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Trivial Pursuit was programmed by Oxford Digital Enterprises.
News

We discover what has been happening last month in the world of Atari.

Software

Screaming Wings, Star Quake, Quest For Eternity, The Slave, Star Raiders II and Hard Ball come under the scrutiny of our experienced evaluators.

Gadgets

Hardware wizard Len Golding shows how to build a four channel low voltage controller for your 8 bit Atari.

Adventuring

Just in time for Christmas, Brillig emerges from his cave to give you clues for The Pawn, Enchanter, Zork I and the Feasability Experiment.

Games old and new

Whether you’re a newcomer to the Atari or an old hand you’re bound to find something fascinating in André Willey’s survey of game classics.
3 ST Roundup
Mike Cowley reports on all that's new in the ST market.

5 Software
Psion Chess and Winter Games are set to be classics, as you'll see from our expert's evaluation.

8 Christmas presents
We take a look at the range of ST goodies that you can buy this Christmas.

11 Advice
Andrew Bennett answers more of your ST related questions and takes time to weigh up the ST's competition.

15 Cornerman
We take an in-depth look at this software based multi-desk accessory.

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There's a wealth of software releases for the ST. Here's what's available.

25 The way ahead
We examine the games market both old and new and discover what is in store for ST game players.

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These two programs will convert a picture drawn in a colour into one that can be used in black and white.

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To celebrate Christmas we're giving you a bumper stocking full of hints to help you get the most from your ST.

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Is it an Apple or an Atari? Ed Shark reports on a Mac emulator for the ST.

39 Hardware
Clive Haynes reviews Nexus' Eprom development system - how does it perform?
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Show debut for games machine

AN exciting new Atari games machine will be unveiled at the Atari Christmas Show in London.

The Royal Horticultural Hall, Westminster, has been chosen as the venue for the UK launch of the Atari 7800 - less than a month after its debut in America.

Atari describes the newcomer - which is expected to carry a price of £69.95 - as "a reaffirmation of our commitment to the games market".

The machine is intended to answer long standing criticism that the company has been neglecting its loyal army of games enthusiasts in favour of its upmarket operations - in particular the ST series.

The new machine, which is due in the shops before Christmas, is expected to revitalise Atari 8 bit software production.

"A large number of new games will be available by the time the 7800 arrives in the shops", an Atari spokeswoman promised.

"Software houses are clamouring for development kits and plenty of software will be coming in from US developers".

The 7800 will be the centrepiece of Atari's major presence at the Christmas Show which runs from Friday, November 28 to Sunday, November 30.

The company has promised that visitors will be able to enjoy hands-on experience of the new machine as well as getting a chance to see its superb graphics.

Bargains

"Atari has been accused of ignoring 8 bit users in favour of the 16 bit ST, but they have not been forgotten", new UK general manager Bob Gledaw told Atari User.

"We have new software for them and this will be on display at the show."

Altogether more than 100 stands will be loaded with new products and bargain buys from the leading Atari suppliers.

The spacious 20,000 sq ft exhibition hall will play host to big names like Software Express, Twillstar, CDS, Microdeal and Advanced Systems & Techniques as well as Atari itself.

This means the location is likely to see a repeat of the scenes at the first Atari Computer Show last March, which attracted 15,000 visitors.

Latest news of product launches at the show includes Procopy from The Moving Finger Company.

This back-up utility lets users make working copies of all their ST software, as well as formatting and copying discs, and costs £34.95.

Eiderson will be offering two co-ordinated graphics and sound packages for the ST - Prosprite Designer, price £39.95, and Prosound Designer at £49.95.

The firm is also launching Minicom, a new comms package offering access to both Prestel and Telecom Gold as well as supporting Xmodem and Kermit protocols. Price £29.95.

Eiderson single and double floppy drives for the ST will be available for £125 and £199. A 20Mb hard disc unit incorporating fully Gem co-ordinated software and desktop accessories costs £599.

NEW UK SALES CHIEF

ANother former Commodore executive has joined the Atari UK management team.

Paul Welch has been appointed UK sales manager, a position similar to the one he held at Commodore before leaving a year ago to become a mail order software dealer.

Welch follows former Commodore colleague Bob Gledaw to Atari. Gledaw, now Atari UK general manager, was Commodore's UK general manager when Welch joined the company in 1981 as national accounts manager.

The two men struck up a rapport at Commodore and it was Gledaw's recent move to Atari which tipped the scales away from two other attractive job offers Welch was considering.

Interviewed by Atari User, Welch revealed he had been offered the Atari sales boss position two years ago but had turned it down.

"Now that Bob Gledaw has joined Atari it's a different proposition", he said.

"We had a good working relationship at Commodore and I'm sure we can make things happen for Atari."

"We intend to make Atari the prominent brand in the UK micro market once more, concentrating on ensuring our machines are fully supported by top quality products".

ALL program listings in Atari User are now available for free downloading on MicroLink, the UK's fastest growing electronic mail service. They join hundreds of programs already available in the telesoftware section, one of the most popular areas of MicroLink.
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10 ATARI USER December 1986
Bumper to Bumper

CLASSIC pinball with a difference gets the arcade video treatment in Pinball Factory from MicronTron for the Atari ST.

In addition to the game of pinball, players can also design, build and edit their own screens. They can create their ideal pinball machine, choosing from a multitude of bumpers, tabs and other devices and placing them wherever they like.

Then, using a graphic drawing system, walls and solid barriers can be added.

The playing board can be illustrated with pictures, arrows and other designs which the ball will pass over during play.

Any of the ST's 16 palette colours can be changed as desired using the built-in art program, and there is a choice of more than 500 different shades.

Designs can be saved and loaded to disc. Price, including sample ready-to-play screen, $39.95.

On-Line to North Pole

MESSAGES to Father Christmas need not depend on the efficiency of the postal service this year.

To ensure that every child can contact him before the big day, the jolly old fellow has gone on line up at the North Pole. Equipped with an Atari micro no less, Santa has hooked up his workshop to the giant MicroLink computer in the UK.

Now all the kiddies - or their parents - have to do to contact him is to transmit their message via micro and modem.

SantaLink is the latest service being offered through the country's fastest growing electronic mail and messaging system.

All MicroLink subscribers have to do is type SANTA at the prompt when they go on-line, and then enter their message.

The system takes care of the rest. And Father Christmas guarantees that every message sent to him will get through - and be answered personally - right up to Christmas Eve when he leaves to deliver everyone's presents.

Package for pros

A MUSIC sampling system for the ST has been launched by Syndromic Music.

The ADAP (Analog to Digital, Audio Processor) SoundRack allows the user to store up to 64 multisamples in memory for instant playback and incorporates real-time digital effects processing - delay, echo, reverb and envelope following. The package, which is aimed at music, video and broadcast professionals, is already used by top artists Chicago and the Pointer Sisters.

Price £2,459.

Data back-up

ATARI software producer MicronTron has brought out a utility providing data back-up protection for ST hard drive owners.

Backup duplicates the contents of the user's hard drive to floppy discs, minimising the risk of loss.

It also lets the user restore the floppy back-ups to the hard drive.

Backup uses Gem pull-down menus to offer numerous options with different types of mouse controlled back-ups and restores.

Intelligent routines give the choice of making full back-ups or the entire hard drive, back-ups of newly created or modified files, or back-ups simply by date.

The user can make an "image" back-up, transferring logical sectors to counterpart floppy. Price $39.95.

Easier payrolls

A PAYROLL package for the Atari ST has been released by Kyle Data.

Kyle-Wages is designed so that all PAYE, National Insurance and statutory sick pay information need only be updated once irrespective of the number of payrolls on the system.

Separate weekly and monthly payrolls for a number of companies can be held on the same disc.

Each payroll has its own files and password protection but all share information, PAYE, NI and SSP parameters.

A variety of payment terms, periods and methods is possible. Employees can be salaried or hourly paid and payments can be made weekly or monthly by cash, credit transfer or cheque.

Standard payments and deductions are held on file, and pay details can be entered manually or automatically. Price £195.

24 Hour Turn Round

A NEW concept in electronic publishing from Lightning Graphics allows Atari ST users anywhere in the country to buy Scantext digital typesetting for as little as £6 per A4 page.

It is intended for companies and individuals involved in graphic design, printing and publishing who cannot afford the cost of high quality traditional typesetting.

Access

Lightning offers training and a manual along with £100 worth of free typesetting and access to its electronic mail system.

Text is keyed in conventionally on the micro and instead of marking up the copy the user inserts special codes supplied in the manual.

These codes signify typical marking up functions such as type size, type face and line length.

Copy is sent via electronic mail directly on to Lightning's Scantext typesetting system.

Once processed - 24 hours is the normal turnaround - bromide printouts are sent back to the client by post or special courier.

All set to move up

"We're confident that the current trend will continue and we'll be challenging Amstrad for third place soon.

"The overall picture confirms the progress that Atari has made to regain its pre-eminent position in the UK micro marketplace.

"Naturally we're all delighted to hear that independent industry research portrays us in such a favourable light."
Record release

A MANAGEMENT system for C programmers using the Atari ST has been released by Microdeal.

Easy Record handles up to 16 indexed record files at one time, with eight key fields in each record file and eight subfields in each key field. Each key field has a maximum of 123 bytes.

The system allows record access through a variety of logical functions and has a fast, multiway, random record storage facility.

Transaction processing allows related files to be kept consistent with start, end and undo transaction functions.

Easy Record allows specification of key fields, duplicate key field values, creation of files from existing open files, and creation of files from definition files and/or blocks.

It also allows integer, unsigned, long, float, double, string and case independent string key data types, and C source code is included. Price £39.95.

Also new from Microdeal for the ST is Mighty Mail, a comprehensive mailing list database with GEM pull down menus priced £29.95:

Christmas games roundup

A VERSION of the bit arcade game Gauntlet has been released for the ST by U.S. Gold.

The game, which generated a lot of excitement when released in its original coin-in-the-slot format last year, offers multiplayer capabilities as well as sophisticated graphics.

A choice of four characters is available with 150 levels of difficulty.

The object is to combat waves of attacking monsters while competing for food, treasure and magic potions. Price: £24.99.

Also new from U.S. Gold is the first in a series of Mastergames compilations Shoot 'Em Up for the Atari 8 bit series features four previously released titles - Super Zaxxon, Dropzone, Blue Max 2001 and Fort Apocalypse. Cassette price: £9.99.

****

THE first two in a series of Level 9 trilogies have been released for the ST and 8 bit machines by Reinbird Software.

Extensively re-written, Jewels of Darkness comprises three of the most popular Level 9 ST adventures - Colossal Adventure, Adventure Quest and Dungeon Adventure.

The second package, Silver Dreams, features Snowball, Return To Eden and Worm In Paradise, all running on the 8 bit range as well as the ST.

Both packages come complete with a 64-page novella incorporating a 12-page play-guide.

Jewels of Darkness is available on disc, price £19.95. Silicon Dreams is available for the ST on disc, price £19.95 and for the 8 bit series on disc or tape for £14.95.

****

FOUR new ST games have been released by Microdeal.

Electronic Pool is a colourful video pool game featuring a high score table, realistic sound effects including reg-time music. Price: £19.95.

Pinball Factory allows the user to customise his own pinball games and save them to disc. Incorporating graphics, fast action and sound it costs £24.95.

Shuttle is a graphic simulation of the NASA spacecraft. Featuring music from the film 2001 A Space Odyssey, the package costs £24.95.

Karate Kid II is the game of the film.

As Daniel LaRusso the player must battle against powerful adversaries, finally meeting the evil Chozen in the castle of King Shohashi where the secret of the drum must be discovered.

The program features full-size animated screens and costs £24.95.

****

LATEST release from Domark for the Atari 8 bit series is a version of its bestselling package Trivial Pursuit Genius Edition.

Offering all the facilities of the popular board game together with animated graphics, the program is available on disc at £19.95 and cassette at £14.95.

A Young Players Edition is also available for the XL and XE at the same prices.

****

AN adventure question time for users of Level 9 software is to be held in Reading on Saturday, December 13.

Owners of 8 and 16 bit machines are invited to attend the forum where Level 9 representatives will be offering adventure hints and tips and giving away free gifts.

The event will be held between 11am and 1pm at the Ordem Computer Store, Harris Arcade, off Friar Street in Reading.

Movie music

SPECIALIST in computer software to the music industry, German-based Steinberg Research has begun distribution operations from new premises in Oxfordshire.

It has also announced its first product for the Atari ST, an aid to synchronising music in film and television studios.

Called the SMPTE - Society of Motion Picture and Television Engineers - generator, it will be totally interactive with the revised Pro-24 program - a midi event recorder - and connect to the ST via the RS232 port.

The company claims this combination will set new standards in sequencing from time code. The SMPTE generator itself will be available separately for about £600.

US Gold to bring out separate arcade and adventure versions of a game starring He-Man, Battle Cat and Teela in their fight against the evil Skeletor.

Cartoon favourites from the popular Master of the Universe television shows will feature on new software for the Atari ST.

A licensing deal has been signed by Mattel and
An event NOT to be missed!

Atari Christmas Show

Royal Horticultural Hall
Westminster, London SW1

Friday November 28 10am-6pm
Saturday November 29 10am-6pm
Sunday November 30 10am-4pm

The first ever Atari Show last spring was an outstanding success. From all over Britain Atari enthusiasts flocked to London to find out all they could about their favourite machine.

Soon the record-breaking Atari Show will be back – with three days devoted to the exciting developments in this expanding market. Make a note in your diary NOW to make sure you don’t miss this great Christmas extravaganza!

★ All the latest software from publishers in both the UK and USA
★ New hardware releases from Atari and other major companies
★ Experts from Atari User and Atari ST User to answer your questions
★ Experience the fascinating world of computer communications
★ Everything on show from stocking fillers to complete Atari systems

Whether you’re a new user or a seasoned addict, you’ll find the show overflowing with ideas to help you expand your computing horizons!

This is YOUR chance to meet top people in the world of Atari. Among them will be experts from:

Atari UK
2 Bit Systems
Astoray Marketing
Advanced Systems & Tech
Arran
Anco Software
Atari User/Atari ST User
Centeec
Apollo
Computer Bookshops
Computer Concepts
Computer House
Demco Software
Direct Disk Supplies
Electric Studio
EldoVid
First Software
GEM Distribution
Guamix
HSV Computer Services
JB Software
Kink Automation
Learsoft
Metacommix
Microdeal
Micro Media Comp. Supplies
Mikes Computer Stores
Miniature Tool Company
Monitor
Moving Finger Company
Overbase
Page Six
Pyramid Video Software
Red Rat Software
Rottek
Silica Shop
SIM Disk Supplies
Software Express
Software Store
Silk West Software Library
Sirplus
Syndrome Music
Tv Bridge
Tzilla Computers
Tunesoft
Ultron
Vulcan Electronics

Bring this coupon to the Show to get 50p per person off the normal admission price of £3 (adults), £2 (children).
Valid for up to four people.

ATARI CHRISTMAS SHOW

Friday, Nov 28, 10am-6pm
Saturday, Nov 29, 10am-6pm
Sunday, Nov 30, 10am-4pm

New Horticultural Hall
Westminster, London SW1

Nearest Tube / Main line station: Victoria. Ample car parking nearby.
Good as new

Program: Star Raiders II
Price: £14.95 (disc only)
Supplier: Atari, c/o SDL, 1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX
Tel: 01-309 1111

Star Raiders was introduced in 1979 when the Atari 400/800 machines were launched, so Star Raiders II represents a landmark in Atari history.

Does it shape up, is it worth buying the new one and is it as good as the original?

The answer is yes, but don’t buy it expecting a carbon copy game with flashier graphics as it’s a modified version of the unreleased The Last Starfighter.

Seven years on and the Zylons are up to their old tricks, this time with better weapons. They have improved their defences and have the capacity to introduce more ships into the fray.

To defeat them you will have to protect the cities of the Celos IV star system and destroy the attack bases of the Procyon star system, where the Zylons build their new ships.

Each star system has a number of planets with cities or attack bases and to succeed you will have to warp between and around the systems.

There is a new graphic representation of the star systems, with planets, moons and suns, looking more like pages from a colour encyclopedia than a computer game.

Also shown are space stations and Zylon squadrons in transit.

When you select a planet on the System Chart you’re given a lot of information, including the number of cities or attack bases there, the type of terrain and the number of enemy ships surrounding it.

When you warp there the planet is represented as a scrolling landscape below you. Liberty Star doesn’t handle too well in combat. She doesn’t seem to turn at all and there is no aft view.

She won’t pull up or dive when engaging enemy ships and you can’t adjust your speed in deep space.

The Zylon ships tend to present themselves to be shot down so there is no hunting in this game.

A different type of enemy ship appears when a predetermined number of lower types are destroyed.

Be careful – I have often hit a Fly Fighter, seen it catch fire, and then had it fire back at me in its death throes.

Docking is fully automated, which is just as well as your ship has very small fuel tanks. Refuelling and repairs take a large portion of your time but there is no penalty (save losing a city or two) at judgement time.

I heartily recommend this game, probably the best to have appeared since Star Raiders I. The number of tasks involved mean that any limitations are satisfactorily overcome.

Rob Anthony

Pitching it right

Program: Hardball
Price: £7.95 (cassette)
£11.95 (disc)
Supplier: US Gold, Unit 2/3, Holford Way, Holford, Birmingham, B6 7AX.
Tel: 021-356 3388

Hardball is the first simulation for the Atari of the very popular American sport, baseball.

On loading, a series of choices are presented, covering two player and computer versus player games. A management screen details team members and offers the opportunity to substitute men or move them about the field. Action then passes to the main screen, which is split into two sections.

The upper half shows the catcher and the batter, with the catcher and the umpire (who looks like an overgrown gorilla) behind the batter.

On the right is an inset diagram of the whole pitch on which the running men may be seen.

The lower portion of the screen gives details of the scores and displays the batting and pitching choices in large red and blue boxes.

Each player chooses a batting or pitching method by using his joystick and pressing the fire button.

The pitcher then chooses where to place the pitched ball and the catcher will move his glove to the relevant position.

The ball is pitched and the batter now has to try and hit it by choosing a direction with the joystick and swinging the bat by pressing the fire button.

If he hits the ball, a half view of the field appears showing the running men and the fielders chasing the ball.

If he misses, the umpire will call Strike and, providing the batter has had less than three strikes against him, another pitch may be made. After three strikes a batter is out.

After three dismissals the whole team is out and the teams change over. The game ends when both teams have batted nine times.

Music plays throughout the game, and although you can’t turn it off, there are several different tunes.

Graphics are brilliant, especially the movement of the pitcher. However it is very difficult to play at first, and takes several hours of practice to hit the ball regularly.

Stephen Foster
South Pacific

Program: Screaming Wings
Price: £7.95 (cassette), £9.95 (disc)
Supplier: Red Rat, 15 Fennel Street, Manchester M4 3DU
Tel: 061-835 1055

If you've ever fancied yourself as a pilot taking on hordes of enemy aircraft single-handed then this is your type of game.

Fans of the arcade game 1942 will no doubt notice more than a passing similarity, although the enemy seem to have adopted different attack tactics.

You command a Lockheed Lightning Fighter, taking on the waves of Japanese fighters and bombers that come swooping in as you patrol the South Pacific.

You take off from your carrier at the start of each level and land again before the next - providing you survive.

Destroying certain planes gives you limited extra firepower or Destructor Smart Bombs.

Your plane can also perform up to three loops to get out of those awkward little situations, but you do get an extra bonus for keeping them.

As these are operated by the spacebar you usually end up not being able to use them to any great advantage anyway.

The larger fighters take a bit more killing and the bomber almost refuses to be shot down, which means using different strategies on different planes.

Fortunately all is not lost, for occasionally you are joined by another plane which acts as a shield for a while - who said chivalry was dead.

Joystick response is good although I felt the plane was a bit restricted as it is confined to the lower quarter of the screen.

The game is quite addictive, with a definite feeling of 'just one more go' whenever you lose all your lives.

Graphically the game falls down a bit - the planes are rather uninspiring, especially your own.

The background is quite well designed and scrolling is very smooth, and the planes swoop and turn quite convincingly.

Some planes seem to have the ability to fly backwards (pretty clever, these Japanese), but this doesn't really detract from the game.

Sound effects are good but an unimaginative tune plinks away in the background. However, you can turn the tune off but leave the sound effects on.

Overall Screaming Wings is a fairly average shoot-em-up. It'll keep you occupied for a few hours but the lack of variety in later screens and having only one level means once you have played it a few times the appeal fades.

At the price it's worth trying it out before parting with your money.

Mark Fowles

Sound...............8
Graphics...........7
Playability........8
Value for money...7
Overall.............7

Humble servant

Program: The Slave
Price: £19.95 (disc)
Supplier: N J Gregory, 8 Agard Street, Derby, DE1 1BZ (mail order only)

THE Slave is a suite of programs which allows you to write an adventure of up to 170k, which will then reside on one side of a disc.

First you should map out your adventure on paper, ensuring it is as close as possible to how you wish it to turn out - testing and correcting your adventure is not the easiest thing to do.

You can now define your location descriptions (which can be up to a full page of text), messages, objects, and verbs/nouns - up to 255 of each.

An excellent feature. Examine, is available to provide a more detailed description of an object if necessary.

Each verb or noun can have several synonyms, thereby increasing the vocabulary.

The Exit editor allows up to 10 exits to be defined for each location.

If you have ever written or attempted to write an adventure, you will know of the usefulness of flags. Well The Slave is equal to the task with the ubiquitous 255.

Some are pre-defined, for example the number of objects carried.

Now comes the hard work. To solve your adventure, a player will require actions/replies to the commands he enters. To write the logic for these responses you are given SAL, the Slave Adventure Language.

SAL is a language akin to a powerful Basic. It has 73 main commands but these can be combined to give over 244 variations, some of which enable you to introduce sound, music and colour changes into your masterwork.

After you have produced all the necessary files, you are shown how to bring them all together to form the finished adventure.

The Slave also includes a debugging program and a facility to design a simple title page using Graphics 0 characters.

The 126 page manual, although well written and at times amusing, is occasionally difficult to understand but careful re-reading will eventually clarify any points of doubt.

All in all The Slave is an excellent value, and a must for any budding adventure writers.

Ken Grassham

Ease of use............7
Content/Facilities.....10
Documentation..........8
Value for money........7
Overall................9

December 1986
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AT 12
**Classic mould**

Program: Starquake  
Price: £8.95 (cassette) £12.95 (disc)  
Supplier: Bubble Bus, 87 High Street, Tonbridge, Kent TNG 1RX.  
Tel: 0722 255962  

COME on, admit it. There must have been a time or two when you've cast an envious glance at those arcade adventures from Ultimate for the Spectrum and wished they were available for your Atari.  

Be jealous no more. Bubble Bus has produced Starquake, an original program but one that is graphically very much in the mould of those earlier Ultimate classics.  

You control Blob, an owlish little creature who must scour the caves of an alien planet and amass various items.  

The planet's core has gone critical - Blob's job is to find it, fill it with the right objects and thus stabilise it. Ah, the wonders of modern technology!  

Blob is delightfully animated, scurrying this way and that along terrains as he explores the caverns.  

Being subject to the normal rules of gravity, when he trundles off the edge of a precipice he falls until he meets the ground again. No damage is done unless he strikes something nasty on the way down.  

His freefall can be slowed by pulling back on the joystick. This causes a small platform to appear under him and stop him dead.  

This facility can also be used on the ground - fast and repeated pulling back on the joystick creates a ladder of these dissolving platforms which can be used for getting at otherwise inaccessible places.  

Blob can also get airborne by alighting on what looks like a white breeze-block. Once on it, he can fly merrily around the caverns.  

Another fast way of travelling is by using one of the transporter booths. To activate, you must guide Blob into a booth, type in the code of any of the other booths and bingo - he's there.  

There are hundreds of different caves, each one a separate screen. Wander off the edge of the screen and another pops up.  

The caves are filled with alien vegetation, machinery and neatly animated flying foes.  

Energy is lost each time Blob is touched by an alien (but he can zap them) and he loses a life if he blunders into such fatal items as sparking machinery or a spiked plant.  

Blob has 5 lives and a limited amount of energy, zap and platform-building power. Everything about Starquake impresses, from the title screen to the high-score table, from the use of colour and sound to responsiveness and playability.  

Bubble Bus has produced a superb game. Starquake is top-notch fare, quality dripping from every byte.

---

**Modest tasks**

Program: Quest For Eternity  
Price: £2.99  
Supplier: Bug-Byte, Liberty House, 222 Regent Street, London W1R 7DB.  
Tel: 01-439 0666  

FANCY doing something unusual today, like becoming an overlord of the universe? That's the modest task this text adventure sets you.  

To achieve your ambition all you have to do is get an out-of-order teleport booth back in working order.  

The snag is that this booth is situated on a somewhat hostile planet over 2000 light years away.  

You start onboard the starship Nebula which is itself out of action - does nothing work in this part of the galaxy? Finding out how to get the ship going is your prime task.  

On the flight deck there's a control panel, terminal and viewscreen but try as you might, there doesn't seem any way of bringing them to life.  

Up by the main drive units the deflector's iridium level seems pretty low - perhaps that's something to do with it.  

A large crate in the hold possibly holds a clue but how do you get it open?  

You could always try leaving the starship via the airlock but that results in suffocation through lack of air.  

Wearing a discarded space suit doesn't help, either - its air level is zero. This opening sequence should give you plenty to think about.  

The display is fairly conventional. Your location, possible exits and visible items are described in the top half of the screen while input and responses appear in the lower half.  

There's no scrolling - the screen clears each time you execute an action that carries a positive result.  

The game's vocabulary consists of 99 verbs and 162 nouns, commands being in the usual verb-noun format.  

If a command is not recognised by the program, it helpfully tells you whether it is the verb or the noun that is not understood.  

The descriptions are fairly detailed and there are over 70 locations to explore.  

The text is literate, the game well organised and, despite the program being written in Basic, response time is fast.  

Quest For Eternity is an enjoyable if unoriginal adventure. At the price, well worth buying.

---

Bob Chappell
Four channel model controller

Part 7 of LEN GOLDING's series on using your Atari to control devices

If you've ever wanted to link your Atari to Lego and Meccano kits, slot-car racers, miniature railways or computer-driven buggies this model controller is for you. It can even handle your Christmas Tree lights!

The controller provides independent on/off switching for up to four motors, relays, solenoids or other low-voltage devices. It can also operate as a four-channel speed controller, or as a two-channel reversing switch so you can make a buggy move forwards, backwards, left or right at different speeds under full software control.

Each channel can drive a dozen torch bulbs for children's disco displays — including chaser lights — and there are even some limited applications in robotics.

Figure 1 gives the circuit in schematic form. Each of the four outputs is driven by a two-transistor power switch which enables the tiny currents and voltages from the joystick port to control currents of up to 5 amps and voltages of up to 24V at the outputs.

We explained transistor switching action back in the second article of this series (Atari User, July 1986).

Figure II shows the printed circuit board pattern for those of you who want to etch your own but, as usual, a commercially-made PCB is available from RH Design.

The component layout is shown in Figure III and construction is very straightforward so that anyone can attempt it. Start by soldering the resistors and diodes, making sure the diodes are connected with their silver bands to the top. Then fit the BC108 transistors and all connecting blocks.

Bend the leads of each TIP127 transistor at right angles and spread

![Circuit diagram for main board](image-url)
them slightly to fit the PCB holes. Smear a small amount of silicon grease on the back of each transistor then bolt the four transistor and heat-sink assemblies into place before soldering the leads.

Make sure that the heat-sink vanes cannot touch each other or the gadget will not work properly.

Cut the joystick cable to length, discarding the socket end, then wire each of the nine leads to its appropriate point on terminal block 1, as indicated in Figure III. Use a P clip to secure the joystick cable and take any strain.

Motors require far more current than a joystick port can provide, so the next thing you need is some kind of low-voltage DC power supply. This design allows a very wide latitude—anything from 4.5V to 24V is acceptable.

At high output currents the voltage delivered to your load may be almost 1V less than the full supply voltage.

A properly stabilised mains power supply unit is best, but these are expensive and not really necessary for things like motors, solenoids, relays, lamps and other non-electronic devices. Battery eliminators intended for transistor radios or computers give good results, but the cheap ones cannot usually supply currents above 1 amp.

DC power packs designed for model railways, slot cars and construction sets will work quite well and even a car battery charger should give acceptable results, though the output...
from all these devices tends to be unstable.

A 12V car battery charger, for example, may deliver 18V or more under no-load or light load conditions, falling to 12V or less when supplying several amps. These voltage fluctuations will affect the speed of most model motors, so you may find things tend to slow down as more channels are switched in.

If you plan to run any other types of device – especially if you are considering running electronic units such as radios or tape recorders – then it is best to stick to using properly regulated power supplies.

Lead-acid accumulators give a good clean, stable output and can supply extremely high currents but they need careful handling. Dry batteries are safest, though expensive, and rechargeable nickel-cadmium cells may be worth considering.

Whatever type of power supply you choose, its output must be wired to terminal block 2 as shown in Figure III. Take great care not to reverse the positive and negative leads or you could damage the transistors.

Each output transistor can easily handle 1amp continuously and up to 5amps for periods of a few seconds. If you plan to draw steady currents above 1.5amps you will need to use larger heat sinks.

Programming the device follows the familiar pattern. Start by setting up the joystick ports for output (first line of Program I), then POKE a number from 0 to 15 into address 54016 to switch on your chosen combination of channels. Table I shows all the possibilities.

Program I is a simple demo which switches on each channel in turn, so if you connect a line of four torch bulbs you will see a chaser effect.

An attractive animated display can be made from an old set of Christmas tree lights. Assuming your set of lights takes 12V bulbs, you will find that there are 20 bulbs in the set, wired in series. This means each bulb receives one twentieth of the 240V mains supply – or 12V.

Cut the flex half-way between each bulb, untwist the tails to each holder and re-wire the bulbs in parallel. You could wire different coloured bulbs to each of the channels and have an attractive multicoloured light sequence for Christmas.

There is no reason, of course, why you shouldn't extend the wires with some two-core flex and run your Christmas tree lights from your Atari this year! Just remember to keep the bulbs in parallel with each other.

If you're using motors you can introduce an element of speed control by switching the power on and off in rapid pulses. Program II shows the conventional way of doing this, using a variable mark/space ratio.

A short burst of power (the mark) is applied, followed by a short off period (the space). By choosing appropriate values for MARK and SPACE you can usually reduce a motor's speed by as much as eight times before its movement becomes too jerky.

Try, for example, setting MARK = 1 and SPACE = 8. Program II operates with channel 1, but you could apply the same principle to any of the channels.

Some applications – such as buggies and robot arms – need a controller which can change a motor’s direction of movement. Most model motors can be reversed simply by changing the polarity of their supply leads, and Figure IV shows...
how to do this with Double Pole, Double Throw – or DPDT – relays.

Each relay is run from two channels – one for the on/off function and the other to select forward or reverse. Any DPDT relay will work provided the coil and contact ratings suit your application.

An add-on PCB (DBPS) is available for use with two of Maplin’s ultra-miniature relays, which can each handle 2 amps at up to 24V. Choose the coil voltage which best suits your power supply – 6V types will operate on 4.5V to 7.5V, while 12V types work on 9V to 15V.

The foil pattern and layout for this PCB are shown in Figures V and VI. The 8-way terminal block is connected pin-for-pin to terminal block 3 on the main board, using flexible wires or rigid pins cut from 2.5 sq mm mains cable. Table II gives the numbers to POKE into 54016 for the various output operations in this mode.

You might like to consider building a Lego model tank with a separate motor for each track, or a model car with some kind of servo to operate the steering. You could fit only one reversing relay and still have two on/off channels available – to control a model train and two signal lamps, for example.

External sensors can be connected to the main board at terminal block 2, as shown in Figure III. Joining the two pins marked Trig will cause the number in address 644 to change from 1 to 0. Try wiring a microswitch to operate when your buggy hits an obstacle, or when a robot hand closes.

The other two inputs (Pot A and Pot B) each measure the amount of electrical resistance between their two contacts, and store the result at address 624 (pot A) or 625 (pot B).

A 470k variable resistor placed across one of these lines will return a number from 1 to just over 200 and this could be used to measure the degree of rotation in a servo shaft, or the angular movement of a robot arm.

Alternatively you could fit a cadmium sulphide cell, whose resistance varies according to the level of

Table II: Reverse switching from Port 1

<table>
<thead>
<tr>
<th>Number in 54016</th>
<th>Left Motor</th>
<th>Right Motor</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>off</td>
<td>off</td>
</tr>
<tr>
<td>1</td>
<td>off</td>
<td>off</td>
</tr>
<tr>
<td>2</td>
<td>forward</td>
<td>off</td>
</tr>
<tr>
<td>3</td>
<td>reverse</td>
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</tr>
<tr>
<td>4</td>
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</tr>
<tr>
<td>5</td>
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</tr>
<tr>
<td>6</td>
<td>forward</td>
<td>off</td>
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<tr>
<td>7</td>
<td>reverse</td>
<td>off</td>
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<td>11</td>
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Program II

```
1 REM Gadgets part VI: 4-channel low voltage switch
2 REM Program 2
3 REM
10 POKE 54128,56:POKE 54129,255:POKE 54131,60:POKE 54139,8
20 PRINT "SET MARK,SPACE":INPUT MARK,5
30 POKE 54108:REM SET SPEED
40 POKE 54108,1:REM Switch on channel 1
50 FOR W1 TO MARK:NEXT W1:REM "ON" period
60 POKE 54108,5:REM all channels off
70 FOR W1 TO SPACE:NEXT W1:REM "OFF" period
80 GOTO 30
```

Get it right!

```
1 14113  2 31835  3 871
10 9277  20 11170  30 8256
40 8171  50 7806  60 8227
70 1420  80 2452  90 8227
```

Figure IV: Circuit diagram of motor controller board

Figure V: PCB foil pattern for motor controller board

Figure VI: Component layout on reverse of motor controller PCB
illuminating — see *Atari User*, June 1986. Arrange for your train or slot car to break a beam of light when it passes a given point and you have the basis for an accurate position sensor or lap counter.

That should give you plenty to think about over the Christmas holiday period. Why not try out some ideas of your own and let us know how you get on?

All components available from:
Maplin Electronic Supplies
P.O. Box 3
Rayleigh
Essex
SS6 8KLR
Tel: 0727 552911

Circuit boards are available from:
R.H. Design
137 Stonefall Avenue
Harrogate
North Yorkshire
HG2 7NS
Tel: 0423 508359

Main printed circuit board (DBP4) £3.10

Relay Board (DBP5) £0.48*

*plus 20p postage if not ordered with main board

---

### PARTS REQUIRED

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<td>2 -way pc terminal blocks</td>
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<td>LR44X</td>
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<tr>
<td>1 Tube silicon grease</td>
<td>HQ00A</td>
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<td>1 Pack 6BA x 1/4&quot; bolts</td>
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Approximate cost £9.80

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A joystick extension lead is available from Tandy stores (code 276-1978) or from large computer shops, priced around £3.30.

---

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---

**US GOLD**

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This Drive enhancement consists of a plug-in PCB, which can easily be fitted with our simple to follow instructions.
The 1050 IS PLATE Disk Drive enhancement offers many features never before available in one UNIT:

- Improved Drive speeds - up to TWICE normal loading speeds (Depending on disk format used).
- Reduction of Drive WEAR and TEAR; now whole tracks can be stored in the Internal 1k RAM.
- The IS PLATE can READ/WRITE a whole track in the time it takes a standard 1050 drive to READ/WRITE a single sector (up to FIVE times standard speed).
- Supports double, dual and single densities.
- Sector SKW is no longer required to obtain Hi-speeds as with US Doubler.
- Other special features are: Slow down, Fast write, Fast read, Drive write lock, Skew on/off, Fast formatting.
- Fast write with verify. This system is faster than other systems which write without verify.
- A double sided operating system disk is supplied which offers the following:
  IS Doubler, US Doubler, Standard 1050 and Archiver emulation.
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A C.R.C. creator (bad sectors). No hardware modification necessary. Will create a C.R.C. to any sector on a single density program disk. Disk only £10 post free.

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15 Woodbrooke Road, Birmingham B30 1UE
WHEN you wake up early on Christmas morning and reach out to dispel the shadows by turning on your trusty brass lantern, what adventure will you hope to find stuffed in your battered leather knapsack at the foot of your pile of straw?

Perhaps you've already made up your mind. If not, get out a piece of your best parchment, with your gold quill write the words Jewels of Darkness on it, address it to Santa c/o the North Pole and shove it straight up the chimney.

Who shouted that there's no such person as Santa Claus? How dare you call yourself an adventurer!

Published by Rainbird, and available for both the ST and 8 bit Atari computers, Jewels of Darkness is a collection of three superb early adventures from Level 9.

The trilogy comprises Colossal Adventure, Adventure Quest and Dungeon Adventure. All have been comprehensively updated to include graphics — no less than 600 coloured illustrations — a 1,000 word vocabulary, multi-command input, multitasking (type ahead regardless of what's happening on the screen), and incredibly fast response times.

Even without all that technological wizardry these adventures would still be among the best around. Colossal Cave is an all-time classic and this version is rated by many, including my humble self, as the finest ever. No self-respecting adventurer worthy of the name should be without it.

And just what king's ransom does this regal collection cost, I hear you ask in trepidation? My raven fell off its perch and almost died laughing when it told me, so brace yourself for a shock.

For the 8 bit Atari you get this imperial trilogy on three separate cassettes, or one disc, handsomely boxed, complete with a 64 page novella, for the incredibly low price of £14.95. That's less than a fiver an adventure, not counting the smashing packaging and book. The ST version costs slightly more, at £19.95.

So there you are. Jewels of Darkness has got to be the adventurer's bargain of the year. And Rainbird promises more of such delights. Watch this space.

To give you some more ideas for Christmas presents, whether for your friends or yourself, I've listed my 20 favourites.

Plenty of Infocom titles there, but they happen to be the crown princes in my book. I know of no better reason for owning a disc drive than being able to play Infocom adventures.

Now to this month's hints and tips. Nigel Mors from Doncaster wants to know how to deal with the snowman and the dragon in Rainbird's The Pawn. Nigel's difficulties with the snowman are dealt with in Hints 'N' Tips, but can anyone tell me how to get Nigel past the dragon?

Dragons have also stumped Eric Nolan of Dublin. These creatures seem to cause adventurers more problems than anything else. Eric needs help with those in Enchanter and Feasibility Experiment. In the latter, he'd also like to know how to light his lamp.

Eric has another problem — can anybody tell him where he can find the drum for the soldier ants in Return To Eden?

Next issue I'll be back with more hints and tips to aid you in your struggles, together with the start of a reader's Lifeline corner. If you'd like to be listed in Lifeline write in with your name, address and which adventures you can help others with.

Until then, I wish you a joyous Christmas and an adventurous New Year.

---

**BRILLIG'S TOP SCORE**

2. Jewels Of Darkness (Rainbird)
3. Zork I (Infocom)
4. Planetfall (Infocom)
5. The Pawn (Rainbird)
6. Lords of Time (Level 9)
7. Pirate Adventure (Adventure International)
8. Zork II (Infocom)
9. Trinity (Infocom)
10. Enchanter (Infocom)
11. Adventureland (Adventure International)
12. Sorcerer (Infocom)
13. Spellbreaker (Infocom)
14. Price of Magik (Level 9)
15. Lords of Kharma (Avalon Hill)
16. Golden Baton (Channel 8)
17. Wishbribber (Infocom)
18. Zork III (Infocom)
19. Mordon's Quest (Melbourne House)
20. Sorcerer of Claymorgue Castle (Adventure International)

---

**HINTS 'N' TIPS**

**ENCHANTER — Infocom**
To deal with the dragon.
LEP SRAD NOGE HTES U

**FEASIBILITY EXPERIMENT — Digital Fantasia**
To overcome this dragon’s fiery breath.
FLES DLEI HSDN ANOP AEWE SU
To fix the lamp.
KCIW ADNA LIOD EENU OY

**THE PAWN — Rainbird**
Snowman a barrier?
ETIH WEKA MOTE ULBD NANE ERGD ERXI M
Then simply:
TIHT IWNA MWON STLE M

**ZORK I**
Is the thief bringing you to grief in combat?
NOPA EWT SBE SBSE FINS FYPK YSA NEHT
NORA OYRE GNOIR TSEH OYFB HUOY STNO OPMEH T
EBAU OYRE GNOR SMIH GIHGI SMIV IGBY MIHT CART SID

December 1986 ATARI USER 25
IT really doesn’t seem twelve months since you were sitting round the dinner table tucking into that enormous Christmas turkey does it? But, ‘tis the season to be jolly, and for many of our readers that means getting out all the old favourites—games which haven’t seen the light of day since last Christmas. If you remember, the twins thrashed granny at Missile Command and Uncle Tom spent most of the afternoon trying to get his frog across the road...

For seasoned owners the Atari will naturally be a star performer at Christmas but spare a thought for the newcomers who took advantage of the marvellous Dixons and Currys bargain packs during 1986. They have probably never seen Frogger, much less the other classics.

The problem is that alongside these masterpieces there was, frankly, a lot of rather highly priced rubbish. So, if you’re among that vast majority of Atari owners who don’t remember the excitement of buying an original 16k Atari 800 for the bargain price of £645, read on and get a few ideas for this Christmas.

There can really only be one place to start when talking about all-time classic Atari games—and that is with Star Raiders. Released on an 8k cartridge at £34.95 (now available at under a tenner), this game was a milestone in the computer games industry. Indeed, I know a good few people who actually lashed out their £645 just to play this game and it still holds up well today.

Star Raiders is a space combat simulator with a through-the-window flight display. The aim is to defend your Starbases from attack by the evil Zylon empire.

To do this you hyperwarp your space ship around the galaxy to areas which your long range tracking system shows have a high Zylon fleet concentration. When you drop out of hyperwarp your short range trackers kick back into life and with the red alert klaxon ringing in your ears you engage the shields and the attack computer and commence battle.

As your on-board systems sustain damage and you run desperately low on fuel, you must choose your moment to warp out and dock with a friendly starbase for repairs.

Star Raiders is extremely addictive and a must for all serious games enthusiasts.

Staying with the space theme for a while, there can be few who have not seen the arcade machine Defender and the Atari cartridge is one of the closest representations available. You have all the excitement and speed of the original, blasting aliens like there is no tomorrow as you rescue people from the clutches of the evil galactic baddies.

If you liked Defender then you’ll love Dropzone. This was released a little more recently but very quickly gained the classic label. The theme is the same as Defender but this time you play a space man with a jet pack and a laser gun.

No games overview would be complete without a mention of Space Invaders, and there have been a whole host of variations on this arcade standard. The closest to the original machine is probably De-Luxe Invaders from Roklan, but Atari's own Space Invaders cartridge is pretty good too.

The Galaxians cartridge has its merits in terms of fast moving aliens, but the cream of the lot must be Bandits from Sirius software. I last saw this priced at £21.99, but it was worth every penny.

Each wave of aliens is different: Firstly a bunch of swooping and diving craft which are quite easy to knock off, then craft that fly off into the distance every so often. These are followed by ships made up of coloured spheres which will separate and bounce all over the place if you shoot them down. The next wave features centipede-like aliens which snake their way towards you at an alarming pace.

As you progress through the levels these different types of ship gang up to try to obliterate you. Accompanied by some of the most original—not to say downright rude—sound effects I’ve heard for years, this game is one of my all-time favourites.
One of the strangest computer games I've come across—and I highly recommend it—is Joust. You play a space-age knight in shining armour, astride not a horse but a giant flapping bird.

The controls are simple—left, right and press the button to flap (gravity brings you down again, often with a bump). Combat is straightforward but, especially as a two player game in which both riders play on the same screen, it is hard to beat for sheer enjoyment.

Moving on from the space attack games, there are a number of family games. The most obvious of these is Pac-Man—which I don't really think needs any further explanation other than to say that it is one of the best versions available on any micro, even today.

Frogger is another arcade classic which has made a successful move to the Atari home computer—complete with cars, logs, turtles and even Mrs Frog. This one still has great appeal. Another Frogger-like game is Preppie—which features a little fellow who must cross the road and river in order to collect golf-balls which have gone out of bounds. Again, this has lasting interest and some pleasant music.

If you want a bit more of a challenge, look no further than Miner 2049er. This is probably top of my own personal list of favourite arcade games, simply because there is so much to it.

You play Bounty Bob, a gold prospector who is trying to find his way through the radioactive mines. Along the way there are radioactive creatures who kill on contact, but which you can destroy after picking up certain objects—rather like Pac-Man's power-pills.

The real appeal of Miner is that to complete each level you must leave your footprints on every bit of floor you can see—and that often involves a lot of leaping about, not to mention using the teleporter lifts and falling down slippery slides at just the wrong moment.

There are 10 completely different screens and as many difficulty levels of each screen—making screen 10/level 10 an almost impossible task. This game is a must for all game-a-holics, and no collection is complete without it—or its sequel Bounty Bob Strikes Back. Still on the levels and ladders theme, you should also look out for Donkey Kong, Lode Runner and Popeye, all of which still hold up very well today and provide hours of fun.

If you wish to add a combat element to this idea you could try Bruce Lee, in which you take the part of our hero in trying to defeat the bad guys and explore a temple at the same time.

The simulation enthusiasts have not been forgotten in the Atari games field, with the excellent Pole Position car racing game still selling well, even if it has been a little out-classed recently by ElectraGlide.

Flight Simulator II and Mercenary both boast excellent 3D in-flight graphics, with Mercenary having the added bonus of the space theme and lots of exploring and bargaining to do.

Sports fans can try their hands at Summer Games, which is a real joystick wrencher and can be very compulsive when played in a four-some. Decathlon is good too, but I think that Summer Games just takes the edge.

Martial arts fans who were not satisfied with Bruce Lee should take a look at International Karate. Although only released recently this will quickly become a classic and should feature in any serious games player's collection. It allows you to take your karate more seriously, with various kicks, punches and moves available to you, plus full scoring and match play rules.

That collection should see you through December 25th. However, when Boxing Day comes around and the relatives have all gone home, how about sitting down with something a bit more brain taxing—and what better choice than an Infocom adventure?

Adventures are not everyone's cup of tea, but if you want one that will appeal to almost anybody, give the Hitch Hiker's Guide to the Galaxy a try. You may be stuck on it till next Christmas, but whatever else you do you'll keep on coming back to it for one more try.

The characters are well rounded, the puzzles intriguing and infuriating and the situations really zany. It took me absolutely ages to get through the screening door on the Heart of Gold spaceship, but that feeling of euphoria as it finally slid open surpasses any amount of alien-blasting.

In this brief survey I haven't really been able to scratch the surface of the enormous number of games available for the 8-bit Atari. For example it would be well worth your taking a look at such all-time hits as Caverns of Mars, Sea Dragon, Encounter and Missile Command.

Hopefully I have been able to give some of the newer owners a few ideas for Christmas and reminded the old faithfuls to dust off the cartridge box, get out the spare joysticks and have a very Merry Atari User Christmas.

The titles mentioned are available from the following suppliers:

- Missile Command, Caverns of Mars, Star Raiders, Defender, Space Invaders, Galaxians, Joust and Donkey Kong—Atari.
- Frogger—Sierra On-Line
- Deluxe Invaders—Roklan
- Sea Dragon, Drop Zone, Preppie, Bounty Bob Strikes Back—Americana.
- Bandits—Sirius Software
- Miner 2049er—Sirius Software
- Popeye—Parker Brothers
- ElectraGlide—English Software
- Flight Simulator II—Sub Logic Corp.
- Mercenary and Encounter—Novagen.
- Decathlon—Activision
- International Karate—System 3/Activision

*Indicates no longer easily available, but with a little hunting about, readers could probably find some old stock.
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SANTA'S GROTTO

Have some festive fun with MIKE ROWE's latest game

IT'S Christmas Eve and all over the country stockings are being hung and chimneys swept in preparation for the following morning. All is happy and cheerful and the world is at peace.

But wait ... at the North Pole all is not so well - poor Santa is in a panic. He's polished Rudolph's nose, checked the oil level and tyre pressure, got his AA route map ready and is about to depart when he finds the boot of his sleigh is empty. Those mischievous little elves have pinched all the presents and hidden them!

Only six hours to go to Christmas Day and the presents are scattered throughout the catacombs of Santa's Grotto. Your is to guide Santa around the catacombs, collecting as many presents as possible before the time is up.

To make things worse, the elves have hidden several sacks in rooms where you will have to solve a puzzle to get to them. Each sack contains 10 presents so it's worth going for them, but remember that you cannot waste too much time in these rooms as Santa doesn't want to linger.

Luckily Santa has a map of the catacombs, but unfortunately it's difficult to fold and he can only see one small section at a time. So go to it - think of all the unhappy children tomorrow if you fail - not to mention the fact that your present might be in there somewhere!

Santa's Grotto is a one player game where the object is to rush around the 100 screen maze collecting as many presents as possible. Each time you play a completely new maze will be created. You control Santa with a joystick in port one and to collect a present all you have to do is touch it. The time limit is displayed at the bottom of the screen.

Not all presents are necessarily obtainable but you must get as many as you can before midnight. And there are 10 magic locations which will transport you to one of the elves' secret lairs. Here you will find a sack containing 10 presents, but to get it you must solve a little puzzle.

At the end of the game the number of presents you have collected will be displayed and a rating of your performance will be given.

The program is commented with rums to give some idea of what's going on, although to save on typing these can be omitted without affecting the running of the game.

The main part of the game runs on a custom Display List screen which is largely made up of Graphics 2 lines, with the maze being drawn using a custom character set. Santa is made up of two player missiles, thus giving his two colours. He is moved using a small machine code call stored in MS.

Screen initialisation, the character set and the player missile graphics are done in lines 2000 to 25000 and the data for this starts at line 25000. The screen drawing routines begin at line 2000.

The main routine for the program is on lines 100 to 190, with subroutines for moving Santa at lines 50 to 95. These are put at the beginning of the program to give a little extra speed where it is most needed. Lines 200 to 900 control the puzzle solving sections.

Once you have typied it in don't forget to Save a copy before you run it. There is some machine code used which could crash the computer if mistyped.

If you have any problems typing it in, don't forget to use Get It Right! to help you - or why not download a copy from MicroLink?
HAVE you ever accidentally wiped out a couple of days work simply because you forgot to back-up your main work disc? Most programmers have probably it seemed just too much bother to go through all that tedious disc swapping involved in a duplicate disc operation.

If you’ve ever had this problem, Once-Over, Program 1, is the solution you have been looking for.

It is a disc back-up program that can copy an entire single density disc in just one pass.

To do this you must have a 130XE—or an upgraded 800XL— because the program uses the extra 64k of banked memory to store part of the 92k of data from the disc. It will not allow you to duplicate commercial copy-protected discs.

Once-Over is designed to be easy to use and very fast. The options available to you are displayed on one main menu screen.

Option 1 will read a single density disc from the source drive into the Once-Over buffer. You can monitor the progress of the load by watching the fuel-gauge at the bottom of the screen.

Option 2 saves out all the data in the buffer on to the disc in the destination drive. This operation may be carried out as many times as you like if you want to make multiple copies.

Option 3 toggles write verify on and off. If it is selected, the data will be checked back after it has been written to the destination disc. This has the side effect of slowing down the duplication.

Option 4 toggles the format disc function. The destination disc will be formatted before any data is written to it.

Option 5 changes the source disc drive number. This option will cycle through drives one to four.

Option 6 cycles the destination disc drive number from one to four.

Pressing System Reset will allow you to exit from a load or save operation. The contents of the buffer will remain intact.

Type in the Basic listing and save it, then place a formatted disc in drive 1 and run the program. If an error occurs then the data is not correct and you should use Get It Right! to track the problem down.

Once the data is correct it will create a nine sector disc file called ONCEOVER.OBJ. This is the Once-Over machine code file. To use it, simply go to the DOS menu and use the binary load option – L.

This file is completely self-contained and may be copied on to any of your work discs. You could even rename it as AUTORUN.SYS and have it run automatically on power up.

For machine code programmers I have also provided the full assembly listing – Program II—which will create exactly the same object file as the Basic version.

Program 1: Basic listing

1 REM *** ONE-OVER ***
2 REM *** BINARY FILE CREATOR ***
3 REM *** (C) 1986 ATARI USER ***
4 REM *** BY RICHARD VANER ***
5 POKE 757,1: "#" Please Wait - C hecking DATA.
6 TRAP 100:101:0:FOR A=1 TO 1099
7 READ DAT:10:TO-DAT
8 NEXT A
9 TRAP 4000:RESTORE 1000
10 IF TOTO:GO THEN GOTO 100
11 OPEN HL,0,"D:ONCEOVER.OBJ.
12 FOR A=1 TO 1099:READ DAT
13 PUT HL,DAT
14 NEXT A
15 ? "D:ONCEOVER.OBJ. file create d:"
16 END
17 END

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Program II: Assembler listing

8180 ; ONCE - OVER.
8190 ;
8200 ;
8210 ;
8220 ; DISK EQUATES
8230 ;
8240 DISCON = $5453
8250 PUSECOND = $557
8260 PSECTOR = $590
8270 GSECTOR = $952
8280 FORMAT = $21
8290 DEVICE = $308
8300 COM = $3853
8310 BSSTATS = $3838
8320 DISKFLG = $3804
8330 DISHIFT = $3805
8340 BANK1 = $3800
8350 BANK2 = $3800
8360 ;
8370 ; DISPLAY LIST EQUATES
8380 ;
8390 BANK0 = 0
8400 BLANK = $20
8410 BLANK = $70
8420 BRA1 = $82
8430 CRI = $06
8440 CR2 = $07
8450 LMS = $40
8460 MOD = $41
8470 SOLSTL = $AB20
8480 ;
8490 N = $2800
8500 ;
8510 ; DISPLAY list
8520 ;
8530 DBLST = .BYTE BLANK, BLANK, BLANK, BLANK, BLANK
8540 .BYTE BLANK, BLANK
8550 .BYTE CR2, CR2
8560 .BYTE BLANK, BLANK
8570 .BYTE BLANK, BLANK
8580 .BYTE BLANK, BLANK
8590 .BYTE BLANK, BLANK
8600 .BYTE BLANK, BLANK
8610 .BYTE BLANK, BLANK
8620 .BYTE BLANK, BLANK
8630 .BYTE BLANK, BLANK
8640 .BYTE BLANK, BLANK, BLANK, BLANK, BLANK
8650 .BYTE BLANK, BLANK, BLANK, BLANK
8660 .BYTE BLANK, BLANK, BLANK, BLANK
8670 ;
8680 PDM = "O N E - O V E R"
8690 .BYTE "O N E - O V E R"
8700 .BYTE "O N E "
8710 .BYTE "V E R"
8720 .BYTE "RICHARD VANER"
8730 .BYTE "LOAD BUFFER"
8740 W5 = $17
8750 .BYTE "BIT VERIF Y"
8760 .BYTE "FORMAT DISK"
8770 .BYTE "SOURCE DISK"
8780 .BYTE "DESTINATION DISK"
8790 .BYTE "DISP" FRINT" FIL"}

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I AM having problems with a data storage program in Basic.

10 DIM A(100), B(100)
20 FOR N = 1 TO 5: INPUT A(N); B(N) = A(N): NEXT N
30 FOR N = 1 TO 5: PRINT B(N) = NEXT N

is meant to print out the five strings previously entered, but just jumbles them up.

In saving and loading information, variable ram holds some numbers. After opening channel 3 to the cassette and typing:

10 FOR N = 1 TO 20:
20 PUT $3;NAM(N); PRINT $3;CHR(155)

... then loading it with:

10 GET $3; C
20 IF C$<155 THEN
30 NAM(Z) = C$ Z = Z + 1: GOTO 18

... it does not seem to work. Please could you help me out?
— Andrew Shuttleworth, Garstang, Lancs.

The answer to your first query is easy — you are trying to use $S(N) as a string array, which is not what it is at all.
$S(N) refers to a portion of a single string BS, beginning with the Nth character.

Atari Basic does not have string arrays as such, and DIM $S(100) simply reserves 100 characters as the maximum length for BS.

To get around the problem you must set up a long string, say 2,000 characters, and use substrings to represent the elements of your array.

See our reply to David Stockton's letter in the December 1985 issue for an example of how to do this.

In your second query the only thing which would seem to be at fault — assuming you have remembered to DIM your array and OPENed the files correctly of course — is your PRINT CHR$(155) at the end of the first line.

This will only print a carriage return on the screen, and should be replaced with a PRINT #3, CHR$(155) or, simpler still, with PUT #3, 155.

Other than this, your program should work fine. Let us know how you get on.

Aligning tape heads

Are there any tape head adjustment packages for the Atari, as there are for most other makes of computer?
If not, would it be possible for you to give me some tips on adjusting the tape head?
— Peter Goulden, Lincoln.

There aren't any commercial tape alignment kits for the Atari that we know of, but it's not too hard to do a reasonable job yourself.

Firstly, on some recorders you'll need to remove the casing to get at the alignment screw. This is situated on the assembly that holds the play/record head, and allows you to move the head up and down very slightly. This is known as the azimuth adjustment screw.

Put a music cassette in the recorder and press Play. If you can record one yourself with nothing on the right hand audio track you will get even better results — assuming your stereo's heads are properly aligned.

Now type POKE 54018.52 to start the tape running, and adjust the screw until the best sound comes out of the TV loudspeaker. Be very careful not to touch the head itself with the screwdriver, or you will have to demagnetise the head again afterwards.

The head should be correctly aligned when the music is clearest — simple, isn't it?

If you don't feel confident of doing this without damaging the recording, some dealers will be able to do it for you at a nominal cost.

Window on the 1020

As usual I find the instruction manuals provided by Atari are almost without exception useless. The manual for the 1020 Printer Plotter is no exception.

It was with great pleasure therefore that I heard about the Vicgraph Plot Window as this piece of equipment has a very good section on the 1020 and I feel that Atari might do well to copy it. The Plot Window itself is also very good.

As I understand it these items are now out of production but the manufacturers — Vicographics, 7 Speechly Drive, Rugeley, Staffs, WS15 2PT, Tel: 0889 78230 — still have a number in stock at approximately £8 per set.
— Raymond Price, Canton, Cardiff.

TV time for 800XL

I have recently bought an 800XL computer with a cassette recorder and games.

There are approximately 1,000 people in my school but I know of only one who has owned an Atari machine before, a 400.

The Atari computer has good capabilities and impressive sound and graphics, especially when compared with other machines. So, why is it so comparatively rare?

Incidentally, I have just read in the July issue about BBC TV programmes neglecting other makes of micros.

This is not strictly true. On Tuesday June 24, the BBC programme Think of a Number had an 800XL machine with the game Rescue on Fractalus running.

I find the Atari to be a prime example of a home computer and shall not doubt stay with Atari for years to come. — B. Paterson, Ponteland, Newcasle-upon-Tyne.

Missing eight squares

I have just bought an 800XL, with which I am pleased, but I have a slight problem.

When I use the memory test included in the brochure, instead of 48 squares appearing on the screen there are only 40. Is this normal or is...
something wrong with the computer?  D. Buckingh

The number of letters we get on this one is incredible! We thought that by now everyone had got it sorted out, but as new users come along they all run straight into the same headaches we all confronted when we started out.

The answer is that you will get 40 squares if you go to the Self-Test from Basic by typing BYE. This is because 8k of memory is still taken up by the Basic language itself.

If you hold down the Option key as you switch on Basic will be disabled and you will be able to get the full 48 squares.

Space Maze messages

I HAVE two queries. First of all, I tried to type in your program Space Maze from Atari User’s July issue and line 170 of the program kept erroring. I have tried many times to correct this line but nothing works.

Is there a misprint somewhere in the line?

I typed in the program from the August issue. Frank the Fruit Fiend, then listed it and typed in Save, remembering to move the tape 10 counts, waited for the two keeps pressed Play Record and then Returned it.

When the ready sign came up I stopped the cassette and rewound it. To load it I typed in CLOAD followed by Return, waited for the beep, pressed Play and Returned it.

The tape began to load but after a few counts the tape errorred and has done so every time I have tried to load it. The error number 138 keeps appearing on the screen.

I have tried saving short programs to my cassette and then loading back into my computer without any success at all.

Please can you tell me – am I doing something wrong or is my computer not working properly?  D. Percival, Elswick, Newcastle.

We’ve checked line 170 of Space Maze and there is no problem with it – indeed, we can’t quite see how an error could be generated at run time either.

Possibly your problem may revolve around the old Rev. B Basic line entry bug, or a fault in your machine.

Try to let us know more details: “Line 170 keeps erroring” doesn’t give us much to go on. For example, what happens when you, what error number does it give, and also what are the contents of the variables afterwards if the error is at run time?

As to your second query, Error 138 means that the computer can’t find the program it was looking for.

If you wound the tape forward to 10 on the counter when you recorded it, did you remember to do the same.

YOUR HINTS AND TIPS

NINJA

IN the October issue of Atari User I read a review of the excellent Ninja, by Mastertronic. The reviewer, Bob Chappell couldn’t seem to get up a level. Don’t worry Bob, that was what I thought to start with.

My brother found it out by accident. When you get all the Idols on the first level, go to the Shijo entrance, look at the top of the screen for a black hole.

Move Ninja under this, and push the joystick up. Ninja will leap up to the next level.

This method applies to accessing all other levels at any time. You can also go down holes in the floor.

When you have six Idols, keep going up and to the right.

When you reach a room called Grey Wall you should see a passage upwards. If the last Idol is in Grey Wall, kill off the Toes, get the Idol, exit the room to the left and re-enter it again. The hole at the top will now appear.

Next move up the passage. When you enter the room you will see five foes, and the room is coloured blue.

First kill off the foes – easier said than done, though they do attack in two’s – then grab the last idol and fall down the hole. Keep going down until you reach the first level. The enemies have reappeared.

Fight them off and keep going until you reach your Starting Locations (Torii in the Seal). You have now completed Ninja. – Duncan Husband, Harrington, Worcs.

MERCENARY ESCAPE

WITH reference to your excellent review on Mercenary Escape from Terg I would like to suggest a means of retrieving a craft without losing all the objects you are carrying at the time.

Press L to land if you are already in a craft. Drop all the objects you are carrying by pressing D.

Press the control key and Q to retrieve your ship and L to get out of your new ship.

Press T to take your objects back one by one. Board your ship again and you’re away. Not bad eh?

Also, to reach 9900 units per time past use the > key after pressing O while in your craft. Keep pressing this key until you reach the desired speed.

Different crafts can obtain different speeds – the Dominion Dart can achieve 9900 when it is airborne. – Michael O’Connor, Dublin.

MINDSHADOW


However, I now feel like a prisoner on the boat. I know that I have to cut the chain on the winch in order to anchor the ship.

Someone told me to go to the kitchen and get the meat cleaver to do that job. But the crew won’t let me pass to the south gate. Please, can anyone help me to escape?  Alain Gayster, Paris.

ONE MAN AND HIS DROID

I BOUGHT Mastertronic’s One Man and his Droid some time ago, but I have a problem.

If all the droids are captured in the correct order, as well as points, a time bonus is obtained.

At the start of the game the
before trying to load it back in
again?
If you can't get the CSaved
version back in at all, why not
try the version you Listed for
use with the checksum.
If the checksum managed
to read it correctly, you can
load it with ENTER "C", and
then you can try CSaving it again.
If you still can't get anything
to CSave properly, the pro-
blem may be with your
equipment.
Take both the computer
and the recorder back to your
dealer for testing, as the fault
could be with either — though it
is more likely to be the
recorder.

Translator
disc
I WISH to buy a transdisc.
Could you please advise me
where to obtain one?
— Alastair Oliphant, Newton
Mearns, Glasgow
You can purchase a trans-
lator disc, which is what we
think you mean, from any Atari
mail order company. Typically
they will just charge you just
for a blank disc and postage,
plus a nominal copying fee.

Elusive
sprites
I HAVE recently acquired an
Atari 800XL and to supple-
ment the rather flimsy manu-
als I have also bought the Atari
XL hardback.
Although this is rather
informative it does not tell you
how to create multi-coloured
sprites.
Also could you advise some
books which will teach me
machine code programming
on the XL?
— Stephen Burton, Croxdale, Co.
Durham
Firstly, the Atari doesn't
have multi-coloured sprites, so
that explains why you are
having problems generating
them.
You can, of course, use two
or more sprites and move
them about together, which
gives the same end result. See
Stephen Williamson's recent
series on Player Missile
Graphics for more details.
If you want to start learning
machine code try a book called
Machine Language for Begin-
ners from Compute! Books
which will take you through
the fundamentals in fairly easy
stages.
You should also consider
buying a memory map — such as
Mapping the Atari from the
same publishers.

All systems
are go...
I'VE been reading Atari User
for quite a while and I've
noticed an advert for 2 Bit
Systems' Replay Sampling
System.
Recently I've noticed that it
isn't in any more. Is this
system still on the market as
I'm very interested? I'd be very
grateful if you could reply
soon.
— L. Hunter,
Middlesbrough, Cleveland
2 Bit Systems is alive and
well, and still supplying
the product you are interested in.
If you drop them a line they
will send you more informa-
tion.

Waiting
for the chop
I WOULD like to put a question
via Atari User to the people at
System Three Software. For
well over a year now we
have been seeing adverts for Inter-
national Karate on the Atari 8
bit range.
But still we wait. Having
written to System Three and
received no reply, I am hoping
you will be able to find out for
us all if the game exists at all?
— Keven Joyce, Sheffield,
South Yorks.
System Three Software say
that the Atari version of
International Karate will be in
the shops by the time you read
this.

SIX OF
THE BEST
HERE are some tips for Atari
games, I hope that your
readers find them useful.

Thrust (Firebird): Having
trouble getting past a level? As
soon as you appear on screen,
shoot the reactor until the
ground starts flashing. After
the countdown, the planet will
blow up and you will warp to
the next level.

Nuclear Nick (Americans): If
you haven't already realised,
pressing Start and then Select
will allow you to start on
different levels.

Strip-poker 1 (US Gold/0
Adventures): When playing on
the Suzi level, and you have
changed your cards, if Suzi
says "I stay", 99 per cent of
the time this means that she
has a bad hand.
So if you raise $25, the
chances are that she will drop
and you will win the money in
the pot.

Spellbound (MAD): If your
energy dwindles, get the bottle
of liquid from the roof, give it
to Florin the Dwarf, and then
take it back to increase your
strength.

To fix the control box in
the lift, get the Moine from
Eliland Maflownen and give it to
Thor. Summon Thor to the lift
by using Samaun's elf-horn,
ask him to help you using the
word of command and Thor
will hit the control box, then
you can use the basement and
ground floor. The key and red
herring can both be read for
clues.

Merconary (Novagen): There
is a Pyker Colony craft
in the sir. Its location is 64997
altitude at 08-08. When on
the ground floor you can find a
key.

The Eidolon (Lucasfilm
Games/Activision): To finish
the first level you need the red
jewel and you can kill the
dragon with red fireballs.
To finish the second level
you need the green jewel and
you can kill the dragon with
yellow fireballs.
Level 3: blue jewel, green
fireballs; Level 4: red and
green jewels, blue fireballs;
Level 5: blue and green jewels,
yellow fireballs; Level 6: blue
and red jewels, blue fireballs.
If you find yourself running
out of energy when fighting
the dragon keep hitting the
spacebar quickly to collect all
the fireballs the dragons shoot
at you.
Keep up the great magazine
— I look forward in anticipation
to the next issue! — Mark
Stephens, Putney, London.

CHIMERA
SOME hints on Chimera. First
you need a spanner. You can
eliminate electric fences with
this by going up to them and
pressing fire.
Eliminate all fences, then
get the boat and go to a blue
room and press fire. Then you
will need bread.
Go to a toaster and press
fire.
You need to follow the
same procedure as with the
electric fences.
Behind the first toaster is a
key. Now you can open the
doors. You also have to find a
paddock.
Some passwords for Ollies
Follies — type these in as you
begin the game.
Level 5: Frank
Level 9: Fanda
Level 13: Norbi
Level 17: Zoom
Hints needed: Password on
Whirlwind. — A. Mitchell.
More light on lights

AFTER reading your article about disco lights in the December 1985 issue I decided to manipulate this program for my own uses. Here is the finished copy:

10 POKE 54018,52
20 GRAPHICS 19
30 FOR I=3 TO 15
40 POSITION 5, I: "a" a
50 NEXT I
100 POKE 77,0
20 POKE 708,POKE(13775)/4
30 POKE 709,POKE(13791)/1
40 POKE 710h,POKE(13807)/2
50 GOTO 60

To test this program type it in, type RUN, insert a music tape with a good beat and press PLAY on the tape recorder. Now you can sit back and watch — Ivan Mackintosh, Bulwell, Nottingham.

File type parameter

IN the September issue of Atari User on Page 41 you said, in answer to a question, that “There is no practical way of designing a turbo loader for the Atari without modifying the hardware”. Yet on Pages 36 and 54 I see advertised turbo loaders for the XL which are on tape.

I have read that the third parameter in the open command indicates file type, does this parameter always have to be zero? The command:

XIO 3,#1,8,128,"C="

can be used to fill shapes.

What are the 5 parameters for and does XIO have another use with a resemblance to the OPEN command?

Finally, can you save a multi-dimensional numeric array on tape— A. Pyraiki, Slough, Berks.

• The XIO command can be used to perform most of the Input/Output functions available on the Atari. The first number specifies the operation and the next the channel number, if applicable.

The two zeros you refer to can be used to provide extra information. For example, the OPEN command can be mimicked by using:

XIO 3,#1,8,128,"C="

Code 3 means OPEN, and we are using channel 1. The B sets the file for output, and the 128 tells the computer to use short Inter-Record-Gaps like a CSAvEd program does. The "C=" is just the normal filename specifier.

See the manual or other Atari Basic books for information on the various functions of XIO.

You can save a multi-dimensional array by going through FOR...NEXT loops and PRINTing every element to a tape file. You can then reverse the process and read them in again with INPUT.

For example, to output the data use:

10 DIM ARRAY(10,10)
20 OPEN B,8,0,"C="
30 FOR K=1 TO 10
40 FOR Y=1 TO 10
50 PRINT B;ARRAY(K,Y)
60 NEXT Y
70 NEXT X
80 CLOSE B

and to read it in again use:

10 DIM ARRAY(IO,10)
20 OPEN B,4,0,"C="
30 FOR K=1 TO 10
40 FOR Y=1 TO 10
50 INPUT B,NUMBER
60 ARRAY(K,Y)=NUMBER
70 NEXT Y
80 NEXT X
90 CLOSE B

Make sure you keep the loops the same way round or you’ll end up with the array reversed.

Basic on the 800XL

I OWN an Atari 800XL and

1050 disc drive which I bought about a year ago.

I was very keen on learning Basic but the Atari Basic manual which I got with the computer is about as useful as a syntax error.

Now I really want a book about Basic for the Atari 800XL I have looked everywhere but I can’t find one. I wonder if you can help me to locate one? — I.D. Osborn, Ipswich, Suffolk.

The best book for your purposes is the Atari 130XE Handbook which, as we have said before, actually covers the 800XL as well as the 130XE: the only difference being two pages which deal with the 130XE’s bank selected memory.

If you can’t get one locally, why not try ringing one of the larger mail order companies which advertise in Atari User every month, such as Computar, Software Express or Silica Shop.

Contact needed

PEN pal wanted — I am 12 years old and have a 130XE and disc drive. I would like a fellow Atari enthusiast in this country as a pen pal. Thanks for a brilliant magazine — John Banks, 37 Wirksworth Road, Duffield, Derbyshire DE6 4GH.

They games they play

I AM a proud owner of a 130XE Atari computer and a 1010 tape recorder.

In your July edition you had an article that said Atari had invaded Poland and that Atari was doing quite well over there. I am pleased about this and hope Atari can move into and do well in other countries.

I am sorry to say that US Games has invaded Russia but in quite a different way. I am referring to Raid Over Moscow.

I am quite sure that not many people in Russia are going to want to play a game where they have to bomb their own capital city.

So if more software games like this one are released I am quite sure that Atari will not spread any further into the East. Think about it, would you buy a game called Raid Over London?

Also I would like to compliment Atari User on a wonderful magazine. I enjoy your reviews and buy it every month — Mark Hall, Groat Glen, Leicester.

Heads you lose

I BOUGHT Spellbound from Boots. It didn’t work. So I got my money back. I bought it again from another shop and again it didn’t work.

I did exactly what the loading instructions said so I am not the cause. I even cleaned my tape heads, but still no joy.

I wondered— does Spellbound work on an old style Atari 800?

I don’t expect both of the tapes I tried were faulty.

I would like to say that Firebirds Thrust is brill, and I cannot wait to get Ninja Master when it comes out. — Gary Hillsdon, Berinsfield, Oxon.

As far as we know, Spellbound should indeed work on an old 800.

The problem could be a slightly misaligned head on your tape recorder, which would cause some tapes not to work while most seem to load correctly.

Try taking your computer with you next time you go into Boots, and check the game out on one of their recorders.

Recording photographs

REFERING to the letter from Mr Forrester in your October issue I would be willing to put photographs on to disc/assette.

The cost would be minimal, enough to cover disc and postage. Also if anyone is
DIY modems are out

I AM thinking of building a modem for my 800XL. As I have had a considerable amount of experience in building various projects, I don’t consider this to be too difficult. However, is it legal for me to simply plug in and switch on using my new modem, or is there some kind of license that I need to obtain?

If so could you please tell me where I can get one. Also what kind of interface do I need and how much will it cost and is it possible to build one?

Finally I would like to thank you for your excellent series on Great Little Gadgets, not to mention the mains control box.

After building I decided to set it up for a few tasks like waking me up in the morning by switching on the light, and the coffee percolator for a nice hot cuppa.

However I awoke to total chaos, finding the cat hypnotised by the flashing light, the coffee machine leaping around the room giving a huge cloud of boiling steam which turned the room into a sauna and apart from all this I was late for work.

Anyway I seem to have got over all these minor teething problems by altering my software. Thanks for a great mag, and keep up the good work. – Simon Rees, Ebbw Vale, Gwent.

The question of home built modems is a tricky one. You may feel confident in building one, but British Telecom will certainly not regard you as a qualified telephone engineer.

For this reason, no homebrew modem kits – such as the Maplin one – are ever likely to be approved and are hence illegal to use. You can easily connect one to your phone, but not legally.

BT finds out, it may well cut you off. That said, there are lots of people who own such units and take the risk.

To connect any modem to the computer you will require an RS232 interface such as the Atari 850 and the relevant software.

If you feel confident at machine code programming, you could try writing your own RS232 software to work via the joystick ports.

Beware though – you might find that this causes the phone to jump around the room like your coffee machine did.

I stopped buying computers and software where would Atari be then? – An Atari User, Hull.

Back to the beginning

I HAVE just purchased an Atari 800XL pack from Dicksons for my children.

While we can run the games tapes, that’s as far as we can go. Having tried unsuccessfully to program games from a games book, I feel we need to understand what we are doing from the beginning.

Can you tell me whether there are any publications which are idiot-proof for the beginner with no computer knowledge at all? Also stockists of games and so on in our area.

While you have games at £2.99 in your magazine, the only stockists I have found are Boots with a limited range starting at £6.99.

Any information you can give will be very gratefully received and hopefully allay my fears that I have made a wrong decision with this purchase. – Mrs L.C. Dryden, Poole, Dorset.

If you can’t find a local retailer who has the games you want, why not try looking through the pages of Atari User for a mail order company which advertises such items?

You will find most of them offer a speedy and efficient service, and a far larger range than most local shops ever do.

As for a good book for beginners, you might like to try Inside Atari Basic or the 130XE Handbook – again available from most mail order dealers.

Memory map

I WOULD like to know where I could get a memory map for my Atari 800XL and how much it would cost. – Damyan Pepper, Midsomer Norton, Bath.

The book you require is called Mapping the Atari (XL/XE Edition), and is published by Compute! Books at £16.95.

You could order it from your local bookshop, or get a copy from Software Express, Computer Mart or one of the other mail order dealers.
Books and bookmen

BUYING and selling rare and out-of-print books isn't as stuffy a business as it may sound - even for a firm founded when Robert Peel was prime minister.

Antiquarian bookseller Wheldon & Wesley has been trading since 1843, but is bang up-to-date when it comes to communications thanks to MicroLink.

Speed is important in locating rare publications, then buying and selling them at the right price.

And as 60 per cent of the firm's business involves dealing with people in countries all over the world, MicroLink's telex and other messaging services are proving invaluable.

"Although we specialise in natural history, we're very willing to search for any rare books other people are looking for", says director Tony Swann, a member of the family which has been running Wheldon & Wesley since the 1920s.

"And where great distances are involved, MicroLink is often the fastest and most economical means of doing the job.

"Our clients are universities, museums and libraries, private collectors and fellow dealers - and two-thirds of them are abroad.

"At present most of our business with the United States is done by telephone, but we should soon have an efficient transatlantic mailbox system via MicroLink - and perhaps even a special interest database as well".

Best foot forward

STOCK control procedures at a fast-expanding chain of footwear specialists in London used to be rather a marathon slog.

Now the system is more like a sprint - thanks to MicroLink.

Cobra Sports Shoe Shops has blossomed into an eight-store chain in as many years, selling to top international athletes as well as spare-time joggers.

It all adds up to a mountain of shoe leather - or rather spikes and rubber.

Before MicroLink, daily stock reports were written by hand and the sheets sent by next available delivery van to the firm's head office, sometimes two or three days later.

Now the information from each shop goes directly every night onto Cobra's MicroLink mailbox for retrieval next morning and processing on the firm's IBM computer. Up-to-the-minute stock control has been achieved without great expense - instead of a micro each store uses a Psion Organiser.

"This gives us simple one-button operations that are easy for the staff to pick up", says Cobra systems manager Donald Brown.

"And I've successfully written an autodial file-sending procedure in OPL on my Psion which speeds up the process even more".

Link grows

MICROLINK subscribers can now communicate directly with two more countries through the world's biggest electronic mail and messaging network Dialcom.

Italy and Japan have joined the system, bringing to 14 the number of countries offering this global service.

Going with a bang

HAVING survived his childhood hobby of making fireworks - "somewhat luckily", he says - Jon Culverhouse went on to other things.

But he never lost his fascination for colourful explosions and now, with a little help from MicroLink, he's creating them all over the country.

As boss of Fantastic Fireworks, Jon was responsible for something like 65,000 "bangs" around Britain this November 5th.

For the past two years Jon has been selling fireworks imported from places like Germany, Spain, and even China where pyrotechnics originated.

He keeps in touch with his suppliers via MicroLink's telex facilities and uses electronic mail to publicise his services.

These include packaged displays costing from £80 for a family bonfire party to £5,000 for, say, a town's Royal Wedding celebrations.

"I've found that sending information via MicroLink is the most effective method of getting publicity for my company in the media", says Jon.

"My displays have already been featured on Saturday Superstore and Pebble Mill at One as a result".

Fly me...

THE Official Airline Guide database available on MicroLink includes information about nearly 30,000 hotels as well as flight and fare details for more than 750 airlines.

The coverage spans 17,000 hotels and motels in North America, more than 9,000 in Europe and more than 2,500 in the Far East and Pacific area.

Details displayed include the full postal address, telephone and telex numbers, and the range of rates, plus an official classification in most cases.
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DOCSAV (Document) - Save Disk, Load Disk, Copy Disk, Delete Disk, Disk Info
MGR (Manager) - Copy, Move, Delete, Rename, Change Directory

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December 1986

ATARI USER 45
KEYBOARD DEFINER
from F. Van GILST

THIS five-liner from a reader in Holland not only lets you modify the keyboard definition table but also adds five useful edit functions.

Save the program after you have typed it in and run it. Now press the key that you wish to redefine. The program will respond with "Give Character". You now type in the character that you wish to store in this key and the program will do the rest.

For example you could press Shift+Space and enter a semi-colon when asked "Give Character". From then every time you press Shift+Space a semi-colon will be printed on the screen.

The program also gives you five bonus editing functions:
- Control+4 moves the cursor to the upper left of the screen.
- Control+5 moves the cursor to the upper right of the screen.
- Control+6 moves the cursor to the lower left of the screen.
- Control+7 moves the cursor to the lower right of the screen.
- Control+8 turns the keyboard click on and off.

The keyboard table that you have redefined can also be saved for use later by entering the following:

**DOS K
D:KEYDEF.BIN,600,606C9,600**

To reload the table:

**DOS L
D:KEYDEF.BIN**

The keys will now be redefined as before.

LINE BREAKDOWN
1: Contains the data for the program.
2: Pokes in the data and opens a channel to the keyboard.
3: Waits for a key to be pressed.
4: Inputs the replacement character.
5: Replaces the character in the table.

RIVER from A.P. PICKETT

RIVER is a simple game in which you control a boat using a joystick in port one.

Moving the boat from side to side, you see how far you can get up the ever narrowing river.

LINE BREAKDOWN
10: Sets up the variables.
20: Puts the boat on the screen and reads the joystick.
30: Randomly decides on the width of the river.
40: Advances your points.
50: Tells you how far you travelled.

JOYSTICK TEST from WILLIAM ANDERSON

JOYSTICKS can be very unreliable and it is often difficult to tell whether the program or joystick is at fault. To find out easily, type-in and run Joystick Test.

LINE BREAKDOWN
10: Initialises the screen and asks you which joystick port you wish to test.
20: Checks the port number is valid and checks for a key press.
30: Reads the description from line 50 for the current value of STICK(I).
40: Informs you if the button is pressed.
50: Data statements for descriptions.
DECIMAL TO BINARY CONVERTER
FROM A.R. WEIR

This small loader program sets up a machine code routine which will give you an extra basic command that converts decimal numbers into binary strings.

For example if you enter the number 2 and call the routine naming A$, then the routine will place "00000001" into A$.

Type in the program and remember to save it before you attempt to run it. After you run the program, you will be able to use this new command:

\[ X = \text{USR}(1741, A, B) \]

Here \( X \) is a dummy variable, 1741 is the address of the machine code routine, \( A \) is the number to convert and \( B \) is the address of the string which will hold the binary number. For example to convert 2 into C$ in binary, you would use:

\[ X = \text{USR}(1741,2, \text{ADR(C$)}) \]

LINE BREAKDOWN

1: Identifies the program.

2: Reads and prints the machine code.

3: Prints out all the numbers between 0 and 255 as a demonstration.

4: First chunk of data.

5: The remainder of the machine code data.
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