a choice of writing a draw screen or going to the editor. The draw shows something of what can be achieved using combinations of these colours. The main program is a character set editor dedicated to artifacting (you can also use it to design ordinary characters). Artifacting can be produced on other character editors, but without the screen adjustment routine, you would need to keep redefining and the colours appeared correctly.

The main screen of the program displays the 64 multicolour patterns and colours that I have discovered so far. Each of them is displayed in 4-character blocks on the left of the screen. On the right is an 8x8 grid for editing. You can make use of any of these patterns in your programs or use the editor to alter them and create even more. Just use my patterns as a


```
00 0 NEW
01 0 NEW
02 0 NEW
03 0 NEW
04 0 NEW
05 0 NEW
06 0 NEW
07 0 NEW
08 0 NEW
09 0 NEW
10 0 NEW
11 0 NEW
12 0 NEW
13 0 NEW
14 0 NEW
15 0 NEW
16 0 NEW
17 0 NEW
18 0 NEW
19 0 NEW
20 0 NEW
21 0 NEW
22 0 NEW
23 0 NEW
24 0 NEW
25 0 NEW
26 0 NEW
27 0 NEW
28 0 NEW
29 0 NEW
30 0 NEW
31 0 NEW
32 0 NEW
33 0 NEW
34 0 NEW
35 0 NEW
36 0 NEW
37 0 NEW
38 0 NEW
39 0 NEW
40 0 NEW
41 0 NEW
42 0 NEW
43 0 NEW
44 0 NEW
45 0 NEW
46 0 NEW
47 0 NEW
48 0 NEW
49 0 NEW
50 0 NEW
51 0 NEW
52 0 NEW
53 0 NEW
54 0 NEW
55 0 NEW
56 0 NEW
57 0 NEW
58 0 NEW
59 0 NEW
60 0 NEW
61 0 NEW
62 0 NEW
63 0 NEW
64 0 NEW
65 0 NEW
66 0 NEW
67 0 NEW
68 0 NEW
69 0 NEW
70 0 NEW
71 0 NEW
72 0 NEW
73 0 NEW
74 0 NEW
75 0 NEW
76 0 NEW
77 0 NEW
78 0 NEW
79 0 NEW
80 0 NEW
81 0 NEW
82 0 NEW
83 0 NEW
84 0 NEW
85 0 NEW
86 0 NEW
87 0 NEW
88 0 NEW
89 0 NEW
90 0 NEW
91 0 NEW
92 0 NEW
93 0 NEW
94 0 NEW
95 0 NEW
96 0 NEW
97 0 NEW
98 0 NEW
99 0 NEW
```

```
00 0 NEW
01 0 NEW
02 0 NEW
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13 0 NEW
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18 0 NEW
19 0 NEW
20 0 NEW
21 0 NEW
22 0 NEW
23 0 NEW
24 0 NEW
25 0 NEW
26 0 NEW
27 0 NEW
28 0 NEW
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83 0 NEW
84 0 NEW
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86 0 NEW
87 0 NEW
88 0 NEW
89 0 NEW
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91 0 NEW
92 0 NEW
93 0 NEW
94 0 NEW
95 0 NEW
96 0 NEW
97 0 NEW
98 0 NEW
99 0 NEW
```

starting point.

The leading circle on the screen is the cursor. Use the joystick in part 1 to move it. Press the trigger when over a character and it's enlarged pattern will be displayed on the grid. To see the character data of this pattern, press the Space Bar. Above the grid most-copies of the selected character will be displayed, 16 in a block and 2 separately. These will enter any changes made on the grid and make it easy for you to see what effect your editing is having. You can alter the pattern by moving the cursor onto the grid and pressing the trigger to clear or erase. The arrow keys will allow you to scroll the whole character in any direction. Each keypress moves it by one pixel and this can be done as often as you like. When you are satisfied just move off the grid and choose another pattern to alter.

Using the scrolling can give quick results as there are many different positions possible for each character. Not all of these positions give useful colours and some give repeat colours, but it is fun to experiment and see what you can discover. To create multi-line characters all you need do is combine a character and striped pattern and scroll it around until you find one you like. Just drawing at random and scrolling can quickly create something new. Have in mind that two pixels side-by-side in any row will produce white.

The program understands the following commands.

- ESC - clear character
R - restores original character
ARROW KEYS - scroll up/down, left and right
SPACE BAR - shows character data
P - saves our modified character set to cassette or disk for storage
L - loads in character set from cassette or disk
H - brings up a help screen with all these commands displayed

CONTINUED



Diagram 1



Diagram 2

COMING NEXT ISSUE ...
RUNAROUND - a game writing with artifacting

SCREEN SAVE AND LOAD

In the last issue I gave an introduction to the make-up of a screen full of text or graphics or a mixture of the two as it is helpful to understand this and the display list in order to understand how to save a screen to tape or disk.

If you always use the same graphics mode to develop your screens it is easy to write a program which will just take the screen data and copy it to disk, then to restore the screen, all you have to do is reverse the process. This is rather inflexible, however, so I will take a different approach and show you a screen save that can save any screen, even one with mixed graphics modes. To achieve this you have to save not only the screen data but also the display list data and the colour registers.

The amount of data that is saved to describe a screen will depend very much on the graphics mode of the screen. This will affect the amount of storage space needed on disk or tape to accommodate the data and it will also change the time it takes to load or save a screen. Low resolution screens (say GR1 or GR2) have little data and will load or save very quickly, while GR4 and above will take a significantly longer time. A screen in graphics mode 0 takes up over seven times as much space as a Graphics 0 text screen and more than 30 times a Graphics 2 or 3 screen. If you wish to set up a slide show of screens it can be quite a good idea to intersperse high resolution graphics screens with introductory low resolution text, thus keeping the momentum of the presentation going.

SCREEN SAVE

The best way to explain what is needed is to work through the program examples in here. You may find it helpful to read my article from the last issue as background to this one, or some other description of Display Lists.

Line 11 is a reminder - the screen save is not designed to work on its own, it must be combined with the program that generates the pictures and that program must define the file name for the picture to be saved with, for example:

```
DEFINITION="DISKSAVE.LPT"
```

Line 30000 selects I/O channel number 1 and opens it to put data.

Line 30010 puts the contents of memory location 87 to the disk file through I/O channel 1. Location 87 holds the graphics mode.

Line 30020 puts the contents of the colour register memory locations 704-718 to the disk file.

Line 30030 finds the value of the top of RAM. Lines 30040 and 30050 read the two parts of the address of the start of the display list and combine them to the value **START**.

Line 30060 works out **SIZE** the size of the block of data between **START** and **HAMTOP** that we want to save. This block contains the display list and screen data.

Line 30070-30100 This is a bit of a cheat for a basic programmer as it uses a machine code substitution. Don't ask

me exactly how it works, but it uses the Atari's revised I/O system (I/O) directly to achieve a reasonably high data transfer rate, faster in fact than for this task.

Line 30070 sets up to use Input/Output control block number 1 (IOCB #1) - the one we opened in line 30010. Each IOCB is a block of 18 memory locations starting with IOCB #0 of memory location 800. We only have to set up a few of these memory locations, line IOCB#0 must contain 11 to signal binary data to tape or disk.

Line 30080 puts the address of the start of the data we want to transfer into IOCB#4 and IOCB#5 in low byte/high byte form. This is the address of the start of the display list that we looked at in line 30060.

Line 30090 and 30100 split **SIZE** into its low byte/high byte components and **POKE**s the results into IOCB#8 and IOCB#9 to tell I/O what quantity of data is to be transferred.

Line 30110 is the magic! The string, **Trk 0-screen "L-V-screen-0"** is a small piece of machine code in the form of a character string which is called by the I/O hardware. It effectively means "Input/Output, in accordance with the settings in the selected IOCB". The selected IOCB is defined by CH.

Finally in **line 30120** the channel must be closed after use or an error will occur next time we try to open it.

SCREEN LOAD

A quick comparison of programs 1 and 2 reveals great similarities. We are using the same machine code control of the IOCB but this time to recover rather than save data. I will not discuss every line in detail but only those that are significantly different.

In **line 30000** the **R** instead of **W** in the OPEN command means load rather than save.

Line 30010 recovers the graphics mode (GR). If it is in the range 1 to 8 we add 16 to make sure that there is no text window, so the text screen will overwrite the old. If a picture with a text window was saved it is restored as the display list and graphics data are loaded. Without this step the screen content area would slip out of alignment to one side.

In **line 30020** we carry out a basic Graphics command which recovers the CR. It is not good enough to **POKE** the value to 87 as this will not reset the CR.

Line 30070 **POKE** IOCB#0,7 sets up for binary data recovery.

That is all there is to it. This listing can be used in a stand alone mode with very little modification. Just add a line like this: **IF DEF PH 10: PH="FILENAME.ECT" IF \$SCREEN=0** in the name of a valid picture data file on your current disk it will be recovered when you RUN the listing.

```

00 1 000 *****
00 2 000 * TUTORIAL INFORMATION *
00 3 000 * SCREEN SAVE *
00 4 000 * *
00 5 000 * by *
00 6 000 * Ted Finkelman *
00 7 000 *****
00 8 000 * NEW SCREEN USER - OCT 1970 *
00 9 000 *****
00 10 000 *****
00 11 000 *****
00 12 000 *****
00 13 000 *****
00 14 000 *****
00 15 000 *****
00 16 000 *****
00 17 000 *****
00 18 000 *****
00 19 000 *****
00 20 000 *****
00 21 000 *****
00 22 000 *****
00 23 000 *****
00 24 000 *****
00 25 000 *****
00 26 000 *****
00 27 000 *****
00 28 000 *****
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00 99 000 *****
01 000 *****

```

Program 1 - Screen Save

```

00 1 000 *****
00 2 000 * TUTORIAL INFORMATION *
00 3 000 * SCREEN SAVE *
00 4 000 * *
00 5 000 * by *
00 6 000 * Ted Finkelman *
00 7 000 *****
00 8 000 * NEW SCREEN USER - OCT 1970 *
00 9 000 *****
00 10 000 *****
00 11 000 *****
00 12 000 *****
00 13 000 *****
00 14 000 *****
00 15 000 *****
00 16 000 *****
00 17 000 *****
00 18 000 *****
00 19 000 *****
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00 22 000 *****
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00 95 000 *****
00 96 000 *****
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00 98 000 *****
00 99 000 *****
01 000 *****

```

Program 2 - Screen Load

SLIDESHOW

This is an old program I wrote for Page 8 back in 1965. I have modified it to work correctly with the screen load subroutine. When you have typed both listing 2 and 3 and have them saved to disk carry out the following: Load program 2 and save it using LIST Load program 1. Enter program 2. You will now have both programs combined.

It will only outline the way program 2 works. It reads the directory of the disk and stores all filenames with an extension in the form .F00 in the string BA. It then takes each filename in turn and passes it to the screen load subroutine which then scans the disk and displays the screen. After a short delay the next screen is displayed. When all of the files have been used an error occurs which is trapped by line 80 starting the whole process over again, so the effect is a continuously running slide show.

TAPE USERS

You may think that the description above relates only to disk users. This is not so. The first two listings will work with cassette if you use the file name "C" instead of "D:FILENAME.EXT". There is a hitch, however, you must be a bit patient. Data transfer to and from tape is not nearly so fast as disk. It is very possible to run a slide show from tape so long as you set up a tape with a series of graphics saved one after the

```

00 1 000 *****
00 2 000 *****
00 3 000 *****
00 4 000 *****
00 5 000 *****
00 6 000 *****
00 7 000 *****
00 8 000 *****
00 9 000 *****
00 10 000 *****
00 11 000 *****
00 12 000 *****
00 13 000 *****
00 14 000 *****
00 15 000 *****
00 16 000 *****
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00 35 000 *****
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00 81 000 *****
00 82 000 *****
00 83 000 *****
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00 86 000 *****
00 87 000 *****
00 88 000 *****
00 89 000 *****
00 90 000 *****
00 91 000 *****
00 92 000 *****
00 93 000 *****
00 94 000 *****
00 95 000 *****
00 96 000 *****
00 97 000 *****
00 98 000 *****
00 99 000 *****
01 000 *****

```

Program 3 - Slideshow

DOUBLE DISK BONUS

TWO GREAT BONUS GAMES THIS ISSUE!

PLOP

by Neil Ottaway

A one or two player challenge



Plop is a game for one player or two players playing simultaneously on separate scrolling screens. One player is a boat and navigates the top half of the screen while the other player is a fish on the bottom half of the screen. In one player mode the player can alternate between the two modes by pressing the space-bar.

The object of this game is to get the ball into the hole. This "object" is not easy since there are walls and obstacles of water in the way. The ball or hole can be guided through the maze using a joystick. A life is lost by guiding the ball into the sea or into a gap. Also a life is lost when time runs out or if you press ESC to quit that level if you become stuck. If any of the above occur you will be restarted at the beginning of the level if you still have lives left.

Around the maze may be switches with either a number 1 or a number 2 on them. The different switches may either block walls in certain places or allow passage of fish in certain places. Switches must be used to complete most levels. Some switches you may wish to avoid since they can be done by getting up a wall by pressing M. If you are already carrying an object then it will be equipped with the object that you are on. To drop an object you should foot down the fire button and press one of the turbo keys depending on whether you wish to drop the object to the left or right or above or below you. You cannot drop an object directly underneath you.

On dropping the spring and passing over it you will be propelled into the air for a short while enabling you to miss a wall and go over it as if it were not there. You can also pick up barrels which blow holes in walls and there are also areas of floor you can use to bridge gaps over water or holes. Sometimes you may wish to pass an object from one player to the other which can be achieved by dropping an object on a ladder.

Each level is complete when the ball and the hole meet. There are 10 levels altogether each with its own bonus points to add. When all levels are completed there is a graphics demo to view. Music can be turned on and off by pressing the fire key. There is also a cheat mode which can be activated by pressing CONTROL-S. You can then proceed to the next level by pressing CONTROL-A.

PLOP is an excellent game written in compiled Turbo Basic. You really ought to see it to discover just what Turbo Basic can do - it's as good as machine code!

Plus ...

THE HYAMS ADVENTURE

by Yohannan Hyams

A traditional text only adventure which starts out in the author's bedroom. You must discover and manipulate everything you see to discover what sort of life The Hyppies you meet. Along the way you'll find many things to help and many clues to lead to the ultimate discovery. What that is you'll discover as you go along. There's no help on this one, you're on your own!

The Hyams Adventure is an excellent first response adventure written with SubtextWriter and has many unique features and puzzles.

Issue disk 33 is included with Disk Subscribers copies of this issue but can also be purchased separately for just £2.95. Order your copy form PAUSE it, P.O. BOX 94, STAFFORD, ST16 1DR or by telephoning 0789 212888 and using your credit card.

A NEW ISSUE DISK!

This issue's disk has a great new loader developed especially for us by The High Tec Team who wrote The Big Omega. Now you can enjoy great graphics effects as well as a custom written scrolling message with each issue!

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BACK ISSUES

The following back issues of NEW ATARI USER are still available:

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ISSUE 29	ISSUE 30	ISSUE 31
ISSUE 32	ISSUE 33	ISSUE 34

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Amstrad Football																				
Amstrad Pool Masters																				
Amstrad Tennis																				
Ball Wars																				
Block Ninja																				
Blinky's Crazy School																				
Death Chess																				
Discman																				
F1 Thriller																				
Fantastic Soccer																				
Full Throttle 1																				
Full Throttle 2																				
Jeep																				
Jacky Wilson's Best																				
Kick Box Nightmares																				
Las Vegas Casino																				
Line																				
Miss Paris																				
Mountain Bike Race																				
Wings Commanders																				
Paris Academy																				
Paris Assault Course																				
Planet																				
Sea On Your Shoulder																				
Sea Street																				
Silly Scientist																				
Skiwinder																				
Songbird's Whistles																				
Special Ace																				
Turbo Skate Flight																				
World Soccer																				
Xyber																				

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 Owned: Amiga ST PC Commodore

THE A-Z OF GOLDEN (AND NOT SO GOLDEN) OLDIES continued

GENSTONE WARRIOR ★★★☆
arc/advs. S.S.I./U.S. Gold 1987 (4) full

An enthralling strategic game, essentially a one player, thinking person's version of "Gauntlet." Your quest for the Genstone takes you through four-level scolding dungeon chambers (meeting a variety of monsters on the way). You have to make use of the many items you find, many of them being used for spell-casting. The game has a great balance and will appeal to role players, strategists and shoot 'em up fans alike. A classic of its kind, and a much better game for the solo player than "Gauntlet" could ever aspire to be.

GHOST ENCOUNTERS ★★★
arc/advs. J.V. Software 1981 (1) 64K/66

J.V. Software produced several arcade adventures for the Atari in the early 80's, with titles and "Journey to the Planet" probably being the best. You take the part of a ghost who must solve a puzzle in each of the twenty rooms. Some require logical thinking, others a sure trigger finger. Graphics are simplistic, but the game itself remains as challenging and stimulating as when it first appeared.

THE KEY

Star Ratings:-

- ★ poor
- ★★ poor/mediocre
- ★★★ mediocre
- ★★★★ mediocre/good
- ★★★★★ good
- ★★★★☆ good/excellent
- ★★★★★ excellent

arc	arcade game	(1)	game is available on tape
adv	adventure game	(2)	game is available on disk
adv	adventure game	(3)	game is available on floppy
adv	adventure game	(4)	game is available on cartridge
adv	adventure game	(5)	game is available on CD-ROM
adv	adventure game	(6)	game is available on hard drive
adv	adventure game	(7)	game is available on network
adv	adventure game	(8)	game is available on CD-ROM
adv	adventure game	(9)	game is available on hard drive
adv	adventure game	(10)	game is available on network
adv	adventure game	(11)	game is available on CD-ROM
adv	adventure game	(12)	game is available on hard drive
adv	adventure game	(13)	game is available on network
adv	adventure game	(14)	game is available on CD-ROM
adv	adventure game	(15)	game is available on hard drive
adv	adventure game	(16)	game is available on network
adv	adventure game	(17)	game is available on CD-ROM
adv	adventure game	(18)	game is available on hard drive
adv	adventure game	(19)	game is available on network
adv	adventure game	(20)	game is available on CD-ROM
adv	adventure game	(21)	game is available on hard drive
adv	adventure game	(22)	game is available on network
adv	adventure game	(23)	game is available on CD-ROM
adv	adventure game	(24)	game is available on hard drive
adv	adventure game	(25)	game is available on network
adv	adventure game	(26)	game is available on CD-ROM
adv	adventure game	(27)	game is available on hard drive
adv	adventure game	(28)	game is available on network
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adv	adventure game	(30)	game is available on hard drive
adv	adventure game	(31)	game is available on network
adv	adventure game	(32)	game is available on CD-ROM
adv	adventure game	(33)	game is available on hard drive
adv	adventure game	(34)	game is available on network
adv	adventure game	(35)	game is available on CD-ROM
adv	adventure game	(36)	game is available on hard drive
adv	adventure game	(37)	game is available on network
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adv	adventure game	(40)	game is available on network
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adv	adventure game	(43)	game is available on network
adv	adventure game	(44)	game is available on CD-ROM
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adv	adventure game	(46)	game is available on network
adv	adventure game	(47)	game is available on CD-ROM
adv	adventure game	(48)	game is available on hard drive
adv	adventure game	(49)	game is available on network
adv	adventure game	(50)	game is available on CD-ROM
adv	adventure game	(51)	game is available on hard drive
adv	adventure game	(52)	game is available on network
adv	adventure game	(53)	game is available on CD-ROM
adv	adventure game	(54)	game is available on hard drive
adv	adventure game	(55)	game is available on network
adv	adventure game	(56)	game is available on CD-ROM
adv	adventure game	(57)	game is available on hard drive
adv	adventure game	(58)	game is available on network
adv	adventure game	(59)	game is available on CD-ROM
adv	adventure game	(60)	game is available on hard drive
adv	adventure game	(61)	game is available on network
adv	adventure game	(62)	game is available on CD-ROM
adv	adventure game	(63)	game is available on hard drive
adv	adventure game	(64)	game is available on network
adv	adventure game	(65)	game is available on CD-ROM
adv	adventure game	(66)	game is available on hard drive
adv	adventure game	(67)	game is available on network
adv	adventure game	(68)	game is available on CD-ROM
adv	adventure game	(69)	game is available on hard drive
adv	adventure game	(70)	game is available on network
adv	adventure game	(71)	game is available on CD-ROM
adv	adventure game	(72)	game is available on hard drive
adv	adventure game	(73)	game is available on network
adv	adventure game	(74)	game is available on CD-ROM
adv	adventure game	(75)	game is available on hard drive
adv	adventure game	(76)	game is available on network
adv	adventure game	(77)	game is available on CD-ROM
adv	adventure game	(78)	game is available on hard drive
adv	adventure game	(79)	game is available on network
adv	adventure game	(80)	game is available on CD-ROM
adv	adventure game	(81)	game is available on hard drive
adv	adventure game	(82)	game is available on network
adv	adventure game	(83)	game is available on CD-ROM
adv	adventure game	(84)	game is available on hard drive
adv	adventure game	(85)	game is available on network
adv	adventure game	(86)	game is available on CD-ROM
adv	adventure game	(87)	game is available on hard drive
adv	adventure game	(88)	game is available on network
adv	adventure game	(89)	game is available on CD-ROM
adv	adventure game	(90)	game is available on hard drive
adv	adventure game	(91)	game is available on network
adv	adventure game	(92)	game is available on CD-ROM
adv	adventure game	(93)	game is available on hard drive
adv	adventure game	(94)	game is available on network
adv	adventure game	(95)	game is available on CD-ROM
adv	adventure game	(96)	game is available on hard drive
adv	adventure game	(97)	game is available on network
adv	adventure game	(98)	game is available on CD-ROM
adv	adventure game	(99)	game is available on hard drive
adv	adventure game	(100)	game is available on network

The price and format given are not a complete picture and should be considered only as a guide. Prices are not necessarily accurate and may vary from time to time on different systems and versions. This can also refer to the price of the game on question.

GHOSTBUSTERS ★★★
arc Activision 1984 (3,d) mid

"Ghostbusters" features some nifty music, good graphics and speech synthesis, but it's a pity the gamemay did not quite match up to its vibrant audio-visual attractions. You choose a car, travel city streets, and trap ghosts (trapping requires careful timing and luck). Once you've made enough money you get the chance to sneak past the blasphemous film and get rid of the ghosts once and for all.

GOOMIES, THE ★★★☆
arc/advs. DataSoft/U.S. Gold 1986 (3,d) mid

A multiple screen, puzzle solving platform game in the same vein as "Zaxxon", also from DataSoft. "Goomies" features a unique game play system in which you control two characters on each screen, flipping between the two via your joystick button. The puzzles are well thought out and graphics and sound are of a good standard.

GRAPHICS ART DEPARTMENT ★★★
ut Databyte 1986 (4) full

A well implemented computer art package with all the features (and more) the budding 'Mac Gough' could wish for. Drawing is accomplished by using a joystick. A comprehensive help menu gives access to such things as palette, patterns, editors, zoom, brushes and a lot more. With the Display List Interrupt feature you have access to 128 colours. Why doesn't G.A.D. make use of Graphics mode 18 instead of the more chunky Graphics 7? Despite this it is still a recommended buy.

GREEN BERET ★★
arc Imagine Software 1987 (1) mid

A poorly done left to right scrolling shoot 'em up with one colour sprites and poor collision detection. You play the soldier of the title, dodging, shooting and killing your way past the never-ending assault of goblins out to kill your title. The programmers know how to use the fine scrolling features of the XL/50, but they seem to have forgotten that it has a good quality sound chip.

GREAT AMERICAN ROAD RACE ★★★
arc Activision 1985 (3,d) mid

Certainly one of the best car racing games around for your machine. "Road Race" gives you a choice of different routes, each with different scenery. You may test yourself driving at night, in snow, through fog, caught in a rush-hour, or even dodging repair signs in your race against the clock. Graphics are good, but the sound is excellent. What's more, "Road Race" rates very high in playability.

GRIDRUNNER ★★★
arc Mastertronic 1987 (1) full

A shoot 'em up set along a grid which fills the entire length of the screen. Programmer Jeff Mizer adds this additive shoot 'em up in roughly 5K of code! Don't expect any hills, just enjoy the fast-paced action.

GUARDIAN OF THE GORN ★★
arc In-Home Software 1982 (1) scarce

An altogether weird game which has you travelling across an oddly shaped grid, avoiding insects. If they manage to grab you they whistle and out pops a huge battery-type character who picks you up and presumably tells you off (sorry) that you're not smart. Little seen and probably best if it stays that way.

compiled by
Kirk Ruebottom

GUN LAW ★ ☆
 arc Mastertronic 1987 (1) bud

A pretty dire attempt at a conversion of the "Commander" game from the erasies of a few years ago, it has you controlling a guy with a machine gun, blasting everything that moves over the vertically scrolling jungle landscape. Sound is of the jang variety and you can only move and shoot in four directions (a serious limitation in my books).

GYRUSS ★ ★ ★
 arc Parker Brothers 1984 (3) mid

A solid, no-hills, all action shoot 'em up. "Gyru" finds you blasting your way from planet to planet with a superb rendition of "Topcat" humming away in the background. The action is similar to "Space Invaders" or "Galaxian", only with much faster and fiercer movement of both your spaceship and the aliens.

HACKER ★ ★ ★
 arc/adv Activision 1985 (1,d) mid

An entertaining and unusual game, which, after loading, presents you with a screen containing two words, "Logon Please". Eventually you'll find yourself studying a map of the world and directing a robot to various locations in order to bargain with spies of different nationalities. The instructions included with the game are almost non-existent. It is up to you to find out how to play the game. "Hacker" takes pretty well in the graphics and sound department.

HALLEY PROJECT, THE ★ ★ ★
 sim Mindsage 1985 (2) imp scarce

A space exploration game, in which you must journey to various planets and moons in our Solar System, then your mission base inside Halley's Comet. Views are of the 3-D variety and there are some impressive graphics as you gradually approach a planet. However, all this would look better on an American T.V. set as some of the graphics are artificial. All in all a fairly interesting and challenging space exploration game, but with limitations in long term interest.

HARDBALL ★ ★ ★ ★
 arc/sim Accolade/U.S. Gold 1984 (1,d,r) mid

This is an excellent implementation of Baseball on home computer. The main game screen shows a close-up view from behind the pitcher, with large colourful graphics depicting batsman, pitcher, umpire and fielding. You have a variety of pitching and batting options to choose from. Once about, the ball flies off the screen and you then see a view of the outfield from where you direct your fielders or runners. Many subtleties in design, and good gameplay combine to produce an enthralling piece of software.

HAZZARD RUN ★ ★
 arc Amsoft 1983 (1) scarce

Remember the "Dukes of Hazzard" series of a few years back? Well, this simple overhead view, vertically scrolling game puts you in the shoes of the old Luke Duke as they dodge their car past trees, rocks, ditches, rivers etc. Pretty shallow, but then again so was the T.V. series.

HENRY'S HOUSE ★ ★ ★ ☆
 gfil Mastertronic 1987 (1) bud

This is a game of a platform genre. Henry has shrunk to about six inches in height and you must guide him about his house, avoiding various sorts of obstacles and traps. Each screen is a puzzle in itself, and with eight screens to complete you will certainly get your money's worth. Graphics are detailed and combined with colour and the gameplay is almost flawless. Recommended.

H.E.R.O. ★ ★ ★
 arc Activision 1984 (1) mid

In H.E.R.O. you control a guy with a jetpack who enters mines to trap rescued miners. You have to dodge radioactive fluids and walls and shoot any aliens you might find. There are many nice features in this shoot 'em up platformer, notably the bright and colourful graphics and the challenging gameplay.

HITCHHIKER'S GUIDE TO THE GALAXY ★ ★ ★ ☆
 adv Infocom 1986 (2) full

One of the most popular text adventures from the acknowledged masters of the genre. It's based upon, and loosely follows, the book, radio and T.V. series of the same name. Infocom preferred to call this adventure "Interactive Fiction" and with "Hitchhiker's" it's easy to see why. Huge vocabulary, atmospheric descriptions, humorous output, it's all here. If you liked the T.V. series then you'll enjoy playing this.

HOME FILING MANAGER ★ ★ ★
 ut Atari 1982 (2) bud

This handy utility was given away free with Atari disk drives many years ago. It's a fairly versatile, extremely easy to use, record keeping utility (an database). Information you wish to record is displayed on screen as a card. These "cards" can be saved to disk, sorted and indexed etc. and re-displayed at the press of a few buttons. A bit limited for the more serious user, but useful nonetheless.


HOUSE OF USHER ★ ★
 plat Kingsoft/Midas 1986 (1) bud

A fairly average platform game with some original ideas for content, but spoilt by poor programming. You control a pike sort of character who must battle his way through nine platform screens, each with a different theme or puzzle. Challenges include dodging cannon balls, negotiating your way over unstable floors, dodging enemies etc.

HOVER BOYVER ★ ★ ☆
 arc Llamasoft/Mastertronic 1984/1987 (1) bud

An unique but inevitably forgettable game in which you must now learn, watch out for angry neighbours, and restrain your dog at the same time! Your view of the (very highly coloured) events is from above. Moving is accomplished by pushing the joystick, and your dog is controlled by the fire button. Features include mouse overload, dog loyalty and shenanigans!


HULK, THE ★ ★ ☆
 (gr) adv Adv. International 1984 (1,d) mid

Hulk was released as a top class graphical adventure and also as a text-only cassette version. Written by Scott Adams, it utilizes the limited verb-noun input routine, but it contains some nice puzzles. Locations are not great in number, but the whole fits together nicely. The disk version contains some nice pictures.

INTERNATIONAL KARATE ★ ★ ★ ★
 arc System 3 1987 (1,d) mid

An efficiently programmed and well designed piece of software. This is possibly the best (Karateka inspired) martial arts game for the XLXE. Sprites are nicely coloured and animated and the sound is superb, whether it ranges from the four channel music to the varied grunts and groans of the fighters. Many owners were waiting for this game for over a year. The wait was worth it.

A-Z OF ATARI SOFTWARE

INVASION

strat Mastelectronic 1987 (1) bud

Unusual wargame, set on an alien planet, with your objective being to destroy the alien's weather station. Commands for your units are entered with the joystick. Although there is much of interest for wargamers here, 'Invasion' is let down by some poor graphics and tedious scrolling.

JAMES BOND

arc Parker Brothers 1984 (2/2) mid

An altogether dreadful piece of software. It's a horizontally scrolling shoot, with you controlling Bond in his speedboat, firing at everything that moves. Poor controls, tedious gameplay.

JAVA JIM

arc Creative Sparks 1986 (1) bud

You control Jim who jumps about on a grid map of a desert island in search of valuable tools and relics for his archaeological expedition. But you have to watch out for lava which is spat out by the mountain in the centre of the screen. An interesting title game with many subtleties and unique gameplay. Absurdly frustrating and re-fusing, it is worth more than its budget price.

JET BOOT JACK

plan English Software 19- (2) bud

A delightful game which was deservedly awarded minor classic status. Jack is propelled by his jet-powered boots, and he collects all the musical notes from each screen while trying to avoid the many hazards at the same time. Simple, clear graphics and addictive gameplay make 'Jack' a winner.

JET SET WILLY

arc Tyreson 1985 (1) bud

Tyreson obviously had no idea of the Atari machine's capabilities when they attempted to convert the best-selling Spectrum game. You have to move Willy over numerous rooms in an attempt to collect all the glasses from the previous night's party. The only redeeming feature of Willy is that it features an excellent musical soundtrack.

JOURNEY TO THE PLANETS

arc/advc J.V. Software 1981 (2) scarce

Another puzzle solving arcade adventure from the makers of 'Great Escapades'. This game has the puzzles of a text adventure but solving them requires moving a sprite through various screens. Graphics are very basic and blocky, but 'Journey to the Planets' makes up for this with its excellent design and gameplay.

JOUST

arc Atari 1982 (1) mid

An amusing game in which each player is mounted on a lion, lance in hand, and the objective is to knock the other player (human or computer) from his lion. You can either charge at the other computer or drop down on top of them. Flying is accomplished by pressing the joystick button in line with the lion's wings, looking spectacular in the graphics and sound departments, but 'Joust' is entertaining and playable nonetheless.



JUMBO JET PILOT

sim Thom E.M.I. 1982 (2) scarce

This flight simulator has not worn the years as well as its contemporary, 'Solitaire Commander' (also from Thom E.M.I.). It does have very good detail and is challenging to fly, but terrible graphics and sound can't really compensate for this.

JUMPJET

sim Anrog Software 1986 (1/2) mid

A rather uninspiring flight simulator which has you taking off and landing from an airport carrier and in pursuit of enemy planes. The emphasis is more on simulator than arcade, with options controlling thruster positions, radar, navigation etc. Instructions for the game are obeyed and the game is very difficult to get to grips with.

JUNGLE HUNT

arc Atari 1982 (2) mid

An amusing game, especially good for the kiddies, played over four stages. Stage one finds you sailing from tree to tree. Tarsier style, and you must time your leaps correctly. The second stage takes place underwater and you must avoid the crocodiles. Stage three has you jumping over jumps of molten lava, and in the final stage you must rescue the chef from the wannabe cook's pot.

JUNG FIRST

arc DataSoft 1984 (2) mid

A rather dated 'Space Invaders' derivative with a pseudo 3-D effect and aliens coming at you from all directions. Missing all at special here, just another average shoot 'em up'. DataSoft released games of such better quality.

JUPITER MISSION

arc/advc Avalon Hill 1983 (2) scarce

Considering that this big game (it occupies two double sided disks) was written in Basic, it is a remarkably impressive. You're in control of a spaceship, the 'Space Explorer', and you must navigate your way through space, avoid meteor storms, send out shuttles to planets, repair ship damage etc. There's a fair amount of disk access and graphics are a bit blocky, but the game is not without merit.

KAMPFGRUPPE

strat S.S.I. 1985 (2) full

Another immensely detailed and complex S.S.I. wargame. This time out the action takes place at platoon level in 'World War II'. As with most S.S.I. wargames, the graphics play second fiddle to the wealth of game options and commands. Recommended for the wargamers among you.

KARATEKA

arc Broderbund 1985 (2) imp scarce

Graphics in 'Karateka' are works of art, indeed the whole game oozes quality, from the opening narrative sequences to the final entrance of hero and Phoenix. This martial arts game employs movie-style cutscene techniques where the screen may show your character running along, and then cut to a shot of your opponent looking to meet you. Controls are initially hard to get used to, but simplify itself once mastered. It's a pity that this, the best martial arts game for the Atari, was never easily available here in the U.K.

KAYOS

arc Computer Magic Ltd. 1981 (1) scarce

A primitive (and extremely rare) shoot 'em up, one of the first games I ever bought. Not simply a fast space invaders clone, with flashy sound effects.

KENNEDY APPROACH

aim Microprose

1985 (LJ) full

Kennedy Approach is a simulation of air traffic control. You won't be impressed by the graphical display (a simple radar map with aircraft and airport symbols), but what you *will* be impressed by is some high-quality speech synthesis. It certainly adds much to the atmosphere and authenticity of the game, and there is a wide variety of phrases to be heard. Take care: the speech synthesis and you are still left with a boring simulation. (How many could any airport air traffic controller wish to?)

**KICKSTART**

arc Mastertronic

1986 (?) bud

An arc motorcycle obstacle course game, based on the T. in. series of the same name. The game uses a split-screen technique, so you and a friend can race at the same time. Your view of the course is a two-dimensional one, taken from the side. The obstacles include water, rough ground, vehicles and brick walls. Quite good fun, and well worth its budget price.

KILLER CYCLE

arc Microvalue

1987 (I) bud

This was part of the Four Great Games Vol. 2 compilation and is probably the worst of the bunch. It claims to be a recreation of the Light Cycle sequence from the film *Tron*. In reality it's nothing more than a jacked-up collision detection routine, where you guide a moving line with your joystick, and by not to collide with the other moving lines of the human or computer players.

KING OF THE RING

strat Greenin Graphics

1986 (LJ) mid

A key-pressing strategy game about boxing. You choose your boxer or's training, sparring, and fight strategy. During the fight you get chances to allocate points to tactics for the forthcoming round. Then it's just a matter of watching the boxer slug it out (in only frame graphics).

KNOCKOUT

arc Anco Software

1986 (LJ) mid

A play-by-view boxing game lacking in almost every department. Moves for your boxer, issued by the joystick, are very limited. Graphics are basic and the sound resembles rattle at the cassette. This one is best to avoid. If you want a decent boxing game then look no further than *Fight Night* from U.S. Gold.

KORONIS' RIFT

arc Lucasfilm Activision

1986 (d,r) full

This game employed the best graphics techniques used in *Pelican on Paradise* to its even greater effect. In fact, *Koronis Rift* has the distinction of being one of the most graphically pleasing games. EVER to be released for the Atari 8-BIT. You're a techno-savvy-guy, being your way across the planet, utilizing items found in scattered hula that will give you special powers. Your 'out of the cockpit' view shows you the surrounding terrain as well as the numerous flying saucers who are out to frustrate you. A very involving game, with equal emphasis on shooting, tactics, exploration and navigation.

L.A. S.W.A.T.

arc Mastertronic

1987 (?) bud

You're a S.W.A.T. team leader, shooting down terrorists in this vertically scrolling *Commander* inspired shoot 'em up. Buildings, overgrown cars and angry streets take the part of jungle here though. If you like this type of game then you could buy worse (*Thin Red Line* for example).

LARIS PHILOSOPHORUM

gr adv Aristocraft

1986 (d) mid

Nice graphical adventure with a fantasy theme. The parser will only accept verb noun entities, but is otherwise nonetheless. The pictures are nicely drawn, and puzzles are a little on the easy side.

**LAST V.J., THE**

arc Mastertronic

1987 (I) bud

This game features nice graphics and sound, but is very hard to get to grips with. You have to guide your car through banded out streets in this overhead view in a race against the clock. Control of your car is difficult, and that's putting it mildly. However, paywalls, and you'll find yourself coming back to this time and time again in your quest to find the correct route to the next stage.

LEADERBOARD

aim Access-U.S. Gold

1986 (LJ) mid

Probably the best golf game for your computer. The only game features are fairways, putting green and water hazards, but the three-dimensional view and playability make up for this. Features include hoop, slope, power, wind and stages. This is a game which appeals to both young and old alike. Now why didn't they convert *World Class Leaderboard* to the Atari machines?

LITTLE DEVIL

arc Red Rat

1986 (LJ) mid

A masterpiece emerging from one-time volatile Red Rat. *Little Devil* was supposedly banned in some outlets because of its alleged sexual content. Don't make the laugh, it's a platform type game in which you use your legs to resect suspended seats and avoid the customary obstacles. The backgrounds are nicely drawn, but we've seen the gamplay a thousand times before.

LIVERPOOL

strat (Mail Order only)

1984 (LJ) source

A text-only football manager type game, written in Basic, which used to be available from an advertiser in Page 2 magazine some years ago. It features such things as transfers, player skill and stamina and morale. Things progress a little slowly (mainly due to the lengthy disk accesses), but it is fairly interesting if you like football manager type games.

LIVING DAYLIGHTS, THE

arc Demark

1987 (LJ) mid

Not another multi-screen scrolling shoot 'em up. This is from the same team who programmed *Green Genie* (see elsewhere). They did a slightly better job with this one, but the game still remains flat and monotonous. You're James Bond, shooting, dodging and aiming (not to say thwacking) horizontally scrolling comic book villains. You have a variety of weapons with which to complete these tasks and you must choose the correct weapon for each stage.

TO BE CONTINUED

THE TIPSTER



Comrade T has swept away the competitors in the Christmas, 1987 and it's time to unveil the software charts with all of those games that are set to supposedly show the charts in time for the Christmas rush. But we're

bring you all news in the enjoyable bit of the games world, that's right the Tipster business!

Another telephone number Tipster writes, bursting at the seams this time with a multitude of hints, tips and lots 'n' lots. We have a map of Top Gear and Friends in the Grand Minister. Solutions to Locomot, Agent 003, and a complete blow out of HACKER.

LASER HAWK

Has an expert courtesy of Jonathan Burroughs of Peterborough. Here's his advice. If you have an auto fire pyrotech it

would be helpful to turn it on. If you are being blown into little pieces by the cannons, just about the bottom of the cannon it operates and it won't shoot any more. Instead of going in low to shoot the buildings off you have to climb the pyrotech to the right and it will fire at the ground. On the higher levels you will come across the mud launcher which will kill you if you are low, so where it does come. By to the top of the screen straight away then it will not be able to destroy you. Finally the cannons which follow you and destroy you can be shot down by firing low at the left hand side of the screen and waiting for them to land straight for you, where they do they are in position for you to shoot and destroy them.

SPINDIZZY, JOE BLADE II

Here's a little advice from Jonathan Burroughs of Peterborough. In SPINDIZZY, when entering your shop enter the last, so it becomes higher on the shelves. Don't be tempted to go hunting for items as they waste more time than they give you back, it is easier to find one item as they are worth more time. Use the map often to see what directions you can go and make the job really easy. All items a 10 minute time and 1000 points in each level. If it you find them before it cost you always in low, it won't matter. Try to map the rooms for future points as so not to get lost.

One last suggestion and probably the best of the lot is that if you hold down shift, OPTION and ENTER together on the screen you will have infinite energy.

DESERT FALCON

Just became easy. Don't get when you use these 4. Holographic to see you off.



WANTED BY THE AUSTRALIAN POLICE

The mists clear and the reality is revealed

HACKER

HACKER has been created by Sean Leffroyer who hasn't attached his address (if you contact Page 2 and tell them what kind of paper it is on and how you write the letter then you can have your badge). O.K. that's the admin bit over so let's get on with the real bit.

The LUDOM passport is AUSTRALIA.

The four security checks are:

- 1) Magna, L.T.D.
- 2) A.S.G.I. Ltd
- 3) Hydraulic
- 4) Australia

This first part is the order in which to go to the countries and what to take and give.

CITY	WHAT TO GIVE	WHAT TO GET
1) SWITZERLAND	\$500.00	EVERYTHING
2) EGYPT	CHRONOGRAPH	EVERYTHING
3) ROME	SCARF	NOTHING
4) INDIA	TURT	NOTHING
5) NEW YORK	SWISS CHALET	DOMES
6) TOKYO	SONGS	EVERYTHING
7) CHINA	PEARLS	JADE
8) CUBA	JACO	NOTHING
9) LONDON	CAMERA	BEATLES ALBUM
10) SAN FRANCISCO	BEATLES ALBUM	NOTHING
11) WASHINGTON	GIVE F.B.I. AGENT DOCUMENT	

The following is a list of the moves required to move from the last city. All of these moves are in order from the city to the last city in the format -> OF MOVES-CORRECTION- so that move 6 needs a 6A. To use these you have to first get to Switzerland.

CITY	DIRECTIONS
SWITZERLAND	SE, 4N
EGYPT	4W, 1N, 2E, 2E, 1E
INDIA	1E, 2N, 2E, 3E, 1E
NEW YORK	1W, 2E, 1SW, 1E
TOKYO	SW, 1E, 14W, 2E, 3E
CHINA	2W
CUBA	1E, 2E, 2E, 1E, 4E, 15.2E, 1E, 2E, 1E, 2E, 2E
LONDON	SW, 2W, 2W, 1E, 2E
SAN FRANCISCO	1W, 2E, 12W, 1E, 1E
WASHINGTON	1W, 1E, 12E, 2E, 2W, 1E, 2W

CONGRATULATIONS YOU HAVE JUST COMPLETED HACKER

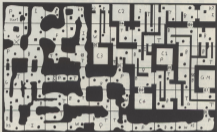
If you complete this game, it then prints the front page of a newspaper in your printer to make sure that it prints and has plenty of paper. If you haven't got a printer that it doesn't do much at all which I think is a bit under don't you?

YOGI BEAR AND FRIENDS IN THE GREED MONSTER - A TREASURE HUNT

Mapped
by

**R
i
c
h
a
r
d

G
o
r
e**



Key:

- B Wheel Pot of Money (you must collect all of these)
- J Jar of Honey (includes Yogi's jar of honey)
- J Jar of Honey (includes Yogi's jar of honey)
- P Plastic Basket (includes food for)
- T Trap (you must collect all of these)
- G Middle Stone (includes Yogi in case spot for a while)
- o Ballroom (includes Yogi and can't be killed)
- C1, C2 Key one, key two etc.
- C1, C2 Door one, door two etc.

- # Enemy that moves horizontally
- # Enemy that moves vertically
- C1 Room that contains trapped Boo Boo
- C2 Room that contains trapped Snuggly Pass
- C3 Room that contains trapped Chuck Chew MacGraw
- C4 Room that contains trapped Honey and Blister
- EX Type of door needed to remove it
- L Trap L to remove blockage R to enable access to rest of the game

SMASH, CHOP, BUILD, SPY!

WORLD KARATE, HOT BLOK, BOLDERDASH CONSTRUCTION KIT and **AGENT 009** are the games that are given the vote over by Daniel May of Bay St. Cloud, Florida.

AGENT 009 gets the backwards treatment too here with the following players written as CARL REBER/TIMEX - JOAO COELHO/KOOL - KOOL - ON - TIG - TRATS - TIG - KOOL - BLAT - MY - MPO - DAN ET/LAMART - RETRO/MOC - EWELL - TIG - TRATS - KOOL - KOOL - EVRO - DRIBT TIG/OS - KOOL - LLK - KOOL - TEG - SAER - FUR - FUR - KOOL - RETNE - KOOL - TEG THREMSUP - SEY - YLE - EWAL - KOOL - MUIT - WOLLOP - TEG - NETSL - NETSL - ERDM - LLK - KOLAL HCTHP - TIG - KOOL - BDMC - TIG - TRATS - KOOL - KOOL - DAEK - SEY - KOOL - KOOL - KOOL - SAER - KRAP - KOOL - KOOL DRIBT - TIG/OS - DAEK - KOOL - TIG/OS - MUIT - TIG/OS - KOOL - TEG - DAEK - KOOL - MUP - OTOS - KOOL - LLK - MUD - KOOL - TIG - TIG - KOOL - OG - TAME - RETNE - TIG/OS - KOOL - MPO - KOOL - SA later

If you are having trouble with **BOLDERDASH**, load up the construction kit, you can then load up each screen and practice them at different speeds and to the things you can enter in the kit.

When a block appears at the top of the screen in **HOT BLOK** just pause the game. This will give you time to think about where to put the block. When you have decided, simply unpauses the game.

SMARTER THAN THE AVERAGE GAMER

To reach this issue's map of **YOGI BEAR IN THE GREED MONSTER** we come from the same man Richard Gore of Spanglish, Missouri? The first you go (left).

Think the game looks marked L. An opening will appear (marked L) so the map to allow you access to the rest of the game. After using the opening go back to the first screen and collect the piece (marked L) you have not already done so because once you have gone through the opening you will not be able to return to the starting location.

Collect the keys, the blue piece of money and the credits as soon as you see them but only collect the gas and baskets, jars of honey and jars of oil if you need them as they are not used for anything.

Try to make the enemies notice their using your ammunition. Only the the credits when you really need them as you only get a few.

Collect the blue credits (marked as a circle with a cross) inside it on the map as soon as possible. This means the (black) blue doors.

The last money keys will go inside the (black) examples as you need key 1 to go inside. Once a door is open it will remain open for the rest of the game.

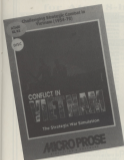
DO NOT enter the G.M. (marked with B) until you have collected ALL the blue money jars and keys.

This your (black) money being the map so as to try to avoid the enemies.

Yogi's level will only give them when the bottom half of this screen has a constant with up of his other levels. Do not use up his level as it allows (black) any of the enemies.

Using the (black) doors and the map you should have no difficulty in completing this excellent game from M-TEC.

**MORE ...
MORE ...
MORE ...**



CONFLICT IN VIETNAM

Reviewed by Steven Wilds

Microprose are renowned for their top quality simulation games, the best of which made it to the Atari.

Conflict in Vietnam is the last Microprose game for our beloved machine... simulates five decisive battles of the Vietnam War... from the French defeat at Dien Bien Phu in 1954 to Quang Tri in 1972, the start of the end of South Vietnam.

As in most Microprose games, a 'quick start' option is available for a extensive reading of the 110 page manual is a must... it contains simple information on the history of the war as well as the game itself and makes an enjoyable read... instructions are easy to follow and it is not long before you have up the disk ready to go to war.

Before starting any game you are required to enter an operational 'day' mode... These are listed inside the manual and serve as protection for the game... You can then select one of the five games and any variants each game has contained and choose the number of players and their roles... game speed, standard military symbols or text display, joystick or keyboard input and play features which can give one side an advantage over the other... Once all choices are made the game is loaded.

The map like (game) view varies from game to game and controls are very easy to master... First a unit is selected and you then choose one of several maneuvers... Unlike a lot of wargames, *Conflict in Vietnam* is not divided into turns and phases although it does take time for units to move and act on your orders... The screen display is quite clear, although the occasional Communist unit gets lost in the mountains, and sound effects abound, adding to the game's atmosphere.

CONFLICT IN VIETNAM

Microprose
Cassette £14.95
Disk £14.95

(Disk version reviewed)

NOTE: If you have a limited number of the cassette version of this game at the special offer price of £4.95 (plus usual postage shown on our order form), the car order form in this issue or telephone for CIBS' card purchase.

THE BATTLES

Prelude - DIEN BIEN PHU (1954): The final battle of French Colonial rule... The Communists have the French sealed inside a valley... The French lost although they inflicted heavy casualties on their enemy... The game gives you the chance to reverse America's decision NOT to intervene and see what US air power could have done... A very good introductory battle and my first and only victory!

Into the valley - SA DORANG (1968): The First US Air Cavalry Division sweeps into a drying valley, meeting Communist forces and changing the balance of war... A slow starter - sends as many Communist units as possible and get your own West FIGHT!

The Tide Turns - KHE SANH (1969): North Vietnamese forces invade US Marines at Khe Sanh... A single lasting TR flag... The battle that shook America and not for those with a weak heart!

Empty Fishhook - CAMBODIA (1970): US and South Vietnamese (ARVN) forces invade the Fishhook region of Cambodia searching for the North Vietnamese Headquarters for South Vietnam (CIBS' HQ)... Very good stuff!

First Cracks - QUANG TRI (1972): With US forces pulling out, the North Vietnamese launch a military offensive against the South... The invasion was repulsed but the South's air is wrecked... Huge game area and you have to rely heavily on ARVN forces.

All in all *Conflict in Vietnam* is a game for both experienced and beginner players alike... Its simple controls make it ideal for those with limited wargame experience and its always Miroprose have installed themselves with the manual... I find the game has sufficient depth for the more seasoned players... Don't forget to use the 'View' option to change sides if things get too bad!

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Phone or FAX **DEREK FERN** 021 353 5730
for further details 021 352 1669

contact extra... contact extra...

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3420 - 3421 - 3422 - 3423 - 3424 - 3425 - 3426 - 3427 - 3428 - 3429 - 3430 - 3431 - 3432 - 3433 - 3434 - 3435 - 3436 - 3437 - 3438 - 3439 - 3440 - 3441 - 3442 - 3443 - 3444 - 3445 - 3446 - 3447 - 3448 - 3449 - 3450 - 3451 - 3452 - 3453 - 3454 - 3455 - 3456 - 3457 - 3458 - 3459 - 3460 - 3461 - 3462 - 3463 - 3464 - 3465 - 3466 - 3467 - 3468 - 3469 - 3470 - 3471 - 3472 - 3473 - 3474 - 3475 - 3476 - 3477 - 3478 - 3479 - 3480 - 3481 - 3482 - 3483 - 3484 - 3485 - 3486 - 3487 - 3488 - 3489 - 3490 - 3491 - 3492 - 3493 - 3494 - 3495 - 3496 - 3497 - 3498 - 3499 - 3500 - 3501 - 3502 - 3503 - 3504 - 3505 - 3506 - 3507 - 3508 - 3509 - 3510 - 3511 - 3512 - 3513 - 3514 - 3515 - 3516 - 3517 - 3518 - 3519 - 3520 - 3521 - 3522 - 3523 - 3524 - 3525 - 3526 - 3527 - 3528 - 3529 - 3530 - 3531 - 3532 - 3533 - 3534 - 3535 - 3536 - 3537 - 3538 - 3539 - 3540 - 3541 - 3542 - 3543 - 3544 - 3545 - 3546 - 3547 - 3548 - 3549 - 3550 - 3551 - 3552 - 3553 - 3554 - 3555 - 3556 - 3557 - 3558 - 3559 - 3560 - 3561 - 3562 - 3563 - 3564 - 3565 - 3566 - 3567 - 3568 - 3569 - 3570 - 3571 - 3572 - 3573 - 3574 - 3575 - 3576 - 3577 - 3578 - 3579 - 3580 - 3581 - 3582 - 3583 - 3584 - 3585 - 3586 - 3587 - 3588 - 3589 - 3590 - 3591 - 3592 - 3593 - 3594 - 3595 - 3596 - 3597 - 3598 - 3599 - 3600 - 3601 - 3602 - 3603 - 3604 - 3605 - 3606 - 3607 - 3608 - 3609 - 3610 - 3611 - 3612 - 3613 - 3614 - 3615 - 3616 - 3617 - 3618 - 3619 - 3620 - 3621 - 3622 - 3623 - 3624 - 3625 - 3626 - 3627 - 3628 - 3629 - 3630 - 3631 - 3632 - 3633 - 3634 - 3635 - 3636 - 3637 - 3638 - 3639 - 3640 - 3641 - 3642 - 3643 - 3644 - 3645 - 3646 - 3647 - 3648 - 3649 - 3650 - 3651 - 3652 - 3653 - 3654 - 3655 - 3656 - 3657 - 3658 - 3659 - 3660 - 3661 - 3662 - 3663 - 3664 - 3665 - 3666 - 3667 - 3668 - 3669 - 3670 - 3671 - 3672 - 3673 - 3674 -

STRINGING ALPHABET

By Ann O'Driscoll

A string is a collection of keyboard characters—letters, numbers, punctuation marks, etc.—enclosed by quotation marks. The computer can measure the length of a string or work out the value of any numbers in it. It can also join two or more strings together end-to-end or split one up and look at its particular elements. In fact, strings can be used in a number of ways and in all sorts of programs since you get the hang of a few basic concepts. The aim of this article is to help you along the way. A few simple program listings are included to illustrate the points as they are introduced.

SETTING UP A STRING AND PUTTING INFORMATION INTO IT

The DIM statement is used to set up space in the computer's memory for a string variable. This takes the form DIM \$A\$(n) where A\$ is the name of the string and n is the number of characters in it. The name you give the string must end with a dollar sign. This lets the computer know that it's dealing with a string variable and not a numeric variable.

We can put information into the string in a number of ways: by using INPUT, by READING DATA into it or just by saying A\$(something). We can also specify where the information is to go in the string. For instance, A\$(10)="ABC" says the first 10 spaces in our string are to be filled with the letters ABC, while A\$(10)="ABCDEF" tells the computer to put this word in the string, starting at the 10th space. If there was something there already it would get overwritten. Also, it doesn't matter that we didn't start with 1, which was the next free space, however if our dimensional length was less than 10 we would get an error message here.

```

10 DIM A$(10)
20 A$(10)=""
30 A$(10)=""
40 A$(10)=""
50 A$(10)=""
60 A$(10)=""
70 A$(10)=""
80 A$(10)=""
90 A$(10)=""
100 A$(10)=""
110 A$(10)=""
120 A$(10)=""
130 A$(10)=""
140 A$(10)=""
150 A$(10)=""
160 A$(10)=""
170 A$(10)=""
180 A$(10)=""
190 A$(10)=""
200 A$(10)=""
210 A$(10)=""
220 A$(10)=""
230 A$(10)=""
240 A$(10)=""
250 A$(10)=""
260 A$(10)=""
270 A$(10)=""
280 A$(10)=""
290 A$(10)=""
300 A$(10)=""
310 A$(10)=""
320 A$(10)=""
330 A$(10)=""
340 A$(10)=""
350 A$(10)=""
360 A$(10)=""
370 A$(10)=""
380 A$(10)=""
390 A$(10)=""
400 A$(10)=""
410 A$(10)=""
420 A$(10)=""
430 A$(10)=""
440 A$(10)=""
450 A$(10)=""
460 A$(10)=""
470 A$(10)=""
480 A$(10)=""
490 A$(10)=""
500 A$(10)=""
510 A$(10)=""
520 A$(10)=""
530 A$(10)=""
540 A$(10)=""
550 A$(10)=""
560 A$(10)=""
570 A$(10)=""
580 A$(10)=""
590 A$(10)=""
600 A$(10)=""
610 A$(10)=""
620 A$(10)=""
630 A$(10)=""
640 A$(10)=""
650 A$(10)=""
660 A$(10)=""
670 A$(10)=""
680 A$(10)=""
690 A$(10)=""
700 A$(10)=""
710 A$(10)=""
720 A$(10)=""
730 A$(10)=""
740 A$(10)=""
750 A$(10)=""
760 A$(10)=""
770 A$(10)=""
780 A$(10)=""
790 A$(10)=""
800 A$(10)=""
810 A$(10)=""
820 A$(10)=""
830 A$(10)=""
840 A$(10)=""
850 A$(10)=""
860 A$(10)=""
870 A$(10)=""
880 A$(10)=""
890 A$(10)=""
900 A$(10)=""
910 A$(10)=""
920 A$(10)=""
930 A$(10)=""
940 A$(10)=""
950 A$(10)=""
960 A$(10)=""
970 A$(10)=""
980 A$(10)=""
990 A$(10)=""

```

Listing 1

Ann O'Driscoll shows you how to get along with strings and proves they're not difficult to understand - when you know how!

COMPARING STRINGS

The computer compares strings by looking at the ASCII codes of the characters in them. If we say A\$(10) means the 10th code in A\$-space before that of B\$, B\$(10) means the 10th space. The computer will only move on to compare the second element if and in the strings if the first characters are the same. This can throw up some funny results: if we have A\$(1) and B\$(1) we get A\$(10) because only the 1 and the 1 are compared.

Listing 2 is a simple "telephone list" which illustrates how strings are compared: LINE 100 asks you to input a name which is then held in the string \$NAME\$. The computer reads names and phone numbers in pairs from the DATA in LINE 100. Each name is compared with the one being searched for: LINE 140. If they match the associated phone number is put up on the screen: LINE 170 otherwise you are told that the name is not in the data: LINE 180.

If you want to adapt the listing by putting in real names and phone numbers, you may need to change the counter for the loop in LINE 140. This is currently set at 3 because there are 3 pairs of names and numbers.

```

10 DIM A$(10)
20 A$(10)=""
30 A$(10)=""
40 A$(10)=""
50 A$(10)=""
60 A$(10)=""
70 A$(10)=""
80 A$(10)=""
90 A$(10)=""
100 A$(10)=""
110 A$(10)=""
120 A$(10)=""
130 A$(10)=""
140 A$(10)=""
150 A$(10)=""
160 A$(10)=""
170 A$(10)=""
180 A$(10)=""
190 A$(10)=""
200 A$(10)=""
210 A$(10)=""
220 A$(10)=""
230 A$(10)=""
240 A$(10)=""
250 A$(10)=""
260 A$(10)=""
270 A$(10)=""
280 A$(10)=""
290 A$(10)=""
300 A$(10)=""
310 A$(10)=""
320 A$(10)=""
330 A$(10)=""
340 A$(10)=""
350 A$(10)=""
360 A$(10)=""
370 A$(10)=""
380 A$(10)=""
390 A$(10)=""
400 A$(10)=""
410 A$(10)=""
420 A$(10)=""
430 A$(10)=""
440 A$(10)=""
450 A$(10)=""
460 A$(10)=""
470 A$(10)=""
480 A$(10)=""
490 A$(10)=""
500 A$(10)=""
510 A$(10)=""
520 A$(10)=""
530 A$(10)=""
540 A$(10)=""
550 A$(10)=""
560 A$(10)=""
570 A$(10)=""
580 A$(10)=""
590 A$(10)=""
600 A$(10)=""
610 A$(10)=""
620 A$(10)=""
630 A$(10)=""
640 A$(10)=""
650 A$(10)=""
660 A$(10)=""
670 A$(10)=""
680 A$(10)=""
690 A$(10)=""
700 A$(10)=""
710 A$(10)=""
720 A$(10)=""
730 A$(10)=""
740 A$(10)=""
750 A$(10)=""
760 A$(10)=""
770 A$(10)=""
780 A$(10)=""
790 A$(10)=""
800 A$(10)=""
810 A$(10)=""
820 A$(10)=""
830 A$(10)=""
840 A$(10)=""
850 A$(10)=""
860 A$(10)=""
870 A$(10)=""
880 A$(10)=""
890 A$(10)=""
900 A$(10)=""
910 A$(10)=""
920 A$(10)=""
930 A$(10)=""
940 A$(10)=""
950 A$(10)=""
960 A$(10)=""
970 A$(10)=""
980 A$(10)=""
990 A$(10)=""

```

Listing 2

EXAMINING STRINGS • USING ASC, VAL AND CHR\$

We saw the function **VAL** to get the value of numbers in a string. On its own, **VAL** will look at the leading digits only. For example, if you have a string like "3 March 1991", then **PRINT VAL%** will return the number 3. We can also direct it to pick out a number or sequence of numbers within the string; for instance, **PRINT VAL\$(MID\$(123, 2, 2))** will return the value 123.

It is a good idea to check that your string contains numbers before using **VAL**, because you get an error message if the first character is not a number. The function **ASC** is useful here. This gives us the ASCII code of a character in the string so we can check if the code corresponds to a number (i.e. within the 48 - 57 range).

Listing 8 shows how **LEN**, **VAL** and **ASC** are used to check that a date is given in a particular format. **LINE 440** checks that it's the right length (8 characters). **LEN\$(450-460)** makes sure that all the characters are numbers and **LEN\$(25-475)** checks the various day/month combinations. For example, **LINE 45** will not accept 10 Feb or any (DAY, 2-28) and **LEN\$(4-2)** catches for a leap year (a remainder when you divide 1940.01 by 4). If 0 is not acceptable the program is directed to **LINE 480**, where you are asked to try again.

The **CHR\$()** function is the reverse of **ASC** and gives us the string character for an ASCII code. For example, the ASCII code for the letter A is 65, if we say **PRINT CHR\$(65)** we get "A" as the result.

ASC and **CHR\$()** are often used to disguise the characters in a string - you might do this to make DATA in a quiz or adventure game hard to read. A simple way would be to add a fixed number to the ASCII of each character so that it becomes D, 11 becomes L, etc.)

Listing 9 uses **ASC** and **CHR\$()** to make a code program. A refinement is held in **CODE LINE 505**. You are asked to input a message **LINE 110** which is held in **M%**. The ASCII of the first letter of the code is added to the ASCII of the first letter of the message; this is kept within the range of the alphabet (by subtracting 65 if the ASCII code is above 90, the value for Z **LINE 540**) and carried back into a letter using **CHR\$()**. The result is stored in the string **STR%**. The process is repeated until all the letters in the message are gone through; the program goes back to the start of the coded area each time the code letters are used up (**LINE 520**). Only capital letters are valid; everything else - numbers, symbols, spaces, any left alone, **LINE 530**.

The second half of the listing does the decoding. This is just the reverse process in the above, with the decoded string stored in **DR%**. A routine could be put in here (after **LINE 565**) which would only decode once the correct refinement was entered.

IDENTIFYING DIFFERENT PARTS OF A STRING

When you use a long string to store separate items of information, you need to have a way of knowing where each element or sub-string is. The easiest way of doing this is to reserve a fixed amount of space for each component. Such a string is set up by DIM Abbreviation-length where number=the number of separate entries and length=the fixed space being allocated to each one. Another method involves storing the sub-strings "name to last", and using a 2-dimensional numeric array to point to the start and end of each element. Listing 9 shows 3 ways in a string called **PCT18** using the fixed length method; the same information is stored end-to-end in **PCT28**. The 2

```

10 DIM A$(100)
20 DIM B$(100)
30 DIM C$(100)
40 DIM D$(100)
50 DIM E$(100)
60 DIM F$(100)
70 DIM G$(100)
80 DIM H$(100)
90 DIM I$(100)
100 DIM J$(100)
110 DIM K$(100)
120 DIM L$(100)
130 DIM M$(100)
140 DIM N$(100)
150 DIM O$(100)
160 DIM P$(100)
170 DIM Q$(100)
180 DIM R$(100)
190 DIM S$(100)
200 DIM T$(100)
210 DIM U$(100)
220 DIM V$(100)
230 DIM W$(100)
240 DIM X$(100)
250 DIM Y$(100)
260 DIM Z$(100)
270 DIM AA$(100)
280 DIM BB$(100)
290 DIM CC$(100)
300 DIM DD$(100)
310 DIM EE$(100)
320 DIM FF$(100)
330 DIM GG$(100)
340 DIM HH$(100)
350 DIM II$(100)
360 DIM JJ$(100)
370 DIM KK$(100)
380 DIM LL$(100)
390 DIM MM$(100)
400 DIM NN$(100)
410 DIM OO$(100)
420 DIM PP$(100)
430 DIM QQ$(100)
440 DIM RR$(100)
450 DIM SS$(100)
460 DIM TT$(100)
470 DIM UU$(100)
480 DIM VV$(100)
490 DIM WW$(100)
500 DIM XX$(100)
510 DIM YY$(100)
520 DIM ZZ$(100)
530 DIM AAA$(100)
540 DIM BBB$(100)
550 DIM CCC$(100)
560 DIM DDD$(100)
570 DIM EEE$(100)
580 DIM FFF$(100)
590 DIM GGG$(100)
600 DIM HHH$(100)
610 DIM III$(100)
620 DIM JJJ$(100)
630 DIM KKK$(100)
640 DIM LLL$(100)
650 DIM MMM$(100)
660 DIM NNN$(100)
670 DIM OOO$(100)
680 DIM PPP$(100)
690 DIM QQQ$(100)
700 DIM RRR$(100)
710 DIM SSS$(100)
720 DIM TTT$(100)
730 DIM UUU$(100)
740 DIM VVV$(100)
750 DIM WWW$(100)
760 DIM XXX$(100)
770 DIM YYY$(100)
780 DIM ZZZ$(100)
790 DIM AAAA$(100)
800 DIM BBBB$(100)
810 DIM CCCC$(100)
820 DIM DDDD$(100)
830 DIM EEEE$(100)
840 DIM FFFF$(100)
850 DIM GGGG$(100)
860 DIM HHHH$(100)
870 DIM IIII$(100)
880 DIM JJJJ$(100)
890 DIM KKKK$(100)
900 DIM LLLL$(100)
910 DIM MMMM$(100)
920 DIM NNNN$(100)
930 DIM OOOO$(100)
940 DIM PPPP$(100)
950 DIM QQQQ$(100)
960 DIM RRRR$(100)
970 DIM SSSS$(100)
980 DIM TTTT$(100)
990 DIM UUUU$(100)
1000 DIM VVVV$(100)
1010 DIM WWWW$(100)
1020 DIM XXXX$(100)
1030 DIM YYYYY$(100)
1040 DIM ZZZZ$(100)
1050 DIM AAAAA$(100)
1060 DIM BBBBB$(100)
1070 DIM CCCCC$(100)
1080 DIM DDDDD$(100)
1090 DIM EEEEE$(100)
1100 DIM FFFFF$(100)
1110 DIM GGGGG$(100)
1120 DIM HHHHH$(100)
1130 DIM IIIII$(100)
1140 DIM JJJJJ$(100)
1150 DIM KKKKK$(100)
1160 DIM LLLLL$(100)
1170 DIM MMMMM$(100)
1180 DIM NNNNN$(100)
1190 DIM OOOOO$(100)
1200 DIM PPPPP$(100)
1210 DIM QQQQQ$(100)
1220 DIM RRRRR$(100)
1230 DIM SSSSS$(100)
1240 DIM TTTTT$(100)
1250 DIM UUUUU$(100)
1260 DIM VVVVV$(100)
1270 DIM WWWWW$(100)
1280 DIM XXXXX$(100)
1290 DIM YYYYYY$(100)
1300 DIM ZZZZZ$(100)
1310 DIM AAAAAA$(100)
1320 DIM BBBBBB$(100)
1330 DIM CCCCCC$(100)
1340 DIM DDDDDDD$(100)
1350 DIM EEEEEEE$(100)
1360 DIM FFFFFFF$(100)
1370 DIM GGGGGGG$(100)
1380 DIM HHHHHHH$(100)
1390 DIM IIIIIII$(100)
1400 DIM JJJJJJJ$(100)
1410 DIM KKKKKKK$(100)
1420 DIM LLLLLLL$(100)
1430 DIM MMMMMM$(100)
1440 DIM NNNNNNN$(100)
1450 DIM OOOOOOO$(100)
1460 DIM PPPPPPP$(100)
1470 DIM QQQQQQQ$(100)
1480 DIM RRRRRRR$(100)
1490 DIM SSSSSSS$(100)
1500 DIM TTTTTTT$(100)
1510 DIM UUUUUUU$(100)
1520 DIM VVVVVVV$(100)
1530 DIM WWWWWW$(100)
1540 DIM XXXXXX$(100)
1550 DIM YYYYYYY$(100)
1560 DIM ZZZZZZZ$(100)
1570 DIM AAAAAAA$(100)
1580 DIM BBBBBBB$(100)
1590 DIM CCCCCCC$(100)
1600 DIM DDDDDDD$(100)
1610 DIM EEEEEEE$(100)
1620 DIM FFFFFFF$(100)
1630 DIM GGGGGGG$(100)
1640 DIM HHHHHHH$(100)
1650 DIM IIIIIII$(100)
1660 DIM JJJJJJJ$(100)
1670 DIM KKKKKKK$(100)
1680 DIM LLLLLLL$(100)
1690 DIM MMMMMM$(100)
1700 DIM NNNNNNN$(100)
1710 DIM OOOOOOO$(100)
1720 DIM PPPPPPP$(100)
1730 DIM QQQQQQQ$(100)
1740 DIM RRRRRRR$(100)
1750 DIM SSSSSSS$(100)
1760 DIM TTTTTTT$(100)
1770 DIM UUUUUUU$(100)
1780 DIM VVVVVVV$(100)
1790 DIM WWWWWW$(100)
1800 DIM XXXXXX$(100)
1810 DIM YYYYYYY$(100)
1820 DIM ZZZZZZZ$(100)
1830 DIM AAAAAAA$(100)
1840 DIM BBBBBBB$(100)
1850 DIM CCCCCCC$(100)
1860 DIM DDDDDDD$(100)
1870 DIM EEEEEEE$(100)
1880 DIM FFFFFFF$(100)
1890 DIM GGGGGGG$(100)
1900 DIM HHHHHHH$(100)
1910 DIM IIIIIII$(100)
1920 DIM JJJJJJJ$(100)
1930 DIM KKKKKKK$(100)
1940 DIM LLLLLLL$(100)
1950 DIM MMMMMM$(100)
1960 DIM NNNNNNN$(100)
1970 DIM OOOOOOO$(100)
1980 DIM PPPPPPP$(100)
1990 DIM QQQQQQQ$(100)
2000 DIM RRRRRRR$(100)
2010 DIM SSSSSSS$(100)
2020 DIM TTTTTTT$(100)
2030 DIM UUUUUUU$(100)
2040 DIM VVVVVVV$(100)
2050 DIM WWWWWW$(100)
2060 DIM XXXXXX$(100)
2070 DIM YYYYYYY$(100)
2080 DIM ZZZZZZZ$(100)
2090 DIM AAAAAAA$(100)
2100 DIM BBBBBBB$(100)
2110 DIM CCCCCCC$(100)
2120 DIM DDDDDDD$(100)
2130 DIM EEEEEEE$(100)
2140 DIM FFFFFFF$(100)
2150 DIM GGGGGGG$(100)
2160 DIM HHHHHHH$(100)
2170 DIM IIIIIII$(100)
2180 DIM JJJJJJJ$(100)
2190 DIM KKKKKKK$(100)
2200 DIM LLLLLLL$(100)
2210 DIM MMMMMM$(100)
2220 DIM NNNNNNN$(100)
2230 DIM OOOOOOO$(100)
2240 DIM PPPPPPP$(100)
2250 DIM QQQQQQQ$(100)
2260 DIM RRRRRRR$(100)
2270 DIM SSSSSSS$(100)
2280 DIM TTTTTTT$(100)
2290 DIM UUUUUUU$(100)
2300 DIM VVVVVVV$(100)
2310 DIM WWWWWW$(100)
2320 DIM XXXXXX$(100)
2330 DIM YYYYYYY$(100)
2340 DIM ZZZZZZZ$(100)
2350 DIM AAAAAAA$(100)
2360 DIM BBBBBBB$(100)
2370 DIM CCCCCCC$(100)
2380 DIM DDDDDDD$(100)
2390 DIM EEEEEEE$(100)
2400 DIM FFFFFFF$(100)
2410 DIM GGGGGGG$(100)
2420 DIM HHHHHHH$(100)
2430 DIM IIIIIII$(100)
2440 DIM JJJJJJJ$(100)
2450 DIM KKKKKKK$(100)
2460 DIM LLLLLLL$(100)
2470 DIM MMMMMM$(100)
2480 DIM NNNNNNN$(100)
2490 DIM OOOOOOO$(100)
2500 DIM PPPPPPP$(100)
2510 DIM QQQQQQQ$(100)
2520 DIM RRRRRRR$(100)
2530 DIM SSSSSSS$(100)
2540 DIM TTTTTTT$(100)
2550 DIM UUUUUUU$(100)
2560 DIM VVVVVVV$(100)
2570 DIM WWWWWW$(100)
2580 DIM XXXXXX$(100)
2590 DIM YYYYYYY$(100)
2600 DIM ZZZZZZZ$(100)
2610 DIM AAAAAAA$(100)
2620 DIM BBBBBBB$(100)
2630 DIM CCCCCCC$(100)
2640 DIM DDDDDDD$(100)
2650 DIM EEEEEEE$(100)
2660 DIM FFFFFFF$(100)
2670 DIM GGGGGGG$(100)
2680 DIM HHHHHHH$(100)
2690 DIM IIIIIII$(100)
2700 DIM JJJJJJJ$(100)
2710 DIM KKKKKKK$(100)
2720 DIM LLLLLLL$(100)
2730 DIM MMMMMM$(100)
2740 DIM NNNNNNN$(100)
2750 DIM OOOOOOO$(100)
2760 DIM PPPPPPP$(100)
2770 DIM QQQQQQQ$(100)
2780 DIM RRRRRRR$(100)
2790 DIM SSSSSSS$(100)
2800 DIM TTTTTTT$(100)
2810 DIM UUUUUUU$(100)
2820 DIM VVVVVVV$(100)
2830 DIM WWWWWW$(100)
2840 DIM XXXXXX$(100)
2850 DIM YYYYYYY$(100)
2860 DIM ZZZZZZZ$(100)
2870 DIM AAAAAAA$(100)
2880 DIM BBBBBBB$(100)
2890 DIM CCCCCCC$(100)
2900 DIM DDDDDDD$(100)
2910 DIM EEEEEEE$(100)
2920 DIM FFFFFFF$(100)
2930 DIM GGGGGGG$(100)
2940 DIM HHHHHHH$(100)
2950 DIM IIIIIII$(100)
2960 DIM JJJJJJJ$(100)
2970 DIM KKKKKKK$(100)
2980 DIM LLLLLLL$(100)
2990 DIM MMMMMM$(100)
3000 DIM NNNNNNN$(100)
3010 DIM OOOOOOO$(100)
3020 DIM PPPPPPP$(100)
3030 DIM QQQQQQQ$(100)
3040 DIM RRRRRRR$(100)
3050 DIM SSSSSSS$(100)
3060 DIM TTTTTTT$(100)
3070 DIM UUUUUUU$(100)
3080 DIM VVVVVVV$(100)
3090 DIM WWWWWW$(100)
3100 DIM XXXXXX$(100)
3110 DIM YYYYYYY$(100)
3120 DIM ZZZZZZZ$(100)
3130 DIM AAAAAAA$(100)
3140 DIM BBBBBBB$(100)
3150 DIM CCCCCCC$(100)
3160 DIM DDDDDDD$(100)
3170 DIM EEEEEEE$(100)
3180 DIM FFFFFFF$(100)
3190 DIM GGGGGGG$(100)
3200 DIM HHHHHHH$(100)
3210 DIM IIIIIII$(100)
3220 DIM JJJJJJJ$(100)
3230 DIM KKKKKKK$(100)
3240 DIM LLLLLLL$(100)
3250 DIM MMMMMM$(100)
3260 DIM NNNNNNN$(100)
3270 DIM OOOOOOO$(100)
3280 DIM PPPPPPP$(100)
3290 DIM QQQQQQQ$(100)
3300 DIM RRRRRRR$(100)
3310 DIM SSSSSSS$(100)
3320 DIM TTTTTTT$(100)
3330 DIM UUUUUUU$(100)
3340 DIM VVVVVVV$(100)
3350 DIM WWWWWW$(100)
3360 DIM XXXXXX$(100)
3370 DIM YYYYYYY$(100)
3380 DIM ZZZZZZZ$(100)
3390 DIM AAAAAAA$(100)
3400 DIM BBBBBBB$(100)
3410 DIM CCCCCCC$(100)
3420 DIM DDDDDDD$(100)
3430 DIM EEEEEEE$(100)
3440 DIM FFFFFFF$(100)
3450 DIM GGGGGGG$(100)
3460 DIM HHHHHHH$(100)
3470 DIM IIIIIII$(100)
3480 DIM JJJJJJJ$(100)
3490 DIM KKKKKKK$(100)
3500 DIM LLLLLLL$(100)
3510 DIM MMMMMM$(100)
3520 DIM NNNNNNN$(100)
3530 DIM OOOOOOO$(100)
3540 DIM PPPPPPP$(100)
3550 DIM QQQQQQQ$(100)
3560 DIM RRRRRRR$(100)
3570 DIM SSSSSSS$(100)
3580 DIM TTTTTTT$(100)
3590 DIM UUUUUUU$(100)
3600 DIM VVVVVVV$(100)
3610 DIM WWWWWW$(100)
3620 DIM XXXXXX$(100)
3630 DIM YYYYYYY$(100)
3640 DIM ZZZZZZZ$(100)
3650 DIM AAAAAAA$(100)
3660 DIM BBBBBBB$(100)
3670 DIM CCCCCCC$(100)
3680 DIM DDDDDDD$(100)
3690 DIM EEEEEEE$(100)
3700 DIM FFFFFFF$(100)
3710 DIM GGGGGGG$(100)
3720 DIM HHHHHHH$(100)
3730 DIM IIIIIII$(100)
3740 DIM JJJJJJJ$(100)
3750 DIM KKKKKKK$(100)
3760 DIM LLLLLLL$(100)
3770 DIM MMMMMM$(100)
3780 DIM NNNNNNN$(100)
3790 DIM OOOOOOO$(100)
3800 DIM PPPPPPP$(100)
3810 DIM QQQQQQQ$(100)
3820 DIM RRRRRRR$(100)
3830 DIM SSSSSSS$(100)
3840 DIM TTTTTTT$(100)
3850 DIM UUUUUUU$(100)
3860 DIM VVVVVVV$(100)
3870 DIM WWWWWW$(100)
3880 DIM XXXXXX$(100)
3890 DIM YYYYYYY$(100)
3900 DIM ZZZZZZZ$(100)
3910 DIM AAAAAAA$(100)
3920 DIM BBBBBBB$(100)
3930 DIM CCCCCCC$(100)
3940 DIM DDDDDDD$(100)
3950 DIM EEEEEEE$(100)
3960 DIM FFFFFFF$(100)
3970 DIM GGGGGGG$(100)
3980 DIM HHHHHHH$(100)
3990 DIM IIIIIII$(100)
4000 DIM JJJJJJJ$(100)
4010 DIM KKKKKKK$(100)
4020 DIM LLLLLLL$(100)
4030 DIM MMMMMM$(100)
4040 DIM NNNNNNN$(100)
4050 DIM OOOOOOO$(100)
4060 DIM PPPPPPP$(100)
4070 DIM QQQQQQQ$(100)
4080 DIM RRRRRRR$(100)
4090 DIM SSSSSSS$(100)
4100 DIM TTTTTTT$(100)
4110 DIM UUUUUUU$(100)
4120 DIM VVVVVVV$(100)
4130 DIM WWWWWW$(100)
4140 DIM XXXXXX$(100)
4150 DIM YYYYYYY$(100)
4160 DIM ZZZZZZZ$(100)
4170 DIM AAAAAAA$(100)
4180 DIM BBBBBBB$(100)
4190 DIM CCCCCCC$(100)
4200 DIM DDDDDDD$(100)
4210 DIM EEEEEEE$(100)
4220 DIM FFFFFFF$(100)
4230 DIM GGGGGGG$(100)
4240 DIM HHHHHHH$(100)
4250 DIM IIIIIII$(100)
4260 DIM JJJJJJJ$(100)
4270 DIM KKKKKKK$(100)
4280 DIM LLLLLLL$(100)
4290 DIM MMMMMM$(100)
4300 DIM NNNNNNN$(100)
4310 DIM OOOOOOO$(100)
4320 DIM PPPPPPP$(100)
4330 DIM QQQQQQQ$(100)
4340 DIM RRRRRRR$(100)
4350 DIM SSSSSSS$(100)
4360 DIM TTTTTTT$(100)
4370 DIM UUUUUUU$(100)
4380 DIM VVVVVVV$(100)
4390 DIM WWWWWW$(100)
4400 DIM XXXXXX$(100)
4410 DIM YYYYYYY$(100)
4420 DIM ZZZZZZZ$(100)
4430 DIM AAAAAAA$(100)
4440 DIM BBBBBBB$(100)
4450 DIM CCCCCCC$(100)
4460 DIM DDDDDDD$(100)
4470 DIM EEEEEEE$(100)
4480 DIM FFFFFFF$(100)
4490 DIM GGGGGGG$(100)
4500 DIM HHHHHHH$(100)
4510 DIM IIIIIII$(100)
4520 DIM JJJJJJJ$(100)
4530 DIM KKKKKKK$(100)
4540 DIM LLLLLLL$(100)
4550 DIM MMMMMM$(100)
4560 DIM NNNNNNN$(100)
4570 DIM OOOOOOO$(100)
4580 DIM PPPPPPP$(100)
4590 DIM QQQQQQQ$(100)
4600 DIM RRRRRRR$(100)
4610 DIM SSSSSSS$(100)
4620 DIM TTTTTTT$(100)
4630 DIM UUUUUUU$(100)
4640 DIM VVVVVVV$(100)
4650 DIM WWWWWW$(100)
4660 DIM XXXXXX$(100)
4670 DIM YYYYYYY$(100)
4680 DIM ZZZZZZZ$(100)
4690 DIM AAAAAAA$(100)
4700 DIM BBBBBBB$(100)
4710 DIM CCCCCCC$(100)
4720 DIM DDDDDDD$(100)
4730 DIM EEEEEEE$(100)
4740 DIM FFFFFFF$(100)
4750 DIM GGGGGGG$(100)
4760 DIM HHHHHHH$(100)
4770 DIM IIIIIII$(100)
4780 DIM JJJJJJJ$(100)
4790 DIM KKKKKKK$(100)
4800 DIM LLLLLLL$(100)
4810 DIM MMMMMM$(100)
4820 DIM NNNNNNN$(100)
4830 DIM OOOOOOO$(100)
4840 DIM PPPPPPP$(100)
4850 DIM QQQQQQQ$(100)
4860 DIM RRRRRRR$(100)
4870 DIM SSSSSSS$(100)
4880 DIM TTTTTTT$(100)
4890 DIM UUUUUUU$(100)
4900 DIM VVVVVVV$(100)
4910 DIM WWWWWW$(100)
4920 DIM XXXXXX$(100)
4930 DIM YYYYYYY$(100)
4940 DIM ZZZZZZZ$(100)
4950 DIM AAAAAAA$(100)
4960 DIM BBBBBBB$(100)
4970 DIM CCCCCCC$(100)
4980 DIM DDDDDDD$(100)
4990 DIM EEEEEEE$(100)
5000 DIM FFFFFFF$(100)

```

Listing 8

```

10 DIM A$(100)
20 DIM B$(100)
30 DIM C$(100)
40 DIM D$(100)
50 DIM E$(100)
60 DIM F$(100)
70 DIM G$(100)
80 DIM H$(100)
90 DIM I$(100)
100 DIM J$(100)
110 DIM K$(100)
120 DIM L$(100)
130 DIM M$(100)
140 DIM N$(100)
150 DIM O$(100)
160 DIM P$(100)
170 DIM Q$(100)
180 DIM R$(100)
190 DIM S$(100)
200 DIM T$(100)
210 DIM U$(100)
220 DIM V$(100)
230 DIM W$(100)
240 DIM X$(100)
250 DIM Y$(100)
260 DIM Z$(100)
270 DIM AA$(100)
280 DIM BB$(100)
290 DIM CC$(100)
300 DIM DD$(100)
310 DIM EE$(100)
320 DIM FF$(100)
330 DIM GG$(100)
340 DIM HH$(100)
350 DIM II$(100)
360 DIM JJ$(100)
370 DIM KK$(100)
380 DIM LL$(100)
390 DIM MM$(100)
400 DIM NN$(100)
410 DIM OO$(100)
420 DIM PP$(100)
430 DIM QQ$(100)
440 DIM RR$(100)
450 DIM SS$(100)
460 DIM TT$(100)
470 DIM UU$(100)
480 DIM VV$(100)
490 DIM WW$(100)
500 DIM XX$(100)
510 DIM YY$(100)
520 DIM ZZ$(100)
530 DIM AAA$(100)
540 DIM BBB$(100)
550 DIM CCC$(100)
560 DIM DDD$(100)
570 DIM EEE$(100)
580 DIM FFF$(100)
590 DIM GGG$(100)
600 DIM HHH$(100)
610 DIM III$(100)
620 DIM JJJ$(100)
630 DIM KKK$(100)
640 DIM LLL$(100)
650 DIM MMM$(100)
660 DIM NNN$(100)
670 DIM OOO$(100)
680 DIM PPP$(100)
690 DIM QQQ$(100)
700 DIM RRR$(100)
710 DIM SSS$(100)
720 DIM TTT$(100)
730 DIM UUU$(100)
740 DIM VVV$(100)
750 DIM WWW$(100)
760 DIM XXX$(100)
770 DIM YYY$(100)
780 DIM ZZZ$(100)
790 DIM AAAA$(100)
800 DIM BBBB$(100)
810 DIM CCCC$(100)
820 DIM DDDD$(100)
830 DIM EEEE$(100)
840 DIM FFFF$(100)
850 DIM GGGG$(100)
860 DIM HHHH$(100)
870 DIM IIII$(100)
880 DIM JJJJ$(100)
890 DIM KKKK$(100)
900 DIM LLLL$(100)
910 DIM MMMM$(100)
920 DIM NNNN$(100)
930 DIM OOOO$(100)
940 DIM PPPP$(100)
950 DIM QQQQ$(100)
960 DIM RRRR$(100)
970 DIM SSSS$(100)
980 DIM TTTT$(100)
990 DIM UUUU$(100)
1000 DIM VVVV$(100)
1010 DIM WWWW$(100)
1020 DIM XXXX$(100)
1030 DIM YYYYY$(100)
1040 DIM ZZZZ$(100)
1050 DIM AAAAA$(100)
1060 DIM BBBBB$(100)
1070 DIM CCCCC$(100)
1080 DIM DDDDD$(100)
1090 DIM EEEEE$(100)
1100 DIM FFFFF$(100)
1110 DIM GGGGG$(100)
1120 DIM HHHHH$(100)
1130 DIM IIIII$(100)
1140 DIM JJJJJ$(100)
1150 DIM KKKKK$(100)
1160 DIM LLLLL$(100)
1170 DIM MMMMM$(100)
1180 DIM NNNNN$(100)
1190 DIM OOOOO$(100)
1200 DIM PPPPP$(100)
1210 DIM QQQQQ$(100)
1220 DIM RRRRR$(100)
1230 DIM SSSSS$(100)
1240 DIM TTTTT$(100)
1250 DIM UUUUU$(100)
1260 DIM VVVVV$(100)
1270 DIM WWWWW$(100)
1280 DIM XXXXX$(100)
1290 DIM YYYYYY$(100)
1300 DIM ZZZZZ$(100)
1310 DIM AAAAAA$(100)
1320 DIM BBBBBB$(100)
1330 DIM CCCCCC$(100)
1340 DIM DDDDDDD$(100)
1350 DIM EEEEEEE$(100)
1360 DIM FFFFFFF$(100)
1370 DIM GGGGGGG$(100)
1380 DIM HHHHHHH$(100)
1390 DIM IIIIIII$(100)
1400 DIM JJJJJJJ$(100)
1410 DIM KKKKKKK$(100)
1420 DIM LLLLLLL$(100)
1430 DIM MMMMMM$(100)
1440 DIM NNNNNNN$(100)
1450 DIM OOOOOOO$(100)
1460 DIM PPPPPPP$(100)
1470 DIM QQQQQQQ$(100)
1480 DIM RRRRRRR$(100)
1490 DIM SSSSSSS$(100)
1500 DIM TTTTTTT$(100)
1510 DIM UUUUUUU$(100)
1520 DIM VVVVVVV$(100)
1530 DIM WWWWWW$(100)
1540 DIM XXXXXX$(100)
1550 DIM YYYYYYY$(100)
1560 DIM ZZZZZZZ$(100)
1570 DIM AAAAAAA$(100)
1580 DIM BBBBBBB$(100)
1590 DIM CCCCCCC$(100)
1600 DIM DDDDDDD$(100)
1610 DIM EEEEEEE$(100)
1620 DIM FFFFFFF$(100)
1630 DIM GGGGGGG$(100)
1640 DIM HHHHHHH$(100)
1650 DIM IIIIIII$(100)
1660 DIM JJJJJJJ$(100)
1670 DIM KKKKKKK$(100)
1680 DIM LLLLLLL$(100)
1690 DIM MMMMMM$(100)
1700 DIM NNNNNNN$(100)
1710 DIM OOOOOOO$(100)
1720 DIM PPPPPPP$(100)
1730 DIM QQQQQQQ$(100)
1740 DIM RRRRRRR$(100)
1750 DIM SSSSSSS$(100)
1760 DIM TTTTTTT$(100)
1770 DIM UUUUUUU$(100)
1780 DIM VVVVVVV$(100)
1790 DIM WWWWWW$(100)
1800 DIM XXXXXX$(100)
1810 DIM YYYYYYY$(100)
1820 DIM ZZZZZZZ$(100)
1830 DIM AAAAAAA$(100)
1840 DIM BBBBBBB$(100)
1850 DIM CCCCCCC$(100)
1860 DIM DDDDDDD$(100)
1870 DIM EEEEEEE$(100)
1880 DIM FFFFFFF$(100)
1890 DIM GGGGGGG$(100)
1900 DIM HHHHHHH$(100)
1910 DIM IIIIIII$(100)
1920 DIM JJJJJJJ$(100)
1930 DIM KKKKKKK$(100)
1940 DIM LLLLLLL$(100)
1950 DIM MMMMMM$(100)
1960 DIM NNNNNNN$(100)
1970 DIM OOOOOOO$(100)
1980 DIM PPPPPPP$(100)
1990 DIM QQQQQQQ$(100)
2000 DIM RRRRRRR$(100)
2010 DIM SSSSSSS$(100)
2020 DIM TTTTTTT$(100)
2030 DIM UUUUUUU$(100)
2040 DIM VVVVVVV$(100)
2050 DIM WWWWWW$(100)
2060 DIM XXXXXX$(100)
2070 DIM YYYYYYY$(100)
2080 DIM ZZZZZZZ$(100)
2090 DIM AAAAAAA$(100)
2100 DIM BBBBBBB$(100)
2110 DIM CCCCCCC$(100)
2120 DIM DDDDDDD$(100)
2130 DIM EEEEEEE$(100)
2140 DIM FFFFFFF$(100)
2150 DIM GGGGGGG$(100)
2160 DIM HHHHHHH$(100)
2170 DIM IIIIIII$(100)
2180 DIM JJJJJJJ$(100)
2190 DIM KKKKKKK$(100)
2200 DIM LLLLLLL$(100)
2210 DIM MMMMMM$(100)
2220 DIM NNNNNNN$(100)
2230 DIM OOOOOOO$(100)
2240 DIM PPPPPPP$(100)
2250 DIM QQQQQQQ$(100)
2260 DIM RRRRRRR$(100)
2270 DIM SSSSSSS$(100)
2280 DIM TTTTTTT$(100)
2290 DIM UUUUUUU$(100)
2300 DIM VVVVVVV$(100)
2310 DIM WWWWWW$(100)
2320 DIM XXXXXX$(100)
2330 DIM YYYYYYY$(100)
2340 DIM ZZZZZZZ$(100)
2350 DIM AAAAAAA$(100)
2360 DIM BBBBBBB$(100)
2370 DIM CCCCCCC$(100)
2380 DIM DDDDDDD$(100)
2390 DIM EEEEEEE$(100)
2400 DIM FFFFFFF$(100)
2410 DIM GGGGGGG$(100)
2420 DIM HHHHHHH$(100)
2430 DIM IIIIIII$(100)
2440 DIM JJJJJJJ$(100)
2450 DIM KKKKKKK$(100)
2460 DIM LLLLLLL$(100)
2470 DIM MMMMMM$(100)
2480 DIM NNNNNNN$(100)
2490 DIM OOOOOOO$(100)
2500 DIM PPPPPPP$(100)
2510 DIM QQQQQQQ$(100)
2520 DIM RRRRRRR$(100)
2530 DIM SSSSSSS$(100)
2540 DIM TTTTTTT$(100)
2550 DIM UUUUUUU$(100)
2560 DIM VVVVVVV$(100)
2570 DIM WWWWWW$(100)
2580 DIM XXXXXX$(100)
2590 DIM YYYYYYY$(100)
2600 DIM ZZZZZZZ$(100)
2610 DIM AAAAAAA$(100)
2620 DIM BBBBBBB$(100)
2630 DIM CCCCCCC$(100)
2640 DIM DDDDDDD$(100)
2650 DIM EEEEEEE$(100)
2660 DIM FFFFFFF$(100)
2670 DIM GGGGGGG$(100)
2680 DIM HHHHHHH$(100)
2690 DIM IIIIIII$(100)
2700 DIM JJJJJJJ$(100)
2710 DIM KKKKKKK$(100)
2720 DIM LLLLLLL$(100)
2730 DIM MMMMMM$(100)
2740 DIM NNNNNNN$(100)
2750 DIM OOOOOOO$(100)
2760 DIM PPPPPPP$(100)
2770 DIM QQQQQQQ$(100)
2780 DIM RRRRRRR$(100)
2790 DIM SSSSSSS$(100)
2800 DIM TTTTTTT$(100)
2810 DIM UUUUUUU$(100)
2820 DIM VVVVVVV$(100)
2830 DIM WWWWWW$(100)
2840 DIM XXXXXX$(100)
2850 DIM YYYYYYY$(100)
2860 DIM ZZZZZZZ$(100)
2870 DIM AAAAAAA$(100)
2880 DIM BBBBBBB$(100)
2890 DIM CCCCCCC$(100)
2900 DIM DDDDDDD$(100)
2910 DIM EEEEEEE$(100)
2920 DIM FFFFFFF$(100)
2930 DIM GGGGGGG$(100)
2940 DIM HHHHHHH$(100)
2950 DIM IIIIIII$(100)
2960 DIM JJJJJJJ$(100)
2970 DIM KKKKKKK$(100)
2980 DIM LLLLLLL$(100)
2990 DIM MMMMMM$(100
```

A LITTLE TITLE DEMO

Here is another nice little demo screen that you might like to add to the beginning of your programs to brighten them, up and start things off in style.

It's easy to use, just type in the program as it is listed and run it. If you wish to have a Binary Load version of this file then do the following:

1. Load and Run the program
2. Press **REBOOT** to get back to BASIC
3. Load **DEMO**
4. Define L - Binary Name
5. Type in **MD-LINE:00001007:0000**
6. The file will then be saved on the disk as **MD-EXE** and can now be run with the **EXE** option L.

You could probably change this into an **AUTOLOAD.PRG** file so that your favourite disks can boot up with a bit more panache!

```

00 1 000 *****
01 2 000 *          *
02 3 000 *          *
03 4 000 *          *
04 5 000 *          *
05 6 000 *          *
06 7 000 *****
07 8 000
08 9 000
09 10 FOR I=100 TO 100:READ A:PRINT I,A:
    NEXT I:GOTO 100
10 11 DATA 100,0,101,0,1,102,0,0,103,0
    104,0,105,0,106,0,107,0,108,0,109,0,
    110,0,111,0,112,0,113,0,114,0,115,0,
    116,0,117,0,118,0,119,0,120,0,121,0,
    122,0,123,0,124,0,125,0,126,0,127,0,
    128,0,129,0,130,0,131,0,132,0,133,0,
    134,0,135,0,136,0,137,0,138,0,139,0,
    140,0,141,0,142,0,143,0,144,0,145,0,
    146,0,147,0,148,0,149,0,150,0,151,0,
    152,0,153,0,154,0,155,0,156,0,157,0,
    158,0,159,0,160,0,161,0,162,0,163,0,
    164,0,165,0,166,0,167,0,168,0,169,0,
    170,0,171,0,172,0,173,0,174,0,175,0,
    176,0,177,0,178,0,179,0,180,0,181,0,
    182,0,183,0,184,0,185,0,186,0,187,0,
    188,0,189,0,190,0,191,0,192,0,193,0,
    194,0,195,0,196,0,197,0,198,0,199,0,
    200,0,201,0,202,0,203,0
    
```

by Sue Donym

ADAPTING THE LISTINGS

A few suggestions have already been given of how some of the listings shown here could be developed. The last program, Listing 7, which shows how you can use the command GET to input things without them showing up on the screen, might be useful here. A password is held in the string **PASSWD LINE:700**. Each letter you input is added to the string **TEXT LINE:740**. The two strings are compared when you hit **RETURN** (**GET+150**) or when **TEXT** is full (**LINE:700**). If you are wrong **TEXT** is emptied (**TEXT=""** in **LINE:700**) and you get a second chance.

I hope that this article has guided you along the way to creating your own programs using strings and has shed light on some areas that you may not have understood. So, give it a try. Maybe you could incorporate the spy again and secret input routines in an program or code program using the listings here as a starting point?

```

00 100 000 *****
01 101 000
02 102 000 *****
03 103 000 *****
04 104 000 *****
05 105 000 *****
06 106 000 *****
07 107 000 *****
08 108 000 *****
09 109 000 *****
10 110 000 *****
11 111 000 *****
12 112 000 *****
13 113 000 *****
14 114 000 *****
15 115 000 *****
16 116 000 *****
17 117 000 *****
18 118 000 *****
19 119 000 *****
20 120 000 *****
21 121 000 *****
22 122 000 *****
23 123 000 *****
24 124 000 *****
25 125 000 *****
26 126 000 *****
27 127 000 *****
28 128 000 *****
29 129 000 *****
30 130 000 *****
31 131 000 *****
32 132 000 *****
33 133 000 *****
34 134 000 *****
35 135 000 *****
36 136 000 *****
37 137 000 *****
38 138 000 *****
39 139 000 *****
40 140 000 *****
41 141 000 *****
42 142 000 *****
43 143 000 *****
44 144 000 *****
45 145 000 *****
46 146 000 *****
47 147 000 *****
48 148 000 *****
49 149 000 *****
50 150 000 *****
51 151 000 *****
52 152 000 *****
53 153 000 *****
54 154 000 *****
55 155 000 *****
56 156 000 *****
57 157 000 *****
58 158 000 *****
59 159 000 *****
60 160 000 *****
61 161 000 *****
62 162 000 *****
63 163 000 *****
64 164 000 *****
65 165 000 *****
66 166 000 *****
67 167 000 *****
68 168 000 *****
69 169 000 *****
70 170 000 *****
71 171 000 *****
72 172 000 *****
73 173 000 *****
74 174 000 *****
75 175 000 *****
76 176 000 *****
77 177 000 *****
78 178 000 *****
79 179 000 *****
80 180 000 *****
81 181 000 *****
82 182 000 *****
83 183 000 *****
84 184 000 *****
85 185 000 *****
86 186 000 *****
87 187 000 *****
88 188 000 *****
89 189 000 *****
90 190 000 *****
91 191 000 *****
92 192 000 *****
93 193 000 *****
94 194 000 *****
95 195 000 *****
96 196 000 *****
97 197 000 *****
98 198 000 *****
99 199 000 *****
100 200 000 *****

```

Listing 7

Tutorial Time

continued

other, but it will not run as a continuous loop because there is no way to get back to the beginning of the tape automatically - you have to select several manually and then run again.

DATA COMPRESSION

Of course one way of improving the speed of data load and save is to reduce the amount of data that has to be transferred. This could be done using a data compression subroutine. I have not yet explored the mysteries of data compression algorithms though I have used them on a PC. I guess that the problem is that the data compression process must be very fast or it will use up just as much time as the data transfer, and that probably means that it will have to be written in machine code. I must look into it - can any of you give me some advice on this subject?

I will finish off with my regular offer of assistance on Basic programming matters please send a stamp for a reply, and be patient - I cannot always reply quickly, in fact it sometimes takes several weeks depending on the backlog and the time I can spare. If you want to send a chat I will send it back with a copy of the *Advanced* program and a set of sample graphics using my tapes for this as it would take too long to copy a number of graphics onto tape. My address is:

Ian Playden, 60 Boardstone Crescent,
East Preston, West Sussex, BN16 1DG

BULK DISK FORMATTER

Bulk Disk Formatter was created so that you can format as many, or as few, disks as you require quickly and easily. Usually you have to use DOS to format your disks, which can take forever with its multiple operations. With BDF all you have to do is answer one simple set of prompts at the very start of the program and then just follow the on-screen instructions.

PUTTING IT TO USE

Type in BDF using TYPE 3, and then save a copy to an already formatted DOS disk. I recommend using DOS 2.0, and write protect it. This is now your Master Copy and you should keep it in a safe place.

The program itself is self-explanatory and with its on-screen prompts you should have no problems getting to grips with it. However you may like to know it supports drives 1 through 4, just like DOS 2.0 and will format automatically to Enhanced Density on a HDD drive and Single Density on an HD. I must point out that BDF will not write DOS-2.0 or ODF-2.0 files to the disk after formatting it, you will still have to use DOS option H to do this!

SAVING A LOT OF TIME

The reason I wrote BDF is because DOS always used to take me so long when formatting disks. I usually buy disks in quantity and therefore to cut the time needed to format them all, I need something that is fast and efficient, and up to now BDF has been just fine.

As the program stands it does leave room for improvement. I have left it like this deliberately so that you can modify the program to suit your own requirements, however you may like to recompile the program. Incidentally this program is Turbo Basic compatible, although you will not notice an increase in its speed.

IMPROVEMENTS

Here are a couple ideas for improving the main program. Write a routine to let you toggle between single and enhanced density, or even upgrade the program so that it recognizes double density.

Make BDF write DOS-2.0 and maybe even ODF-2.0 to your disks after formatting them.

Both of the above are relatively simple, but I'm sure you can think of loads more to play around with if you do make any improvements I would love to see them.

by Paul Hollins

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SOGON

I can hardly believe it - this month's three issues to be nothing but good news for Atari owners! Not only are we treated to a great new range of budget tapes from Zapfco, the publishers of the Excel disk mag, here a whole host of computers for floppy drive owners too.

SOGON is one of a new series of imported Ki-Shell games distributed by Excel. In case you're wondering if this means you'll need a language conversion dictionary to understand what's going on, I'm pleased to report that everything is writ-

ten in English! Unfortunately the review copy of **Sogon** was supplied minus instructions, but presumably this will be sorted out with the 'official' release. The game kicks off on a promising note with its novel but fast-tapping jungle - it's a pity it doesn't last a bit longer! Pressing the **Start** button prompts the first screen to load and show, rather stately, from disk.

Initially, it all seems a bit strange. The screen depicts a sort of brick enclosure viewed from above, with a number of grey 'blocks' scattered around, some red and others black at one end and a yellow ... well, a yellow smart-bug. Experimentation reveals that the grey blocks are crates, the red and black are where the crates need to be deposited and the yellow object is a link lift truck, which is controlled with

the joystick. The task ahead is necessarily simple - all you have to do is push the crates into the designated area. The catch is that you can only push one crate at a time and only from behind, in a straight line. If you're unlucky enough to manoeuvre the crate into a 'no-win' situation you'll be allowed to back-up one move by hitting the **Help** key. Failing this, you have no choice but to forfeit a life. The potential score for completing a level gradually diminishes as time passes, so there's a real time-

time to get a score of **Sogon** may not sound like a riveting challenge but it really is addictive! The game shares certain characteristics with **Little Bomber** in that it's important to adopt a thoughtful approach to every level. Tallying up levels there are no less than fifty, but if you tire of these suggested you can boot the second edition on the flip side of the disk, and design a whole load more. A perfect justification package for disk owners!

Title: SOGON
Publisher: Ki-Shell/Excel
Price: £7.99 disk
Players: 1
System: MSX 8088
Reviewed by: Paul Moon



A fine musical composition kicks off this multi-screen arcade adventure - another Ki-Shell game brought to your Atari by Excel from other systems this month. After some loading from disk, the music then switches to a tune from John McVie's *Jerry*. Enter the Techno Ninja.

You may not be aware of this, but Techno Ninja lies on the planet of Trinoson. Being an extremely active bunch, they need a considerable amount of energy and they obtain this requirement by utilizing the

single store of Samadras. At least, they did until it was stolen. The only hope of survival now rests with the brave Warrior Georges (also, guess what, who has been torn in the latest world of Samadras in order to locate his eye-shaped object which will hopefully form a new store of Samadras. Yes, someone has been doing overtime in the silly nation department!

Having landed at the long lost capital of Samadras, Georges's quest ranges over the many locations of the planet. The entrance to an old

TECHNO NINJA

temple leads to a cavern and the pathway to a lost city. Past the city there's a secret underground lake and a storage area for the alien spaceship. Beyond this, we're told, is the great crystal cave. On each level your job is to guide Georges in his mission to find the missing store, and collect other useful items - values increase your score, keys open locked doors (strange enough), bombs replenish energy units and a shield temporarily protects Georges from the many dangers. By obtaining diamonds you can gradually upgrade your weapons which are needed to combat over fifty varieties of enemies. The weapons on offer include a sword, the 'Nuclear', an 'Electric-shock' and the 'Great Kawaii Gun'.

There are ten hand-drawn set over a total of a hundred screens. The graphics are nicely animated and although

the Techno Ninja is tiny in stature, he zips around the levels in a pleasantly controllable manner. The screens flip a little slowly as Georges moves from one location to the next. Unfortunately, the FMJ music soon becomes rather annoying - it's a pity there's no option to have just sound effects instead.

Techno Ninja is a game packed with fast action, challenging screens, rewarding successes, dangers as weapons and lots of objects, not to mention respectable graphics and some well-composed music - what more could an arcade adventure wish for?

Title: TECHNO NINJA
Publisher: Ki-Shell/Excel
Price: £7.99 disk
Players: 1
System: MSX 8088
Reviewed by: Paul Moon

MISSION SHARK

Just as everyone thought that Zappella had abandoned their 8-bit Atari support, they're returned with a great new range of budget releases. MISSION SHARK is a typical Zappella production - a huge multi-level warring, jumping and shooting arcade adventure.

Usually there's no in-game plot - we simply informed that the mission, nicknamed "Shark", is to penetrate into-occupied territory, gain access to the enemy's headquarters and locate a secret batch of advanced documentation. Your agent must fearfully confront the aggressive

forces, eliminate any potential opposition, destroy the main holding areas and then return to safety. Intelligence reports suggest that enemy units are well prepared for invasion situations ...

Somewhere inside the huge complex there are four computers containing the information requested by your Commanders. Once these have been found, you can make your way to the east and escape via an existing shipper. Invariably in light of the complex and electric field game, many are de-activated using coded VDU screens. There are also laser beams, real mounted gun turrets and hundreds of enemy personnel to deal with. To eliminate the latter you are armed with a light-weight machine gun, and for dealing with mines you have a limited number of grenades - but ammunition is in short supply so you can't



afford to be too trigger happy. Your strength is shown by a bar in the status area. Collecting heart symbols helps to replenish the losses incurred by contact with the adversary, and extra ammo can be similarly obtained.

The graphics are, quite simply, superb. Your agent and the enemy soldiers are nicely drawn and animated. The actions have borrowed a trick or two from Breakthru here, as if you leave the joystick alone for a while the agent starts impatiently tapping his foot. The numerous locations are

also well designed. A coloured space graphics display shows your progress through the enemy HQ - there does appear to be a LOT of screens! The atmosphere really deserves a mention as it's probably the best I've heard in a Zappella Game - brilliant! If you get tired of the music you can switch over to sound effects.

If you were looking forward to Zappella's Glass Heat and you're then disappointed with its mediocre quality, you will be impressed with Mission Shark. It's everything that Glass Heat should have been.

Title: MISSION SHARK
Publisher: Zappella Games
Price: £2.99
Players: 1
Coding: MSMT
Reviewed by Paul Dixon



If you're one who enjoys a brain-teasing puzzle, you'd be wise to investigate ZADOR. It's a challenging game based on the Chinese Mahjong board which should be well known to anyone whose experienced architect's Shanghai has MAJ 423. The Mahjong board is covered in symbols like bearing signs, dragons, swans, flowers, bamboo, dots and crabs - after an excellent manual intro, the game begins. The player is presented with a board of 144 tiles and the ob-

jective is simply to turn them all face down. The perimeter of the board has actually been completed in this way. The customary rule is that the tiles can only be flipped in matching pairs, and they must either be adjacent or capable of being connected by an imaginary line which mustn't have more than two angles and mustn't cross any line-up that it then reveals a bit complicated, there's no need to worry as the instructions clearly explain the rules. The computer will help on the

ZADOR

odd occasions if you can't find a suitable move and it will also inform you of a 'blockade' situation if there are no legal possibilities.

To make the task a little more demanding a secret time limit is enforced, so you have got to think fast and move fast! When you receive a tile depicting a flower or a swan, this limit is slightly increased. The lower and swan tiles are special in that they'll match with any other tile within their respective groups. There are twenty stages in all, though from any experience you should be prepared for plenty of practice before hoping to glimpse the higher levels. Although the game appears to be quite straightforward, it pays to devise a strategy - otherwise you will almost certainly be caught by the time! The difficulty level seems just about right, and

this makes Zador considerably more addictive than you'd care to admit!

The graphics aren't quite as impressive as those of Shanghai, but this says more about the brilliance of the latter than any deficiency of Zador. Like all of the 8-bit games returned in this issue, Zador has been reconstructed in a professional way and in terms of playability alone could be highly recommended. It begs to request an even more new release from Exel in fact becoming issues of S&L - in the meantime, you should be in no doubt these games are remarkably good!

Title: ZADOR
Publisher: The Soft Disc
Price: £7.99
Players: 1
System: 845 min
Reviewed by Paul Dixon

FRED

Introducing Fred, the Scandinavian man. Fred is not your average Casanova - normally, he's developed powers of intelligence and creativity far beyond those of his competitors. Of a somewhat limited imagination, Fred has often pondered over the mysteries of life, the Universe and, indeed, why Atari Corporation never reply to anyone's letters, even when those people are responding to requests clipped from ads placed by Atari themselves - every letter, from requesting to get that one in for agents, Anyway, Fred has designed a number of spe-

cial tools to help him navigate the unexplored regions of the planet, and you have the privilege of guiding him on the expedition. Now must help Fred negotiate the many locations and search for new tools which, by a strange fluke of nature, have been deposited in handy mass stores throughout the landscape.

Fred is forced to contend with a variety of enemies on his travels - Frogs, Crabs, Snakes and Viper Spiders to name a few - but there is an equally large quota of objects that can be used to his advantage. Hooks are handy for repelling adversaries and a CPU-free screen map is almost equally effective. Shields, extra lives and other bonus articles are obviously worth collecting. On the graphics front Zeppelin has provided one of their characteristically excellent scrolling scenarios. The lower portion of the screen is taken



up with several status indicators that keep you up-to-date with your score and the quantity of special powers available. The upper part scrolls smoothly as Fred traverses the artistically shaded scenes. These feature lakes, rivers, platforms, ledges and lots of other problems. A line bar just below the status window illustrates your progress through the "world" as a whole. I must mention the music score the authors have created a brilliant but clogging score which, if you prefer, can be silenced in favor of suitable

effects.

Fred may not be a very original idea, but Zeppelin have delivered the goods that everyone likes to see. Fred is an additive game and the graphics and sounds are well up to the exceptional standard that everyone expects from Zeppelin.

Finally, just to clear up any confusion: I should mention that all of Zeppelin's budget games carry a recommended price tag of \$2.99, you watch out that your retailer doesn't try to bring you an extra pound. Okay, Fred?

Title: **FRED**
 Publisher: **Zeppelin Games**
 Price: **\$2.99**
 Players: **1**
 Loading: **12"00"**
 Reviewed by **Paul Dixon**



JOCKY WILSON'S COMPENDIUM OF DARTS

If the title of this rare Zeppelin game seems strangely familiar, that's probably because it's not a lot different to one they produced back in 1988. The art boys have basically taken Jocky Wilson's Darts Challenge (see review in N14) and, reimagined the graphics, improved the sound and added some extra options.

The selling point of JOCKY WILSON'S COMPENDIUM OF DARTS (hereafter JWCOOD) is that it provides not just one, but six different dart games in a single package. In addition,

it standard one-play mode where the player's total score (501 points) with a maximum number of darts - you can also choose to play Postball, Bowls, Ten Darts Contest, Seven and Shanghai. In Postball the player throws a ball's-eye to start and then scores goals for each subsequent double. In Bowls, points are awarded for darts landing closest to a "jack" dart which starts off the round. Ten Darts Contest is simple enough - the player must score precisely a hundred points with ten consecutive darts. Seven involves the

players taking turns to be a "Bogger", whose darts just scatters out of bounds, and a "Scorer", who tries to gain maximum points from the scatters remaining. Finally "Shanghai" takes place over ten rounds, in each of which the computer chooses a specific score for the players to aim at.

If you're experienced Zeppelin's former Darts game you won't be surprised by the graphical delights of JWCOOD. Play continues around a high resolution black and white dartboard with a score panel located at the side. Your task is to maneuver a dart applied that consistently prints around in a random circular path - line it up as carefully as you can, then press Fire to register a score. When it's time for the computer's turn the display switches to a large cartoon drawing of Jocky Wil-

soning his throw. The introduction screen is complete with good musical accompaniment and there are various graphics at other stages of the game. One irritating point, however, is that after each completed game you're required to re-enter the party's going players' names.

And darts fans are almost certain to find JWCOOD an ideal companion, although the original "Dart's Challenge" may be a safer bet for the casual player. Of course, it has to be said that if you're not keen on darts then you're definitely not going to like these games at all.

Title: **JOCKY WILSON'S DARTS**
 Publisher: **Zeppelin Games**
 Price: **\$2.99**
 Players: **1/2**
 Loading: **14"00"**
 Reviewed by **Paul Dixon**

DRAG

Here's a treat for all those fans who've been looking for a fresh challenge: Ko-Soft's DRAG leads the line-up of newly imported disk-based games from KoSoft and is basically an adaptation of First Star's winning—and often copied—strategy.

No sign of the usual blockaded here though. The central character Drag appears to be a cross between a frog and a Martian who, like his friend or predecessor, has an acute desire for diamonds. Not coincidentally by coincidence, these are located on each of fifty game

screens so, as you'd expect, the aim of the exercise is to help Drag acquire a specified quota before his air supply is exhausted. Naturally there are several quantities of rocks and other matter to avoid, some of which must be utilised to reach seemingly inaccessible locations. At first the layout seems quite familiar, but there are a number of subtle differences between this and previous blockaded spin-offs. For example, Drag is unable to push blocks horizontally—though they fall when a path is cleared with an equally destructive conveyor since it anyone blocking the way! There are a number of other objects to watch out for: triangular shapes remain in a fixed position but must never be touched, circular shapes drop down and explode sideways if disturbed, whilst barrel-shaped objects provide a handy boost to the air reserves.



In common with the other Ko-Soft games, the graphics and sound are really very good. A short musical composition enhances a neat title page, from where you can also view the high scores on a local computerisation. The main screens are a little short on colour but are not lacking in appeal. Like FirstStar's, Drag is an addictive game that requires a fast brain as well as a quick-witted joystick technique. The fifty screens should prove challenging enough for most—your's forced to start at the

beginning but there's a pause-ward scheme so that experienced players can skip previously completed stages. Using the random screen editor on the reverse side of the disk, you can also design an infinite number of rates levels! Although more expensive than many games, the cost of Drag is probably justified by the quality of the product. All due credit to KoSoft for another exciting 'find' and their reliable on-going support for Atari users. Keep an eye open for more goodies in the series.

Title: DRAG
Publisher: Ko-Soft/Black
Price: \$7.99 disk
Players: 1
Loading System: disk
Reviewed by Paul Dixon



This game is a variation on the increasingly popular 'tetris' theme, which originates from the Soviet Republic. It has proved to be a big hit on almost all machine formats, except on the 8-bit line where the absence of a professional conversion has meant that users have rarely moved on to all the fun. At last, Zappin here obligingly resolved the situation by releasing STACK-UP—yet another addition to their highly regarded catalogue of budget-priced classics. The idea is very simple.

Groups of variously shaped and coloured blocks drop from the top of the screen and stack up at the bottom. Using the joystick, you must guide the falling blocks from side to side as an attempt to form as many horizontal, vertical, or diagonal lines of the same colour as possible. The qualifying blocks then disintegrate, returning you points and clearing some space for the following round. In each round, the space that can be used to exchange block positions within a descending group first; this isn't mentioned on the inlay's

STACK-UP

A fascinating group to line, displayed on screen, so you can make a decision on the best strategy to take.

For added variety you can choose one of four alternative sets of symbols—coloured blocks, Greek symbols, road traffic signs or a mixture of all three. The game is split into twenty-two levels, each with a target number of successful lines to reach before play starts progress to a sublevel stage. On higher levels some hindering elements are introduced—the rate of fall is increased, the screen has fewer blocks already placed in there, the blocks appear randomly on screen, some lines don't count towards your target score, some blocks are indestructible, even the controls become reversed!

By reversing the graphics and single but there are features of visual correspondence in the

title page that could only belong to a Zappin creation! The main screen scores quite unusual in that the borders are shaded to offset panel colours. Inward effects are rather thin on the ground—there isn't any music—but the main quality of Stack-Up must be its winning landing appeal. It's nice to receive something a bit different from Zappin. We've seen enough arcade adventures just lately to last... well, a couple of weeks at least! Stack-Up gives you the long-awaited chance to play Tetris on your Atari, and it's such an essential acquisition.

Title: STACK-UP
Publisher: Zappin Games
Price: \$8.99
Players: 1
Loading System: disk
Reviewed by Paul Dixon

THE ACCESSORY SHOP

ISSUE 52

BARGAIN SOFTWARE

We are still managing to uncover a few new items of software for your £1.000 as check all the new items this issue. Check the inside front cover and the following pages. Some items previously advertised are now sold out but there are still word processors for you to choose, from the most simple to the most complex, plenty of games and much serious software - the choice is yours. As always we are able to offer these items at considerably less than the recommended price so check through the Accessory Shop pages.

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Five battles of the Vietnam War recreated in our own price. You take charge of one of the more difficult battles as you attempt to change the course of history. From the very opening battle you learn your skills and you can add to them as you win the situation of battles that usually determine the fate of the war. Top class graphics and sound, realistic scenario, excellent real-time action, use as two players, various skill levels and more. From the creators of F-15 Strike Eagle and Mission Starline.

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June 4, 1944, the D-Day invasion begins. The pressure is on you to lead your troops through one of the greatest campaigns of World War II. Extensive research provides the historical accuracy of this simulation that recreates the Battle for Normandy, Battle for the Rhine, Operation Market Garden, the Battle of the Bulge and the Battle for France. Excellent graphics and sound, various skill levels, comprehensive documentation, use as two players. From the creators of F-15 Strike Eagle and Mission Starline.

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DECEMBER 1942, the Battle of El Alamein begins, but will the outcome be different with you in command? It is within the decision to deploy tanks, artillery, air cover and medical facilities. There is to be the exercise of either side or challenge an opponent to emerge again you. Excellent graphics and sound, the scenario, realistic scenario, use as two players and more. An excellent simulation from the creators of F-15 Strike Eagle and Mission Starline.

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ROM CARTRIDGE



CASSETTE ONLY



CASSETTE ONLY



CASSETTE ONLY

NEW!

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One of the best graphic adventures released on the Atari which is suitable for all abilities. A magical adventure set in a vast country in which the King's dog has been poisoned the King is quite the throne. The Magicians have failed to cure the dog being lost and now you will need to find the philosopher's stone using 40 different words and with some possible solutions.

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How many jousts and how many times and which should you watch in this medieval arena game? The battle will not end because there is always more. Participants on the right of your arena are in the field, you must know in the end you have to win very few times here. All the awards there for you in this game.

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Another worlds experience that creates all the adventures of the original and still stands on one of the all time classics. This is the perfection in this adventure in excitement and good old fun. With you on the planets and it will be fun for you to understand for a long time. Includes an extra option for beginners.

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ST FILE



AH-73M THUNDERHAWK

CORE Design has just released what they claim is the ultimate helicopter simulation, the pictures look good and we'll try and bring you an in-depth review next issue, meanwhile here's what it's all about.

The United Nations has decided to commission an elite team of pilots to lead a new crack assault team to defuse crisis situations around the world without provoking a full scale war. This team will be known as Merlin. The very latest technology has been put at Merlin's disposal which includes a newly commissioned, multi-role helicopter gunship employing state of the art technology and firepower - the AH-73M THUNDERHAWK.

The game begins with an intro sequence showing the presidential defence advisor landing by helicopter at the White House for an appointment with the President. The President announces a 'Situation Critical' and the game commences. After entering your name as a pilot, you are taken to the briefing room where you choose your mission from six worldwide locations. Once selected, black and white satellite footage is shown to help guide you through the terrain.

Each campaign is split into 10 missions and the overall achievement in a campaign is determined by how well you do in each section. For example if you take out a mission objective but miss some key targets you will affect the team's performance as a whole and you risk being taken off the team and returned to West Point for further training.

Most of the controls of the game are with the mouse, including weapon selection and targeting with the keyboard used mainly for views from the helicopter and of various maps. Simulated views are included from every angle of the helicopter as well as from the target itself and the missile (who's being watching the briefings from the Gulf War there?).

All in all, looks promising.

All pictures from AH-73M THUNDERHAWK

MAKING MUSIC WITH YOUR ATARI

The Yamaha PSS-790 is currently one of the best selling MIDI equipped keyboards - understandably so, as it can make some great sounds. If you're one of the many people who bought one to use with your computer you probably don't think so highly of it though, as it exhibits a rather nasty problem when used with sequencing software.

The problem was brought to my attention by fellow Page 6 contributor John Sawney, who recently bought a PSS-790 for his son. However hard he tried he couldn't successfully record a new sequencer track played in from the keyboard while listening to a track already recorded - a fundamental requirement when MIDI sequencing. The new track always had the first track's contents mixed in with its own. The problem compounded with each additional track recorded, depriving each track of its independence and making the PSS-790's multitrack capabilities virtually unusable. Using different software had no effect either.

The problem lies in the PSS-790's internal operating software, held on a ROM chip inside the keyboard. For some reason Yamaha designed it such that MIDI messages sent to the instrument's MIDI IN port are not relayed back out through the MIDI OUT port along with anything played from its keyboard - not what you want at all! Previous PSS series instruments did this too, but they could also circumvent the problem by using a form of MIDI "Local Off" mode (which Yamaha call MIDI mode 00) activated by a special button on the front panel.

This feature has two effects. Firstly, it switches the instrument into multitrack mode, allowing many different sounds to be played simultaneously from a sequencer. Secondly, it disconnects the instrument's keyboard from the sound generation circuitry and causes only MIDI messages resulting from key depressions not transmitted via MIDI OUT - exactly what's needed for MIDI sequencing. This has to be used in conjunction with a sequencer's MIDI enter facility (aka "soft MIDI TRIG"). Otherwise you can only hear what's playing from the sequencer tracks, and not what you're playing along with it, from the keyboard.

But guess what? Yamaha have left that vital button-off the PSS-790, and didn't provide its operating system with an alternative way of handling the required switching. This renders the instrument almost useless as the main instrument in a computer based MIDI system. Arrrgghhh!

REPLACEMENT ROM

The good news is that Yamaha have admitted there's a problem and have produced a replacement ROM to fix it. To get the ROM you need to order part number 30007520 (PSS-790 System) 10001, either via your local Yamaha dealer



John S Davison discovers a major problem with the new PSS-790 synth

or directly from Yamaha at their Milton Keynes HQ, phone number 0200-240700. Fixing it involves some soldering, and if you can't manage this yourself Yamaha can do it for you, if you deliver the instrument to them.

Unfortunately, Yamaha expect you to fork out £20.00 for the ROM! However, it does include some minor new functions, so it's not just a straight problem-fixing ROM swap. Even so, I think they've got a check reporting their customers to pay for such a serious design flaw. Come on Yamaha, do the decent thing - make the ROM available FREE to anyone needing it! The goodwill generated will be outweighed any cash you might make from it.

A further twist to the story is that the PSS-790 has just been superseded by the PSS-795. This is mainly a cosmetic update of the 790, but it does add the old new feature, such as a sustain facility. More importantly, it's already fixed with that new ROM. The price has been cut too - at £199.99 it's £20 cheaper than the PSS-790!

THE MORAL?

This whole episode illustrates how careful you have to be when buying hi-tech music equipment. The fact that the PSS-790 is "MIDI equipped" means nothing in this case - it just won't do the job most *dear* users want it for. But how can you avoid getting caught like this? Well, I believe the best insurance is to buy from a reputable musical instrument dealer. A good dealer will be able to demonstrate the instrument actual by performing the tasks YOU want it to do, so you can check it out BEFORE buying. Many dealers can have MIDI demo units equipped with Atari ST (and other) computers, and are happy to hook up anything you'd like to try out - using your own favourite music software if required. Just try getting that sort of service at Home of Discos!

For your part, you have to play fair. Don't visit the dealer's demo facilities then buy from a cut-price electrical goods store down the road that flies the flag for mass providing the real answer - he may charge you a little more, but it's worth it for the peace of mind. And if things do subsequently go wrong he'll usually help you fix them. Even better, if you look in the electronic magazines such as "Music Technology" or "Sound On Sound" you'll find dealers offering good service AND a discount. If you're really lucky there'll be one near you, so you can enjoy the best of both worlds.

SIMULATION

R.B.I. 2 BASEBALL

Baseball is that other strange American sport. Every where in Satellite and late night TV channel 4, it is the one that looks like winners played by losers that seem to be wearing their pyjamas. However strange it might be it is game well represented on the PC with the Head Ball game being the best I have seen to date.

Domark/Tengen have produced a game with a strong focus on real that appears to be a good simulation. Packaged with free copy offers and an instruc-

tion book that explains the rules with only a couple of major errors, the presentation is first. My own knowledge of Baseball grew owing to my American Football following of the L.A. Raiders and their bit sporting star the A-Train. I was most impressed to see how well represented in this game both by statistics on paper and by playing style from the computer.

Baseball is an inherently simple game on cricket, and conversely so difficult to grasp comprehensively. Domark's strategy guide is as follows. Most people comprise a team although there is a wide range of substitutions available. The object of the batting team is to score runs in per innings while the pitching for bowling team tries to stop them by retiring three batters. This happens nine times for the away team and eight if they have won or nine times for the home team.

There are several rules about run balls or lead bats that will either progress team members through bases or help batters retire quicker. All but the thing to remember when leading is to hit the ball hard and straight and run a bit and when pitching, throw it hard and catch a bit. Like most American games this sport produces prodigious amounts of statistics from simple batting and pitching, ranging to complicated operations such as reaching base running speed or pitcher



rebounders.

RBI seems to make a strong attempt to put these factors into balance and present teams with differing make up. It allows the player to play either two handed like the best outfielder for a best of 7 series or against the SF Curve breasting short it is rather good, with teams of their choice selected from the actual teams in the league. Here the game has the necessary endorsement of the governing body of Baseball the MLB, which is rather like having the Test and County Cricket board endorsing a cricket simulation.

Gameplay is joystick or keyboard controlled and consists of the pitcher signalling readiness the batter looking ready and then positioning the pitcher - selecting the height, speed and type of pitch - and the batter by moving around the plate like a crane's until in the best position to hit the ball and take off to first base. Usually, especially against the computer's pitcher, you just miss three balls and the next guy comes for ritual sacrifice! Should you make a hit then the joystick offers the choices of stopping at first base or trying to continue to subsequent bases in the hope you won't be run out. If you're in the fielding side several substitute players all head off towards the ball and you hope to pick it up and return it in time to run out or stop a batter's advance. Again the computer is better at these things than the human. If a human run score against the computer there is a definite feeling of achievement and the feeling related to seeing the home run is not far from that one!

Obviously the game is slick, offering windmilled shots of base runners and pitcher. Action is fast and well the pitch-

ers have fired a little, very fast. In the real game the balls appear at approximately 100 mph and thus the simulation does need to be fast. The crowd roar in appropriate places and the electronic scoreboard shows typically American style graphics.

As a baseball simulation RBI is not a great deal different to the others on the market. In some respects more glib and I think possibly more accurate in its statistical relevance but in others very much part of the common mould. In some ways it lacks the intelligence to select the correct batter although in other plays it shows great sophistication of tactics.

I was most impressed with the way the California Angels, a team noted for high risk base stealing, but fairly weak hitting, offered a great number of steals whenever the chance presented itself. The computer or computer code gave a fairly accurate depiction of the statistical base and in such was substantiating in what is possible use for this would be for Baseball board games seeking to decide the outcome of other matches in a season let the machine play them out. On the other hand it is rarely as entertaining as watching the real thing. My feeling about this is that until a proper cricket sim comes out bat and ball players may well have to use Baseball as the only outlet to that intense bit with the rest of the season. I enjoyed this game and spend many hours trying to get it to beat the Toronto Bluejays.

● **NIGHT & SOUND** - both are good, well shown screens and the scoreboard adds to the fun with expanded crowd noise and the lovely 'thump' of it well attack bat

● **CAREFUL** - accurate well finished. The thing of the fielders does distract at times though

● **VERDICT** - I loved it, never seen a game against the machine though, otherwise good. If Baseball tempts you go out and try this

Title: **R.B.I. 2 BASEBALL**
 Publisher: **Domark/Tengen**
 Price: **\$29.99**
 Reviewer: **Damon Worth**

TRADITIONAL

TRADITIONAL

B O A R D G A M E S

ON YOUR ST

Part 2

One of the games we looked at in the last issue was Atari's *Black-gammon*. This is part of a series from Atari called *Mind-games*. Also in the series are *GO-MORO/SENJO*, *BRIDGE-MARKER*, and *BRIDGE-TUTOR* (also advertised on the back of the boxes mentioned, never published).

START BIDDING

Let's start with *Bridge*. There are two parts to a hand of *Bridge*: first the bid where you agree about which suit should be trumped and how many tricks one side is going to try and win - this is known as the 'bidding', then the 'play' where you play whist with one of the hands face-up - whoever wins the argument gets to play his partner's cards as well as his own so that he has more chance of winning.

Making the right 'contract' (i.e. how many tricks and which suit to be trumped) is central to the game, so many conventions have grown up to allow you and your partner to give each other as much information as possible within the very limited range of things you are allowed to say during the bidding. One of the standard systems used by many people in this country is called *Acol*. The system used by the Atari games is called *Standard American* by the *Tutor* and *Acol* by the other. Although it may be an American variation of *Acol* it is not one which is commonly recognised in this country, and since the *BRIDGE-TUTOR* does not provide a full description of the conventions, nor any guidelines as to why it wants you to bid or play its own hands in the way it does, I suspect it will not actually be of any use at all unless you can get a good book on *Standard American* bidding conventions.

BRIDGE-MARKER is rather more useful in that it deals random hands and rather than forcing you to bid and play what it thinks is correct it allows you to proceed as you wish. It will of course still respond to its own strange version of *Acol* during the bidding (again the documentation is inadequate and you will need to find a book which matches its conventions in order to get the most out of it).

As with so many traditional games which have been converted to the computer, most of the initial programming has gone into making it actually play the game. The only one which has really progressed significantly past that point is

Chess - this has had so much attention paid to it and so much competition to produce a world beating program that there are now some very strong *Chess* playing programs around. We should not be surprised to find, therefore, that the *Bridge* programs do not play a particularly strong game - hopefully that will come in time! (In fact neither of these seems to have been very well designed to make them easy to play either!)

If you would like a cheap card game which HAS been implemented beautifully and plays well then have to go to *COIN-BIDGE* on Page 6's *PIA* (code: *PIA*) - there are no instructions with it so you will need to find out how to play first a book if you don't already know. *Coin-bridge* is an excellent game and this version has everything, right down to details like calling you 'Muggins' and clearing your pawns for itself if you don't work out your score correctly!

The final game from the Atari *Mind-games* series is *GO-MORO*. This is an oriental no-eggs-and-venom game played on a large board where the objective is to get 100% of your men in a line. The program plays quite a good game on levels 1 and 2 with good response times, but on level 3 it was taking more than a minute to make some of its moves, and on level 4 it took an hour and ten minutes to make its tenth move! I tried level 5 once but gave up waiting! I doubt if many people are going to be willing to spend that long playing, watching and-remember and since there is no *Go* option I don't really see the point of the higher



levels - did anyone actually test that?

My other thought is that it is not very polished for you, when I was taught to play *Go-Moro* (many years ago!) I was taught that you should always announce a line of three or four stones which, by itself, could form a win in two or one moves respectively; this is to ensure that you don't win too easily just because your opponent hasn't realised an obvious move. Unfortunately the program has not been taught to be polite!



Left - BRIDGE MASTER

Above - GO MONO

Right - GO

For those who master the basic game there is a second version provided - the rather more serious game of Go. In order to prevent too easy a win by an expert Black player (Black always goes first and has a significant advantage), there are restrictions in Goju on the patterns which Black is allowed to form. Go-Moku is good fun, and (provided you don't mind the slowness of the higher levels) the variations in board size, Goju and playing either Black or White will give you many hours of enjoyment.

Something that looks like Go-Moku, but isn't, is **PHOTO** on Page 6's PD Database STM looking with an excellent version of Simon and various other goodies. I believe it is a fairly recent American invention - as usual they decided they could improve the game by adding things to it (I have never forgiven them for adding both to Mah-Jongg!) The main difference is that if you have exactly two pieces in a row they can be captured and taken off the board if the pieces can get a man on both ends of them. It think there may be some other variations, such as extra ways of winning, but I can't check as Photo is not currently available in this country.)

I haven't found a computer version of Mah-Jongg yet, though CES are working on both Mah-Jongg and Bridge at the moment. However if you would like a game which uses Mah-Jongg tiles you will find **SHANGHAI** on Page 6 Database S248. Shanghai is a pattern game play of using Mah-Jongg tiles and has nothing at all to do with Mah-Jongg itself (which is basically Chinese Rummy). Conceptually the tiles are shuffled and formed into a pattern on the screen - you must remove matching pairs from the edges to clear the whole board. Some tiles are stacked on top of each other - different borders being marked by different border colours. The borders are not as clear as they might be, but the game

is quite playable once you get used to them. Not a bad little game for £2.95.

AT LAST ... GO!

And so, finally, is the best board game in the world - **GO**.

Though you may never have heard of it, Go is played by over 10 million people in Japan, nearly 400 of whom earn their living as Professional Go Players - the top title is worth 55,000,000 Yen (over 500,000-dollar). There are another 10 million players in China, 4 million in Korea, and many more everywhere in the world - there are over 50 Go Clubs in the British Go Association, so there is probably one not far from you!

The rules of Go are very simple - you start with an empty 19 x 19 board. Black and White take it in turns to place a stone on any empty point. There are two objectives: mark off areas of territory (each point you own is worth one point), and surround enemy groups (each stone captured is worth one point). That is basically all there is to it! That working out whether a group of stones is safe from capture can be quite complex, and learning how to win will take you a lifetime! Just as with Chess there are many books on how to improve your play, especially on the openings, these usually take place in the corners of the board which are strategically important.

Go is on a similar intellectual level to Chess, with the added complexity that there are usually at least four major battles going on (as a result of the opening moves) in the corners, and that these battles interact with each other.

A beginning player is assigned a rank of 20-kyu (beginner) and if you play regularly you can improve by about a kyu a week up to around 50-kyu. You need to play and study a lot more to get further up the scale and it usually takes a few years to get up to near 1-kyu. The next step after 1-kyu is 1-dan (master) and then it really gets tough!

Sadly, despite much effort by the Japanese, Go is such a complex game that current technology cannot produce a Go playing program much better than around 10 to 15 kyu. Whereas in most Chess positions there are only about 35 possible moves, for the first 100 moves of a Go game there are over 250! So the usual book-against-techniques are not a lot

of good. Go relies too much on intuition and pattern recognition, so some major advances in Artificial Intelligence will be required before we get a dan-level computer program.

Fortunately for 90.0% of the people reading this article, you are NOT 10 to 15 kyu yet and it will take you a long time to get there, so, unless you are already an experienced Go player, you will be able to enjoy many, many games of Go against this program. You can practise by playing on smaller boards, testing the computer's strength from 1 to 10k, and using the standard Go hand-capping system which allows players of different strengths to play against each other. The program will also give you hints on where to play next.

If you like board games you should definitely try Go, either against other players or against the computer - preferably both! If you wish to learn more about Go



or find your local Go Club then contact the British Go Association Membership Secretary, Brian Timmons, The Hollows, Welton, Market Drayton, Shropshire, TF9 2LY (0620-84200). And if your local club doesn't have any Go sets or books on Go, try the Ltd Press, 20 Bragen Place, Bayswater, London NW1 0TE 071-264 4886.

by
John Sweeney

BRIDGE MASTER (Atari) - £24.99
BRIDGE MASTER (Atari) - £24.99
GO-MONO-REMUS (Atari) - £24.99
GO (Oxford Software) - £26.25
PD Database from the Page 6 Library - £2.95 each

COMPUTER AIDED DESIGN

MASTERCAD

100

Some time ago a generous friend gave me a six-pin colour plotter, which was surplus to his requirements. I dreamed up all sorts of grand ideas about how I could use it — producing overhead projector aids for business presentations; diagrams to illustrate articles I write; drawings for DDM projects; music transcription; posters; computer art — the possibilities seemed endless. However, the designer was set in, as I couldn't find much software that could drive it, and that I did find was very expensive.

Plotters are hard copy devices like printers, but in operation they're more akin to the drawing of vector graphics in colour on a monitor screen than to normal printing. Unfortunately though, you can't just create vector graphics commands to plotters, as they use their own specific command sets. As in most areas of computing, a de facto standard has emerged for this. It's the command set originally developed by Hewlett Packard for their



own range of plotters, known as HP-GL II (Hewlett Packard Graphics Language), and most makes of plotter (including raster ones) use it. To get my use at all from my new toy I was forced to write BASIC programs which used HP-GL commands to it. Needless to say, the plotter was left idle almost as I just don't have the time for programming.

Then Microsoft started advertising MasterCAD. I couldn't believe my eyes when I saw it included plotter support and cost only £20.95! Surely it couldn't be any good at this price! When I noticed it originally sold for around £100 I couldn't resist trying it, and the requested review copy arrived shortly afterwards.

COMPUTER AIDED DESIGN

MasterCAD is a computer aided design program, originally written in Fortran, and of all places! It allows you to quickly produce three dimensional CAD designs by translating two dimensional DDM drawings into a 3D envelope. These designs may then be viewed from any angle, printed or plotted on paper, and written to disk as objects which can later be incorporated into other designs.

It's supplied on two single sided disks, but these can be combined onto one double sided disk, or installed on a hard drive if required. It runs on any XT/PC with

1MB memory or more, and although it's OS is a single floppy drive system, two drives make life easier. It runs in medium resolution using three fixed colours — white, blue, and orange (with no way of changing them) or high resolution monochrome. I much preferred the latter version for its clarity. The package also includes an excellent (250 page illustrated hard indexed) manual, which contains detailed descriptions of MasterCAD's functions as well as a clearly written step-by-step tutorial on how to use the major procedures.

There are two main working windows — a design screen providing 2D drawing and 3D projection facilities, and a 3D screen for viewing the 3D objects you've created. In addition there's a completely separate Output program for printing and plotting hard copy of your designs.

The design screen provides a window into a cartesian space measuring about 2000 MILES in each positive or negative axis direction. Well, that's what it claims to be, in actuality it's more words, you have a 1024 drawing board to work on, but what you can get on it depends on your 512K memory size, of course! The screen consists mainly of a drawing window, but along the bottom edge is a two line "monitor" area which continuously displays useful information. For instance, X, Y, and Z coordinates of the current cursor position; the cursor's relative position from a previously selected point; the current drawing tool in use; the current view selected; and other helpful stuff. At first, there seems to be no menu bar, but moving the cursor to the top of the screen causes it to suddenly appear. This provides access to all the facilities needed to create your 3D design.

The File menu contains not only the expected load and save object facilities, but also the means of saving your designs as special printer/plotter files (used by the Output program), or for saving Design format printer files (in PLO or PFD format) for use with art programs, desktop publishing packages, and other utility programs. You can also import ob-

John S Davison
investigates a
low cost CAD
package that's
surprisingly
versatile and
which can drive
several output
devices

3D GROW

BLAST

ports from other Master CAD files, allowing you to build up sets of common objects for incorporating into other designs.

The Control menu provides such facilities as toggling on/off the screen rulers, grid, and snap functions used to help you draw accurately; for choosing metric or imperial units for measurements; for zooming and centering the screen to show the required level of detail; and other similar facilities.

The remaining menu lists items are mainly concerned with producing the design. Drawing tools provided include lines, rectangles, regular polygons with up to 99 sides, irregular circles and ellipses, irregular polygons, polylines, and arcs. You can also add limit of accuracy of text—and even this can be projected into 3D if required. With a drawing you can select individual points, lines, complete objects, or the whole drawing and perform various operations on the selected items. These include move, copy, delete, rotate, scale/trim, multiple with rotate, scale/translation, plus horizontal and vertical mirroring about a chosen axis.

AUTO DIMENSIONING

One that are worthy of special mention is Master CAD's automatic dimensioning feature. Mark any two points in your drawing and Master CAD will measure the precise distance between them then draw

its dimension lines labeled with this measurement. This could be a real time-saver if you're producing plans from which manufacturing will be built.

Transforming a 2D drawing into a 3D object is achieved quite simply. You either spin the 2D object about a chosen axis, or project it between two user-defined planes. So, if you spin a circle about a diameter you produce a sphere. Spin it about an axis which doesn't intersect it and you make a toroid. Project it between two parallel planes and you produce a cylinder. Get the idea? The degree of spin and number of steps in the spin may be user specified, so can the angle between the planes, giving plenty of flexibility to produce the shapes you require. Objects produced in this way may be used like building blocks; you can combine them to make even more complex designs. Objects needing a complex profile may be produced by drawing one half of the profile with the polyline tool, then rotating this around the appropriate axis. That's how I produced the pattern designs I've included here as examples.

Having created a 3D object you then use the 3D screen to view it from virtually any angle and distance—even from "through" the object itself if required! So far your design has been shown in wire frame form, but if you want it visualized in solid form Master CAD will shade its surfaces to give a "solid 3D" appearance. If you don't like the default shading pattern you can choose from a selection of others.

PLOTTING AND PRINTING

When you're happy with your design you can save it for processing by the Output program, which handles both printer and plotter output. It supports Epson FP-60 and compatible dot matrix printers, and produces clear, readable drawings on my Star 80-1E. It also supports the Star

80-80A laser printer, but I didn't have the opportunity to try this out. It uses GDI, so would probably support any printer with the appropriate printer driver, although the manual didn't mention this.

On the plotter side it supports three specific models of Hewlett Packard plotters: the Calcutra, the T500A, and the T770—or-compatible models. Also an HP GP-1780, HP compatible via HP-GL Converter to the ST is via the 80-233 serial port, using a serial cable wired "null modem" style. I had to experiment with the plotter's HP switches and the ST's 80-233 configuration settings before the plotter fully understood what Master CAD was wanting it. Eventually though everything worked fine, and the program produced the expected high quality plotted output.

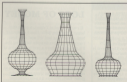
I found Master CAD very easy to use when a little practice. It's immediately fast to operate, although it does considerably as you increase the number of 3D rotation steps towards its maximum value of 99. In terms of overall facilities as a drawing program it's fairly basic, and doesn't have the advanced features found in more specialist packages, e.g. Bezier curves, auto-spinning, and such like, but there's still an awful lot you can do with it.

One slight disappointment was that the Output program only prints or plots wire frame versions of your designs. However, you can get a small quality print of the shaded 3D version via the Draft Print function in the main program. Also, the program only ever uses one pen colour when plotting, so you can't plot objects in one colour and dimension lines in another, for instance.

Overall, Master CAD provides a great introduction to the world of computer-aided design—and so, that's NOT just because it wins a plotted 1's because of its ease of use; the high quality results it produces, and the facilities offered for its relatively low price. It's a real bargain, so if you're looking for a low cost entry level 3D CAD program this could be the one.

MASTER CAD
Microsoft
\$29.95

Reviewed By
John S Davison



Star 80-1E. It also supports the Star

PD Paul Rixon's WORLD

S game enthusiasts have never had it so good! Over the past few months, public-domain libraries have been inundated with top quality games from leading

UK and independent authors. To mention them all would require a whole magazine in itself - fortunately enough Future Publishing, the company behind ST Format and the serial New Computer Express, and Europress, who produce Atari ST magazines, have both launched magazines dedicated to PD/Shareware software. These magazines should now be in the shops but it remains to be seen whether they will rise above the standards set by their sister publications!

The PAGE 6 ST Library differs from these runs by other organisations because it doesn't carry all of the new programs that become available. The reason is simple: if it's rubbish, it doesn't get in! This has seemed clearly evident as I sorted through the dozens of games that have recently made it into the catalog. Anyway, let's get straight on with the reviews ...

THAT CUBE!

Everyone's heard of Rubik's Cube but not many have managed to solve it without resorting to underhand tactics with a screwdriver. Although the initial cube craze has thankfully died a death, there must be many corners of Dr. Erno Rubik's creation who are determined to crack it, once and for all. **RUBIK'S CUBE** is a simulation of the famous puzzle. Why does it get you a headache? Well, the program won't solve the puzzle for you but it does provide a collection of tools that can be used to discover the solution. They include facilities to tag squares and follow their progress, undo mistakes, etc.

moves to help find the way through a solution, save partially completed cubes to disk and create complicated macros of move sequences. The program is accompanied by an extremely lengthy (over 30 pages!) manual that explains the basics of 'cubeology' and how to get the best from the tools provided. Rubik's cube is a fascinating object to the mathematician which illustrates a branch of mathematics known as 'group theory'. The manual doesn't go into this but for some useful references if you should want to find out more. It's a very interesting read!



Quite a difficult concentration game!

NON-VIOLENT

There are many other non-violent games in the public domain that deserve a mention. A good example is **MAX 'N' MARCO** a two player concentration game written by NIKS. The players take it in turns to remove pairs of tiles which conceal random pictures. If one are found that match, the pictures remain uncovered and the active player receives a points bonus. The unique graphics are a perfect demonstration of what can be achieved with SDOs and digitised sound effects add an extra sparkle to the presentation. It may sound boring but it really is addictive! **PLUMED CRAZY** is another SDOs puzzle by the same author. The screen is split into fifty-four squares and your job is to place sections of piping on the grid in the order they are presented to you. Meanwhile, the water supply gradually creeps across the screen and then starts to push through the network you have

created. On the higher levels, a greater number of sections must be completed. The SDOs sound effects included in you can find out how to write a great game, but even if you're not interested in SDOs you should still be impressed!

IT'S ... IT'S ... YOU KNOW!

Do you think you're a bit of an expert when it comes to popular music? If so then why not put your knowledge to the test with **NAME THAT TUNE**. The program selects a tune from the 100 records on disk and presents you with a scintillating menu from which you must choose the corresponding title. It's already played with a familiar opponent, so the first person to make a correct identification wins the points. The longer it takes to decide on an answer, the less points are offered. If it all seems too easy you can make adjustments to the tempo, introduce skipped notes and also insert the stars for a really hard effect! The tunes can be played through the ST's sound chip but the most impressive sounds are achieved by hooking up a MIDI synthesiser. The program will accept any music files in standard MIDI file format, so you can easily create custom song files. Alternatively, you could obtain **NAME THAT TUNE - TV THEMES** which is a supplementary disk containing familiar music from American TV shows.

LOTS OF MONEY

If you've heard of Taijap, a game that began life on the Radio Shack computer level, something had to be done there converted to other formats including the ST, you should have a pretty good idea of what **TAIJAP II** is about. It's a trading simulation and the objective is simply to make lots of money. This is achieved by buying and selling fifteen commodities at various times across three areas of the globe. Each day has its own particular

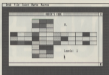
requirements and there are random shortages and explains that can affect the trading price and hence your potential profit! There are lots of other considerations to bear in mind and the documentation explains everything in substantial detail. Traders II is a well-implemented program and makes an interesting change from the mass of the well-avoided games.

BLAST!

And now, as they say, for something completely different! If I mention the name Jeff Minter you will immediately think of wild shoot 'em ups, weird graphics, ludicrous sound effects and amazingly fast action. Needless to say, Jeff's **ILLUMINATOR** is a **BRIILLANT** shoot 'em up in every sense. Best of everything on screen looks for the sharp and detailed with your bullet-splitting aliens, but watch out for the snakes. The graphics are amazing, the sampled sound effects amazing, and the whole game is absolutely ... well, typical Jeff Minter!

GAME DEMOS

Commercial game demonstrations are often just slide shows and don't give you much idea of what the games will actually be like. On the other hand, some demonstrations are better than other commercial releases! A good example of the latter case is Jeff Minter's **Photon Storm** - a Llamasoft production that features in demo form on a disk entitled **PHOTON STORM & AGONYANT**. **Photon Storm** is a multi-way scrolling 'zap everything that moves' game set in outer space. The one trick of your craft are a little tricky to handle, but once you have the hang of it the game turns out to be fast, addictive and a lot of fun. There's only one level of play but it doesn't restrict your enjoyment. The other game on this disk is another demo shoot 'em up by an uncredited author set on the sea bed! The graphics are incredible as you control a fully animated diver swimming through the rocks, fish, and other underwater scenery whilst blasting them with your space gun. It looks like a terrific game, anyone sees the full release? Another gemie - at least in demo form - is **SHUFFLE**. This is a vertically scrolling shoot 'em up similar to many other 2D games, where the aim is to eliminate ground installations and at last the inevitable waves of enemy craft. The graphics are the main highlight of the game, though its addictive quality comes a very close second! Unless you're just need at least a one megabyte machine to experience this one.



Left - **MURKIN'S CLUE** - master if it's priced right!

Below - **NAME THAT TUNE** - great fun for all the family, particularly if you have a synth!

FALLING ROCKS!

Roundabout here can find groups of interest in the public domain. Probably the best Roundabouts close of them all is **DOUGLAS ROCKMORE** from Backlog UK. The game plays quickly and smoothly (swelling at 80 frames a second) and is equally as challenging as other Roundaboutly variants you'll have seen. Navigate the car, collect the thousands and watch out for the trucks. It could easily be a commercial release, but thankfully it's not! Douglas Rockmore will only save us one megabyte machine but 100 users don't care, and in fact they get into it much with the updated version, **ROCKLAR 2**. There are 48 levels in all with more great graphics and addictive gameplay. You can't go wrong with this one.



one (PDS) and is arguably the best listing in the history of computer publishing! The STE version makes use of the extra colours and features available and is a real tear-dropper of Atari programming. Everywhere you look there is a clever utility that will play digitalised music in the background so you work from the desktop, and there's also a few fixes for SDR-related problems such as the infamous machine-rem lag.

FOR STE USERS

Yet another Roundabout spins off in the shape of a disk intended specifically for STE owners - **STE MAD & MUD**. Mad was written by Paul Log, who is well known to regular readers of this very magazine. The original version of Mad appeared in a type-in listing in the mag-

BLAST OFF!

Although I'd considered at least two other disks for inclusion in this article, unfortunately I've got to end it here! I trust you will have found something of interest amongst the goodies mentioned above. Have fun!

HOW TO GET THEM

All of the disks featured in PC World are available from the PAGE 21 Store. Each has a unique reference code which you should use when ordering or making enquiries. Please contact PAGE 21 if you don't have a copy of their necessary Shop station and check the system requirements for each disk. (For PAGE 21'S STORE) 0294 5030 0030 containing a full list of titles names and contents is available from the Store, priced at £1. The disks referred to in this article are:

STE2 - MURKIN'S CLUE	STE2 - NAME THAT TUNE
STE2 - SHUFFLE	STE2 - STE MAD & MUD
STE2 - DOUGLAS ROCKMORE	STE2 - NAME THAT TUNE
STE2 - PHOTON STORM	STE2 - NAME THAT TUNE - TV VERSION
STE2 - SHUFFLE MATCH	STE2 - DOUGLAS 2
STE2 - PHOTON STORM & AGONYANT	STE2 - LAMASOFT

Prices for standard disks are £2.95 each or £2.50 each for lot or more. Write to PAGE 21, P.O. Box 65, Haverhill, ST2 1LN. Telephone 0438 219828 or FAX 0438 543835 with credit card orders.

EMULATIONS

BEYOND PC SPEED

Damon Howarth
investigates other
emulators on the ST

Following my adventures into PC Speed I defined both other means of allowing the ST's outlook on life. The following is an early the results of my researches on practical experience.

The first question that would spring to many people's minds is "why bother to emulate?" I accept this as a valid question and it is not with a wide variety of answers. The first reason could be as simple as it desire to be compatible with a machine such as work and then be able to prepare or study these things there may be a task for or similar. Alternatively, it may be that you have upgraded your system but wish to run favourite software of old. For some it seems it may prove a cheaper way of obtaining more than one machine to use alternative programming techniques with. There are many other thoughts, as in letter I received this month suggested some of the various forms of games were on floppy or PCs, and how this could be run there?

The ST has either hardware or software to allow it to emulate three different machines. The PC is the first chosen by although the Mac is also emulated and would deserve serious consideration on its own. It is also possible through some PD software to emulate 8-bits as well. ESH I is possible help anyone would want to emulate one, apart from nostalgia, but the program to help I believe there is an Atari II but emulates available but I have not seen this and it is possible to run a version of DOS' basic on the machine. In this article I will have a look at the PC implementations since these are the methods I am most at home with.

The "compatibility" of PC emulators to the original software based PC. ESH I which was readily compatible (has disk based), in effect the operation loaded the program which interpreted all the PC commands into ST meaningful actions and control them in the relevant places. It can be reported this gave a noticeably slow rate of action. It had a horizon rating of between 25 and 25. Perhaps at this stage I ought to explain Norton rating before readers because this, its so many IBM clones equipped with different CPUs and clock speeds a system for measuring the actual speed of a machine was devised. The base rate was the 4000 clock of the basic 586 PC which was a rating of 1. Measurements were taken using an exper-

ted-to-measure at least 4 if not a great deal better. Now the ST has an 8000 clock and thus could be expected to operate fairly well but obviously the first software users found life most frustrating. PC Speed because the first practical emulator and as I pointed out last time this operates at a considerable although still prohibitive rate. I would not recommend PC speed for anything graphic intensive although it is not a cheap way into emulations. PC Dibs II was another attempt in this field that never quite took off. These both need inserting inside the machine with soldering iron and the old card set as a sort of co-processor.

The other variant at low levels was the far more expensive Supercharge which attached via the hard disk port and offered what was in effect a motherboard with one of the add port for adding PC Cards boards allowed the basic PC to become more to interfacing with many items or sound or better graphics etc. This was an expensive option but facilitated with the hard drive as well. In the early days there was not a great advantage to this product.

As the PC developed to the rather obscure 386 and the increasingly there 3 and 486 chips, emulations followed and appeared on the ST Speed in order to experiment the changes. AT Speed configurations as well as it always remarkable and allows for a greater variety of screen resolutions. In colour it is possible to have the rather low quality of CGA or the more interesting Tandy mode which allows for 16 colours and is a cross between CGA and EGA. Should the software allow this option then the effect is very good.

Perhaps this is a point to quickly offer an explanation of the various graphic interfaces for a PC. Historically the first machines had a very poor black and white text only screen output, these were more fully changed to the blocky CGA (Colour Graphics array) basically four colours from a limited palette that would have been enhanced by some slow 8 bits. This is the basic standard graphics mode, as developed on the CGA and VGA modes appeared which allowed higher resolution and better rules a choice. More screen modes were also of the higher definition.

With this very complicated subject glossed over we can return to AT Speed. If you own the basic monitor then the system can emulate many different standards of screen graphics up to and including a very high definition VGA which actually works in a multi-coloured grey mode. Sadly the 5600s was not really created for the use of screens in this mode thus it is necessary to connect the picture to see the whole screen. In practice this is a little annoying it had been also in depth appraisal of large documents. The AT Speed and I believe AT Dibs offer very

similar packages and install just as the PC speed although different versions are needed for STs and 386's. This emulation change along at Version 4.5 or so which is faster than several ST laptops and just about as good as the prototype 286 machines. The Emulators come in two versions and window software. Loaded with the 4meg 386 and hard Drive really necessary for good Windows except the AT Speed give me a chance to see it along for a sort of co-processor I had not experienced with Com. This set up also allowed me to install Speed on an accessory and to see the hard drive up on two distinct levels either a DOS boot or the basic ST storage device. I believe that AT over is also capable of this. AT Speed can run the vast majority of software, I have put to that something in doubt, and this month's articles have all been written under AT Speed and Word for Windows.

I believe that the Supercharge is in the process of offering higher speed for its emulations including a 386 acceleration. This I would believe when I see it work. Ironically as the clock speed increases the location of the chip is a little more to better that of the ST and I would feel the emulator would run away with itself. There again using the alternative emulating of the Supercharge it may well use the ST as a keyboard and mice too, it would be interesting to see the based all work.

As opposed to the PC speed reviewed earlier this year, the AT speed is far more a thoroughgoing and will work the slight extra cost, indeed it may well have been upgraded as I write so to check with Compa Software or Lathford's of Preston for the latest specifications. With thoughts and the glass of advertising ringing in my ears I may have preferred the Supercharge option although it is approximately 40% more than its competitors. Depending upon the area that you have in mind some hard-disk printers will help enormously although all of the resolutions are usable with single or dual floppy.

It is thought that possibly a very cheap ST may provide the same resolution with most affordability the less than some of the emulators and the ST option monitors can quite happily handle the CGA modes of a video card. On the other hand AT Speed provides an extremely good interface for a cheap if slightly slow and less featured 286 than any purchase of the same price could offer.

AT Speed and have been, inevitably impressed by its fairly fast screen handling and the happy way it accepts the commands from the mouse. Furthermore Compa Software are always extremely happy to offer helpful advice. Should any readers be either totally confused or somewhat interested please feel free to contact me through the magazine.

CURSE OF THE AZURE BONDS

Curse of the Azure Bonds is set in the Forgotten Realms - TSR's most extensive Advanced Dungeons and Dragons campaign - there are countless books, modules, computer games, minis, etc. covering the exploits of the inhabitants of the Realms. The THRUCC/AMMO boxes LOOK very similar, but the games inside can be VERY different. Whereas Heroes of the Lance and Dragons of Flame were pure-tink chrome Action Games and (Hililar was an Action Adventure), Curse is billed as a Fantasy Role-Playing Epic. What this means is that it is a much more detailed simulation of full AD&D rules in the traditional 5th format (e.g. D&D's Wizard). It requires a lot more thought and a lot more time than the other games.

The game system was originally designed for use with the keyboard - type the first letter of a command to execute it or use the arrow keys to select from menus as to move the characters around. Mouse-support has been added, but without any graphics, so some parts are really messy - like having to click on the edge of the battle window to make it scroll! - most are just pain. You can usually hear commands much more quickly with the keyboard so I didn't use the mouse at all.

So that you can use your favorite characters in the game you are allowed to modify stats - you can give yourself max-

imum Hit Points, Strength, Intelligence, etc. if you wish. The characters created are around 1st Level, so you can get straight into some quite heavy battles with the ability to throw third level spells such as Flamingo right from the start of the game. You will need to rise to 11th and 12th level characters to

have a chance of completing the game! Your characters start with five magic symbols imprinted on their sacred auras. You have a little money so you can get kitted up with some basic gear at the shops across the road. Then you explore the town and learn about the symbols - you soon discover that they are the marks of five evil groups who have magnificently lured you to become their slaves - your quest is to find and destroy these five groups, thus freeing yourselves and saving the Realms from the evil Tyrannosaurs.

There are four main modes of play: in camp or town you will spend LOTS of time selecting items from lists - which often do you want to purchase, which weapons do you wish to inventory or wield, etc. - there is a LOT of information which could be presented in LGE format - if I want to try out how a dozen weapons then I would like to see their effect on my THRUCC/AMMO; immediately, if I am memorizing spells I would like to know which ones I already know; if I am dropping gold in a sewer/water myself I would like to see my own movement rate; all these can only be achieved by searching to a different display! Does anyone ever actually use these things from an ergonomic point of view?

The second mode is the Decision. You are shown a map, an NPC, or a scene with some text below and you must decide what to do next from a selection of three or four options - many will lead you into fights or traps - some will reward you with magic treasure if you make the right decisions.

The third mode is exploration - of towns



or dungeons. There are standard view angles views, sometimes with an overlaid map available on screens. Some are just in deadly hard to map, especially as your living and on/offscreen are displayed at all times.

The fourth mode - the one you will spend most time in - is the fight; this is an overlaid window on the battlefield showing your six characters and all the enemy in individuals - each one gets a chance to act - Move, Aim, Cast, etc. The moves usually prefill and the action is all a little slow as you have to wait for the normal effects and the animation.

It is easy to get too far too soon. I went into Sherid Sleep too soon, having searched the town and the temple, but then there is no going back - you are forced into a dungeon from which the only exit is guarded by some innocents with a Delver and a Meddler I had to back off to a save before entering the Sleep and get my characters up quite a few levels by exploring dungeons near places like Shadowdale before I had the slightest chance against the Shadower!

■ **GRAPHICS** - SOUND - Graphics generally very good - very little animation. Sounds limited, but adequate.

■ **GAMEPLAY** - VERY detailed, heightened where AD&D - mainly fighting - you need to find lots of magic along the way to help you in the final battles!

■ **USABILITY** - Good rather for money if you like this sort of thing and don't mind the implications - fit well into the Forgotten Realms package.



Title: **CURSE OF THE AZURE BONDS**
 Publisher: **TSR/SSI**
 Price: **£29.95**
 Reviewer: **John Dwaney**

SAMPLE THIS!

In part 3 John S Davison tries more advanced soundtracking software and a better quality sampling cartridge



If it's the last issue we looked in detail at Mirod's MasterSound 2 sampling package, and you may remember that its sample sequencer was...errrr... rather basic, to put it mildly. For music making it really deserves to be partnered with a better sequencer, and Mirod has the answer in the form of **QUARTZ**.

This is similar in principle to the NoteTracker II program discussed in issue 48, but it's much more comprehensive, and therefore in use. It allows you to manipulate sound samples, package them together, then create expanded music tracks from them. It can't actually record its own samples, but does come complete with over 100 ready to use drums, synths, and other assorted sounds. Of course, by using a sampler cartridge such as MasterSound you can expand this initial library with your own samples, creating a host of new possibilities.

The Quartz package contains three programs, which will run in medium or high resolution on 500K/512Ks and above. The main one is Quartz itself, which can load a "order set" file contain-

ing up to 20 different samples and play them over a whole pitch range via its sequencer. It uses four monophonic tracks, so can play up to four different samples simultaneously. You can rapidly switch between any of the 20 samples at any point on any track, so it's possible to create far more complex sounding arrangements than you'd think with only four tracks available. Each track automatically repeats when it finishes playing, making the production of repetitive rhythmic tracks or shifting cross rhythms very easy. If you're really lazy you only need create one bar of drum rhythm - this will repeat ad infinitum (at least until you hit the stop button) behind whatever you create on the other tracks.

The music editor uses standard music notation rather than the messy headed-circular data flowchart by most other soundtracking programs, permitting music to be created graphically via mouse and icons. It's a bit tricky though, and only displays up to twelve notes on a single track without scrolling. Editing facilities include cuts and pasting, insertion of lines and slides between notes, block cut and paste, block transpose, writing of tempo and time signature, playback frequency setting, insertion of voice change commands and repetition points for looping within a track.

Sequences can be created in step-time using the editor or in real-time using a MIDI keyboard. The latter method guarantees your playing in the correct quarter, so unfortunately it loses notes played quickly. There's no punch-in/out facility either, so corrections are best handled in step-time, which provides semi-quantised resolution.

If you've got a MIDI keyboard you can also capture Quartz's "polyphonic play" mode. With it you can play any single sample in real-time, with up to four notes sounding simultaneously.

There's also a MIDI keyboard you can use to capture Quartz's "polyphonic play" mode. With it you can play any single sample in real-time, with up to four notes sounding simultaneously.

STEREO PLAYBACK

In its latest incarnation (V1.5) Quartz can handle stereo playback on 800Ks, or any standard 512Ks fitted with Mirod's new **STEREO PLAYBACK** cartridge (see last issue for details). This produces sample spatial left/right separation of different sounds in a mix, and it's surprising the difference this makes! There's probably an noticeable increase in sound quality as well, but the subjective improvement is considerable - in my own opinion!

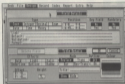
The package's other major components are the Digital and Voice programs. Digital can process a sample in two different "domains", in the time domain it can play the sample, set its playback volume and frequency, still on unconverted sections and set a sample loop point. This last item allows a short sample to be continuously repeated from a given point in its playback cycle, providing a long sustained note without the huge memory requirement of a full sample of the same duration. In fact, Quartz imposes a maximum sample size of 5000 and maximum replay rate of 16KHz for unconverted samples, so Digital is an important tool for converting samples to comply with these limits.

It can also convert a sample to/from the frequency domain using the Fast Fourier Transform (fft) program. Beware though, it's not that fast - conversion can take several minutes! It's used when you need to monkey around with frequency related characteristics of the sample, for instance to shift its basic note frequency, or

DGBASE

DGBase is one of Digital International's products designed for small businesses or without home use. It's primarily a database program, but can also produce formatted reports, labels, and form letters using the simple built-in word processing and mailmerging features. It also offers integration with other products in the Digital range such as their DGCalc spreadsheet and Mailbud-Plus mailing program, and can even interchange data with other programs via ASCII files. Its operation on one single 5.25-inch disk is accompanied by a nicely produced 89-page instruction manual, although the latter could have been more clearly written in places. The disk also contains several sample databases in packed format, plus a utility program to transfer them onto a separate work disk. These show how you might use DGBase for a number of different applications including school exam results, simple stock control, and club membership details. There's also a separate demo database referenced in the tutorial section of the manual.

DGBase was designed to be flexible. It's GEM based, allowing records to be set up in a scrollable window, so record size isn't limited by screen size. Record layout isn't permanently fixed either, you can add, delete, re-size, and otherwise change fields at any time without affecting existing data - a very useful feature. It also has a global editing facility, which can apply a change across a range of records in the database - for example to reset dates, or to modify the value of selected numeric fields by a given percentage. The program is totally memory resident except for its help facilities, but you can copy the help file onto your data



disk to avoid the need for disk swapping.

INTERACTIVE DESIGN

Record layout is defined interactively by placing boxes, text, and fields on the screen as required. Boxes are used to visually delineate different areas of the record, and can be specified by size, position, fill pattern, colour, and border type. Text is used for placing helpful comments, titles, etc., on the display, and again you can specify its position, size, colour, and style to suit your requirements.

Data fields consist of two parts, the field title and the actual area used to hold the data. The title is important, as it's used later to identify which fields you want to search or index on. Fields can be specified in a wide range of data formats (numeric, floating point, character, hexadecimal, date, etc.) and may be made mandatory to force the user to input data when adding records. Automatic validation can be applied, using either computed limits or discrete enumerated values. Field values can also be computed from the contents of other fields using the four basic arithmetic operators. Oh, it's simple, but probably good enough for most home and small business users.

In use, data is disk resident not memory resident, which could be an important plus if you only have a 512K machine. This approach also allows you to set up

to four databases simultaneously and quickly switch between them. The downside is, of course, that access is slowed down as the program has to read chunks of data from disk as it's needed.

SEARCH AND INDEX

Once a database is set up, records may be retrieved via a careful set of search facilities. Search criteria are specified at the field level using user defined codes. All the usual relationships are included (equal, not equal, greater/less than, etc.) and wildcard and case sensitive searches are possible too. Simple arithmetic calculations can be included in the criteria, and several sets of criteria can be logically linked with AND, OR, and NOT operators. You can also index the data on any one of up to four key fields and flip between them at will to restrict the operation to which the selected records are retrieved. Records can be added, deleted, or updated at any time, and also transferred between different DGBase files.

The program's report writing facilities allow you to produce customized listings of chosen fields from selected records. You can also produce labels and simple form letters using the mailmerge facility. Unfortunately, these features are rather crudely implemented and not particularly easy to use. However, they do seem to work once you know what you're doing.

Overall, DGBase offers a reasonable set of features, but I found it a little lacking in those in places. It worked OK for most of the review period, but it did crash on one occasion and somehow corrupted my data disk, making it totally unusable. Luckily I had a backup copy, so was able to recover in its present state. I find DGBase is rather competent, but you do seem to be able to buy it discounted for around £20 - £25 if you shop around. At this price it's not a bad buy, but would be even better if Digital smoothed out some of those rough edges.

The **DGBase**
 Publisher **Digital International**
 Price **£49.95**
 Distributor **John S Cowan**

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ARMOUR-GEDDON

Most ST owners are pleased to see Psygnosis software and this particular offering is no exception, packaged in the normal colourful way with accurate screenshots on the rear. The title screens is strong and well detailed and the loading music gives a strong atmospheric feel. The game comes with a large multi-lingual manual and the play style demands that it is read for the actions are complicated. It transpires that the scenarios are more whimsical than the players, or players if you have a serial link available, are attempting to halt a Post-Holocaust takeover by a resistance movement. As the 'Good Guys' you have to find and re-construct a lost resistance base to stop the Star Wars style scoundrels taking over the world.

To do this you have a bewildering array of screens from

which you must research, build and pilot the craft and weapons that you will use.

Would you find that your raw materials are less it is possible to recycle items and obtain extra. The game is played at a very fast pace and even the training mode is rapid. Although this feature may well induce need to those who have managed to follow the various intricately complex screens it could be most off putting to the newcomer.

The basic idea of play seems to be a reconnaissance on the map to decide where the next exploration or attack from your base will be, the creation of a shopping list of items and weapons and then the selection of appropriate vehicles. These vehicles are named and



offer various strategies to the player. The options are straightforward - useful for general attack and scouting, Stealth Fighter - expensive and deadly, Stealth Bomber - to collect bomb parts, Light and Heavy tanks - either as scout or collection vehicles and the handy, go-anywhere, Hovercraft. These have to be built, armed and researched. Unfortunately since this takes time and the computer is a most able opponent the player can find themselves under heavy attack on launch and not progress very far.

If tactical strategy with simulator driving is your thing then you could easily give into *Armour-Geddon*.

FACTS

Title: **ARMOUR-GEDDON**
Publisher: **Psygnosis**
Price: **£25.99**
Reviewer: **Barton Howarth**

SIGHT & SOUND

Everything I expect from Psygnosis, even the CD is great. The CD is strong and attractive.

GAMEPLAY

Difficult and needing much practice, very fast and there is also the two-player option.

VERDICT

Hard to be persuaded with and then enjoyment will come. If you're the type who gets and you have the patience to make it happen.

FACTS

Title: **QUADREL**
Publisher: **Leifheit**
Intrigama
Price: **£24.99**
Reviewer: **John Swainey**

SIGHT & SOUND

Very basic graphics - no sound

GAMEPLAY

Simple logical game with a few twists to make it a little like an arcade game.

VERDICT

Not a cutting edge, and certainly not worth full price, especially with the bugs!



QUADREL

distorted, but they will still bear the same relationship to each other from the point of view of

Did you know that it is impossible to design a map which needs more than four colours if every colour has a common edge (and is different outwards). This is known as the 'Four-Colour Theorem' and has annoyed mathematicians for centuries since it is extremely difficult to prove - it was actually only finally proved quite recently with the aid of computers! The theorem only applies to 2-D maps and a sphere counts as a 2-D map in this respect. If you imagine a very nice 3 sphere, position it in the middle of an area, then stretch the hole until the sphere is completely flat - all the areas will be very

the theorem! On the other hand if your planet happens to be shaped like a torus it is doubtful that you need more colours to colour any map on it! And, amazingly, that is nearly easier to prove! Anyway, those crazy French decided this was a good basis for a game and created *Quadrel*. You have a limited number of each of four colours and you must use them to colour a map on the screen. To make it a little more interesting there are a variety of 'map', some geometrical, some made of wavy patterns the 'level' determinations have made of each colour you have you can set a timer and in 'controlled' mode the computer selects

your next area! Making against the timer, with limited colours, on a large map, with the computer choosing your next area is very difficult!

You can also play against the computer; you start with different numbers of each colour, you take it in turns to paint an area - first one unable to make a legal move loses.

There is supposed to be a two-player option, but it doesn't work on the Atari version - Leifheit's solution to this was not to do the bug, but to put a piece of paper inside the box warning you that the two-player option doesn't work! Gee, thanks, Leif!

Another bug means that on some of the maps there aren't actually enough colours to fill the map - I know that level 3 is supposed to be the hardest, but making it impossible seems a little unfair!

ATOMINO

Programmers have found another game to rival the entertaining addictiveness of *Leisure Suit*: *Atomino*, with less than usual of the glaucous graphics associated with the firm, here is a game of delicious subtlety and subtle excitement.

The play is simplicity itself. The player needs to complete atoms from a variety of molecules. Each of the molecules has letters on one end and ion connectors and one or two connecting dots are connected to other dots so as to meeting points are available to the user until, an atom is complete. This has to be completed within the time it takes for the storage bin to fill otherwise it is gone over time.

All this is performed with a steady joystick control and the act sounds very simple. Indeed the mechanics are that

easy, although occasionally a 'Joker' will appear and this will fit wherever it is wanted, and presents the only complication to the game. Although only a simple concept it should be remembered that the highly successful *Tetris* was just a matter of filling empty space with blocks of connected solids. The variety of games necessary to fulfil the game make it challenging, the gradient of levels is almost right from the very easy learning modes to some extremely complicated higher levels. It is possible to restart at any previously completed level by the use of passwords thereby avoiding the frustration of beginning at level one every time.

Technically the game is simple the graphics are smooth and colourful and the sound



effects adequate but this does not actually matter for the success of the game is the pace addictiveness. It spent several hours, that felt like minutes, with this game and a large portion of a Monday morning spending sleep to such up molecules. Like *Tetris*, I am sure that I can manage just one more level!

The levels consist of different goals, either creating atoms of a minimum number of molecules, creating a series of atoms or ions filling a specific shape. Each has its own delights.

I can say little more than this game is the next *Tetris*. If you wish your eyes to regain their lustre go out and buy it.

FACTS

Title: **ATOMINO**
Publisher: **Programs**
Price: **£4.95**
Developer: **Damon Rowboth**

SIGHT & SOUND

The graphics are fast and smooth and the sound, though not awe inspiring, is perfectly adequate.

GAMEPLAY

Easy to learn, hard to master, smooth controls and an all round satisfying game.

VERDICT

BUY IT FREQUENTLY

FACTS

Title: **PRO POWERBOAT SIMULATOR**
Publisher: **Codemaster**
Price: **£4.95**
Developer: **Damon Rowboth**

SIGHT & SOUND

Bright and noisy with good large colourful sprites.

GAMEPLAY

Easy to play but slightly harder to master, with an apparent loop.

VERDICT

A possible game with some limited addiction value.



The cover for this bright race offers two high powered boats racing each other and the title and picture suggest some sort of power boating simulation. The actual game though is more of a race game requiring skill, dodging obstacles and using flying available from your boat. The screen is far more akin to a *Jetsons* boat chase than a sports simulator.

Having rebound up the race conception the game itself is quite entertaining. The object appears to be to race around some pretty tricky coastline avoiding passing boats and helicopters and not driving on to the shore. The screen is a vertical scrolling tableau of

various powerboats including racing cruises and speed racers to be taken aboard on competition. The object is to score more flags for points and not to run out of fuel by excessive engine use. The game includes several bonus levels which require the operator to race between flags and pick up points on completion. Unfortunately the software is very well served with smooth flowing sprites on a very steady and well drawn background, good use is also made of colour and together with adequate engine noises the advances to be made into the players across systems. The controls come from either keyboard or a combination of keyboard and joystick, no mouse control in this game. The instructions are sparse

although there is little that cannot be picked up after five or ten minutes playing. The main interactive part of the game is the looping over the boat jumps to obtain speed and distance to avoid various obstacles.

The game has some feeling of 'just one more go' about it and once again displays that there are some very worthwhile games available on bright labels. With Christmas racing boogie games all bound to hold attractions for those with right budgets or for parents looking for the less expensive stocking fillers. This game would certainly afford a few hours past over the holidays for interested adults. Unless contemplating buying the game for the children, would do a lot worse but it does not have the addictive power of some other games.

COMPILATIONS

VIRTUAL WORLDS



state of Freescape 2 belittles me to look at the games on the disk. The first that I shall discuss is Driller. This game is the oldest of the collection and although not the first Freescape game on the CD it is probably the best. In this the player pilots a mining craft around a custom planet, looking for crystals and

character can throw rocks at specific places to make mechanical events occur. Oh yes! The shanks is the most, an feature!

Over the strange blocky world of Freescape is accepted that the action makes some sense. Explore the grounds, carefully avoiding the falling traps, and remembering to crouch and crawl while you search, eat the food to gain strength and throw rocks at the spirits in order to survive them. These concepts together with an engaging joystick or mouse will provide most of your answers. The player will find that they walk on objects such as cables or chains regularly and care must be taken to ensure that your intention is at the right angle. Several games are possible on some of the planets are quite tricky. The game does not offer the level of graphic authenticity of Chaos or Dungeon Master but does offer some animated charm. I enjoyed it but felt the adventure was becoming a little closed and after a while, there is also a lack of either involvement or character building to the adventure.

The Crypt offers more of the same although the location and the monsters are different. Here too unpolished this piece would seem to be either the advance or just two of Castle Master. The controls and actions are similar as is the presentation. This time though the enemies are various undead and a hoard of spirits caught in the shape of stars. While I applaud the concept of limited item offerings inside a compilation, a nagging feeling seems to say that this was done since the game really would not make it in the marketplace on a stand alone effort.

I felt that as a compilation the set was a good idea. If you have never bought any of these games then it may be an interesting investment but unfortunately I find that Freescape has been criticised by new techniques which make it appear as right habits as its origins are. I enjoyed the games I could had had I could not say that I felt they would be worth the cost of the pack. Progressive buyers ought to play it first and decide if the blocky medium meets their tastes. It is perhaps and to reflect that a deal of thought has gone into this offering and perhaps the costly mechanical spot the effort.

VIRTUAL WORLDS

Domark

\$29.99

Reviewed by

Damon Howarth

Here is Domark's Summer Holiday offering, a collection of three Freescape games including one unpublished game. For those unaware of the Freescape system it is a world of 3D block graphics construction that allows the player to explore buildings or worlds within a reality context. The first of the games that used this was Driller, a game I reviewed many, many months ago in this magazine.

Domark are selling this collection as a form of Virtual Reality which I feel is unfair since it does not really compare to the large scale stuff that the VR sector always demonstrates. In some ways Dungeon Master presents a better Virtual Reality.

All the games in the collection, Driller, Total Eclipse, CastleMaster and the Crypt (Castle Master 2) use the same basic idea of screen construction. The world, or rooms if the internal scenarios are selected, appear in block shapes that are filled in to various colours. These are the same sort of filled block that Elite players may recognise from docking and fighting in space. All actions are viewed from the first person, that is as though the screen shows only that which your eyes see. Any interaction with the world is through mouse or joystick controlled actions.

Movement can occur fairly slow and positions as there and the setting of objects is sometimes peculiar. All the games share the problem that the player wants to guess what any one particular shape is representing at the time since very few helpful messages appear. Having looked briefly at the game's

showing various shapes either to open doors or initiate drilling techniques. The surroundings are fairly basic and very cuboid and certain times are also.

There is little manual included save for the adequate effects that include the map of the game and where to explore. Now at this point, to be fair to the collection I must point out that neither Driller or Total Eclipse was actually loadable into the CD for my copy of the game neither of them had a PDF file included. I can therefore reviewing the Driller module from its original source although I am though quite convinced that the game has not been updated since. Driller felt slow and old at its inception and I am not sure that age will help the more sophisticated player who has seen EliteMaster and Dungeon Master to accept it as anything other than a curious antiquity.

The second game was Total Eclipse which really was not playable. I have not read this game before but on reading the manual it would appear that it is in the same mould as both CastleMaster and the Crypt. I would suspect my comments on these two would cover this game too.

CastleMaster was in its day highly advertised and received some critical acclaim. The theory is that the player may select either a prison or prison to go and save their opposite transfer from the clutches of an evil one. To do this they must enter the castle, kill manageable spirits and find a collection of keys in order to open the dungeons. The game, as all the others, takes place in first person perspective and offers some challenges. In fact should you not have discovered the knowledge entry secret, the

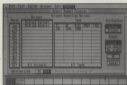
HOME ACCOUNTS

Home's another of those "serious" programs from Digita - aimed, like most of their products, at the home or small business user. This time it's Home Accounts, a package to help you keep track of your financial situation. It runs on any 386/486, is supplied on one single-sided disk, and comes complete with a good quality 37-page instruction manual.

The program allows you to set up details of accounts you have with banks, building societies, etc., and then apply a starting balance plus income and expenditure transactions to them. You're keeping track of their current balances. Minimum and maximum balance limits may be set on each account, enabling the program to warn you of certain impending financial situations requiring your attention. These could include such things as the breaching of agreed credit limits, which could cost you dearly in terms of interest charges if ignored. It could also indicate that there's too much money sloshing around in a low interest account when it could be transferred elsewhere and be earning more. Used properly it seems this program could save you for itself.

A YEAR'S ACCOUNTS

Home Accounts opens with up to 13 accounts of any type, and supports cash transfers between them if required. Each account can handle up to 200 automatic regular transactions (e.g. standing orders), plus up to 260 general transactions. This is probably adequate to cover a year's accounts for most home users, but could be a bit tight for small businesses, who may need greater capacity. You could circumvent this problem by running two sets of half-yearly accounts in-



stead of one annual set, but this introduces an extra level of complexity.

Up to 60 different transaction types can be handled. You can set budgets against them and later use the program's analysis and reporting facilities to track your actual financial performance against them.

Reports are predefined and can't be customised for presentation layout or overall data content. However, the scope of the reports may be varied by including one or more accounts, one or more months, any combination of income/expenditure types, or a subset formed by searching on a string contained in the transaction description field. For example, you could produce a report showing all transactions relating to a particular shop, or all deposits made into a bank, or all purchases paid for by cheque. Of course, this requires that you use a consistent method of describing the transactions when you enter them, otherwise there's no way you can reliably analyse them later.

REPORTS

The main report types include straight listings of transactions, with entries sorted into date, type, transaction detail, or amount sequence; comparisons of budget versus actual figures for each transaction type; budget details for the whole year; and details of the main transaction types for reference purposes. In addition, the program will also show bar-charts or pie-charts showing budgeted versus actual figures for selected transaction types, over selected months and accounts.

IN USE

At first sight, Home Accounts looks pretty good, but in use I found it had a number of nagging flaws, particularly in the data entry and editing areas. For instance, it always automatically enters the current date against a transaction, leaving you to manually backspace and correct it for all transactions not taking place today. This is a real nuisance if, like me, you do your accounts over a month for all transactions occurring throughout the month. Also, on data entry the cursor doesn't automatically find the next field when the current field is full, you need to Tab forwards every time. You can't Backspace or Delete between fields either, you have to use the mouse for this. Slightly annoying, but I find such flaws annoying in practice as they cause a lot of unnecessary keystrokes.

The pie-charts and bar-charts seemed like a good idea, but the program doesn't actually print them out for you. You have to display them on the screen and then screenshot them via ALT-PRNT, which means the printout is cluttered up with nasty garbage such as menus, prompt messages etc., as well as the required chart. The pie-charts show no percentage figures against each segment, so you have no accurate quantification of their values. Also, the segments have no labels on them saying what they represent - different fill patterns are used to represent the transaction types, and you have to consult a legend block at the bottom of the chart to determine what each one represents. Bar-charts are just as messy.

CONCLUSION

Personal accounts should be a good application for a home computer, but I find this version from Digita is spoiled by mediocre design and implementation. The designers really should have spent more time making it more usable, but having said that, it does appear to work and it is reasonably priced, so perhaps I shouldn't be too critical. Overall, it's probably adequate for many home users, but for small businesses you may right find it a bit limited.

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Reviewer: John S Devlin

PeterHickman's

STOS

COLUMN

At a very quiet time for STOS related news, Peter Hickman brings you a super utility to customise the way you boot up your Compiler or Interpreter

Hello STOS user's, here are things? Well you will be pleased to know that AMOS-32 is finally in the shops, which means that the STOS version is not far behind. I am told it should be available in around October/early, hopefully it should prove to be a useful addition to the STOS range of products.

Unfortunately that seems to be about the only real STOS news, unless you know different of course. If you do have any interesting hints, tips, or variations send the STOS why not drop me a line I'm sure that other users would love to hear about them. Ohhh, one small thing is that I have just returned from Europarc HQ in Macclesfield to attend a little celebration in honour of the AMOS-32 launch, thanks to David Thomas and Richard "Cat Killer" Yarnes for putting my name and I up for the night, and of course to Steve Common for Lunatic I have't had the photo's developed yet but I promise to show you some real time!

THE ULTIMATE STOS BOOTER

Only one program again this issue, but it is a useful one. Tony Macey (who is currently putting the finishing touches to some of Pico School 4) has come up with a wonderful program to alter the way STOS boots up. You can choose what Compiler or Interpreter extensions to load (at run time), whether you want booting posts switched on or off, in fact you can control almost every part of STOS before you load it! For this reason it is best that you compile this program. Anyway follow these instructions and you will have a really little program at your disposal:

1. Type in PROGRAM 1.
2. Save it onto a nice blank disk with plenty of room.

3. Compile it and store the resulting program in the AUTO folder of your STOS hard disk (remember to call it 'STOSBOOT.PRG').
4. That's all!

Now when you boot your STOS disk the STOSBOOT program should load first and you can create your own customised resident OS and you should remember to set write protect the disk as the STOS-BOOT program does a little remaining of files to achieve it's intended effect.

THE STOS MAG

Don't they love send me the latest issue of the STOS Magazine, it includes quite a few interesting programs on the disk. One of the most useful is a utility to store up to 18 compressed pictures in one bank! You can find out more by contacting Dion at

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Oh well that's it for this another issue, next time check out the new article about board covers. You it's free but only with the STOS volume 2 so good to you or what?

Write to Peter Hickman at the following address

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