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ATARI USER

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this
issue



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Atari to
talk to
the USA

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Software
releases
reviewed

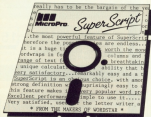
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Features/Technical Editor: André Willey
Production Editor: Peter Glover
Art Editor: Heather Sheldrick
Reviews Editor: Christopher Payne
News Editor: Mike Cowley
Advertisement Manager: John Riding
Advertising Sales Editor in Chief: Peter Bramwell

Editorial: 091-486-9008
Administration: 091-486-9363
Advertising: 091-486-9500
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Atari news and information from around the globe, including Atari UK's new push into education.

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Compu



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The big show is coming

The first ever Atari Computer Show, held at the Royal Horticultural Hall, London, last March was an outstanding success, drawing a total of 15,000 visitors - 5,000 more than expected.

Observers said that this massive demonstration of popular support for the Atari range effectively re-established the concern as a market leader in the UK computer industry.

This spectacular showcase returns to London on Friday, Saturday and Sunday, November 28 to 30, this time at the Royal Horticultural Hall, DSW.

Appropriately titled the Atari Christmas Show, the event

ATARI has begun shipping a product that will give the ST an even bigger share of the business market.

The 20Mb hard disc drive will cost £848.70 and should be in full production this month, according to a company spokesman.

"It will be on display at the PCW Show and large quantities will be available within a few weeks", he told Atari Star.

"We have already begun shipping a few units, and developers have had them to work with for some time."

promises to fulfil all the wishes of seasonal shoppers waiting to fill their stockings with the latest Atari hardware and software.

New programs and add-ons for the ST series and 6 bit range from both sides of the Atlantic will be launched at the show, and there will be opportunities to question the UK's leading experts in the field of Atari computers.

The show will be open from 10am to 6pm Friday and Saturday, 10am to 4pm Sunday, and there is £3 off tickets ordered in advance from organisers Database Exhibitions.

Atari bids for UK schools market

ATARI is set for a major breakthrough into the UK schools market this year.

The key to the new thrust is a Basic language emulator which makes the ST compatible with the massive software library of the BBC Micro, the UK's most popular educational machine.

Les Player, technical manager of Atari UK, says: "The emulator runs standard BBC Basic as fast as the Acorn machine itself."

"It has had an extensive workout at six test sites, including schools, by experts familiar with BBC Basic."

"They were all very pleased with the software, which is 100 per cent compatible as a Basic interpreter and 95 to 97 per cent successful as a BBC operating system emulator."

Atari points out that the device isn't intended to replace the BBC Micro - the emulator port can't be emulated and the

BBC Basic emulator is the key

emulator is missing.

But there are hooks in it for BBC compatibility which is promised at a later date, and a network filing system for Ecoset is also planned.

The arrival of the emulator is nicely timed to coincide with the start of a new school year and educationalists will get a chance to see it in action on the Atari stand at the PCW Show.

Atari bosses are confident it will significantly increase the ST's penetration of the education market, building on the machine's inroads into higher

education.

"We know that many local education authorities are holding back on their purchases of new hardware until they see the BBC emulator", said Les Player.

"They have been impressed with the impact the ST has had in colleges and universities with its price and versatility."

Ron Harding, Atari UK marketing manager, said: "Almost all British universities have ST machines, some a large number of them, and we have sold to several LEAs."

"It has always been our intention to open up the machine to a wider range of software, and the emulator allows ST users to capitalise on another large spread of programs of particular value in the secondary education sector."

The emulator has a single unit price of £89.95, but there will be bulk discounts for educational purchases.

Micro prize

ATARI software publisher Aristocraft is running a competition with a £3000 as the prize.

Purchasers of Aristocraft games get a Screen Shot Challenge card and have to use their skill to decide which game the illustration depicts.

If they get it right they can win a free game, an Aristocraft badge, or money-off tokens. Even losers go into a draw for the top prize, an Atari 1300E.

Pascal compiler

PROFESSIONAL languages specialist Progress Software has released its Pro Pascal language compiler for the Atari ST.

Turbo source code will port to the Atari with minor modifications and Pro Pascal also has full GEM API and VDI bindings. Price: £129.



ARMOURING conventional mechanical switching, Magnam's has based its new joystick for the Atari range around micro-switches.

The Magnam is said to incorporate an innovation

guaranteeing a positive response to commands faster than other joysticks.

Available at the end of this month, the Magnam is expected to cost between £12 and £15.

Adventure trilogy released

JEWELS of Darkness is the first of the Level 9 trilogies to be released by Rainbow Software for the Atari 800XL and ST.

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

In addition to a totally re-written game, the package features a massive vocabulary and hundreds of added graphics with more than 800 colour illustrations and 600 locations. Jewels of Darkness is available for the 800XL in a three cassette pack or on disc for £14.95 and on disc only for the ST priced £19.99. The package also contains a 84 page novella. The Darkness Files, which contains a 12 page plot guide.

MORE SMASH HITS

The fifth volume in English Software's compilation series, Atari Smash Hits, has been released for the XL/XE range.

It features the best-selling Helicopter pilot Chop Billy, Madster and Goodwinds, 81 games from Smash-UK Gold.

Three cassette carts £9.95, twin disc £14.95.



Still trekking...

MARKING the 20th anniversary of the cult TV series Star Trek, Beyond Software has been appointed by Paramount to produce the Atari official strategy game based on

the show and its famous characters.

The Atari ST version will be launched next month and coincide with BBC Television's re-running of the series.

Atari denies new Basic claim

REPORTS of a new Basic from Metacore to replace the much criticised version bundled with the Atari ST are misleading, the company says.

Metacore announced in a press release that it would be demonstrating a new Basic interpreter at the PCW Show and that it expected it to be bundled with the ST "in the very near future".

The announcement was welcomed by ST users critical of the Digital Research Basic bundled with the ST, which suffers from inaccurate floating point and unstable I/O functions.

But Atari UK chief Max Bambridge told Atari User: "What Metacore has said is not necessarily part of our corporate plans.

"We are very keen about

statements from third party suppliers promising new products for our machines, particularly in view of past experience like the non-arrival on the scene of GemWrite and GemPaint.

"While it is Atari's intention to proliferate products for the ST - to which end we have made the machine as transparent as possible - we are extremely circumspect about claims for products when we have not had the finished version in our hands".

Metacore product manager Andrew Spencer said his non-disclosure agreement with Atari prevented him from commenting further.

An Atari official confirmed that an evaluation copy of Metacore's Basic for the Atari

ST may have been sent to the company's headquarters in America, "but I don't believe this can be anywhere near a completed version of the product, and in any event we haven't agreed with anybody about bundling it with the ST".

Compact accounts

ST accounting program for the Atari ST which claims a unique composition of data allowing 80,000 transactions on each double-sided disc has been developed by Business Applications Software.

It has full double entry system with automatic VAT extraction, trial balance, trading account, profit analysis account, balance sheet and VAT return between any two dates.

Transactions can be entered in any order, automatically sorted by date, and there is automatic indexing of up to 2,000 accounts per disc. Price £170.

Also new for the ST is BAS Database, a general purpose program providing unlimited expansion by allowing a database to be spread over as many discs as required. Price £120.

A fully integrated combination of the above programs - BAS Business System - is also available at £290. It comes configured to handle stock control, invoicing, mailing lists, purchase orders and accounting ledgers.

Shanner deal

TOP American software distributor Shanner International has concluded a tie-up deal for its Atari ST products to be marketed exclusively in Europe by Poltek.

First Shanner product to be released by Poltek is the Real Time Clock cartridge, said to be the hottest selling ST item in the US.

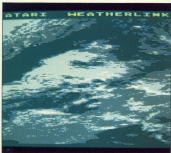
Robotek products such as Atari DB Calc are being distributed in America, Canada and Asia by Shanner as part of the new deal.

Books for ST series

NINE books about the Atari ST series have been published by Genzap. Written with support from Atari, they range from introductory books for the absolute beginner through to advanced works on programming techniques and professional business applications for the more specialist user.

Titles are introducing the Atari ST, Using Basic on the

Atari ST, Using Dem on the Atari ST, Using Databases with the Atari ST, Using Graphics on the Atari ST, Using Logo on the Atari ST, Practical Logo on the Atari ST, Advanced User's Guide to the Atari ST, and Business Applications with the Atari ST. With the exception of the Advanced User's Guide, which costs £13.95, they are all priced at £7.95.



Now Ataris tap weather maps

A SOFTWARE breakthrough means that all Atari 8-bit users can now see what Britain's weather looks like from outer space.

With their Atari 8-bit computers into a weather satellite and receive the same information that enables the men from the Met Office to predict sunshine or showers.

All this is possible with WeatherLink, the exclusive service on MicroLink, the UK's national on-line database. It enables them to have an astronaut's view of weather patterns developing over the UK.

Using a monitoring station based in Kent, WeatherLink intercepts signals from the NOAA satellite and converts

them into electronic data.

The receiving aerial looks on to the satellite every time it appears on the horizon and follows it until it disappears from view some 15 minutes later. The same sequence is followed on average four times a day.

Live pictures produced by NOAA having 450 miles overhead - it takes two at a time, one in visible light, the other infra red - clearly show that part of the world from North Africa, through Europe and Great Britain up to Iceland.

The pictures are recorded on computers at the tracking station. A converter then takes the image and sends it for transmission over standard telephone lines to the main

MicroLink computer.

Once a MicroLink subscriber logs on, all he needs to do is put down the information file.

To achieve this he requires specially written software on the MicroLink menu - the Atari 8-bit version of which has only just become available.

The new program comes courtesy of André Willey, technical editor of Atari User.

The machine code program is displayed the files is now ready for downloading from the system. In addition there is a convert routine to place the Expanded Atari files into a form the Atari will understand.

Once both programs have been downloaded the user is ready to receive the latest pictures from outer space.

"The programs will work with any Atari 8-bit computer with a minimum of 48k", says André Willey. "So all you need is a modem and a MicroLink account to become your own weather forecaster".

In brief

NEW for the Atari's ST range is a video digitiser from Haba Systems.

It takes monochrome inputs from video cameras or VCR still frames, digitises them and stores the images on disc. Colour can then be added. Price: £249.50.

The new ST Spell-Checker from Frontier Software has a 30,000 word dictionary, is fully user-expandable, and operates in all resolutions.

It spell checks files from 1st Word, Final Word, Baffin, HabaWriter, ST Writer and most other ST word processors. Price: £19.95.

The latest offering from CRI for the Atari 8-bit machines is a space adventure called Sunstar.

The player is required to pilot the supply ship Starfish on a mission to recover energy crystals vital to the world's survival, while avoiding destructive energy pulses which warn the planets.

Sunstar costs £9.95 on cassette and £14.95 on disc.

The Terminal ST from Atari provides thorough emulation of the popular Sio VT100 and Teletronics 4010 terminal types, creating a versatile workstation at low cost.

Key features include bi-directional file transfer, user definable function keys, full GDM implementation, comprehensive Help facilities and slave printing options.

Price: £89.95.

FIRST of a range of business application programs being developed for the Atari ST by Kyle Data is the Kyle Wages system. It was first written, in dBaseII, for CP/M machines three years ago, and has now been re-written to make use of the additional features of dBaseIII, a dBaseIII look-alike.

The automatic payment section now runs more than three times faster than on the 5880s CP/M85 machine, claims Kyle Data. Price: £280.

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 archive, one of the most popular uses of MicroLink.

So you would like to write for Atari User ...

HERE at Atari User Towers we can always show visitors a huge pile of submissions which have arrived in the morning post. We are never surprised at the variety of your programs and articles.

For example, one day we'll get an article on computing in Poland and the next a program to draw 3D objects on the ST.

There are no hard and fast rules for submitting articles and programs to us. We always welcome material that you think might be of interest to fellow Atari owners.

To give you a better chance of having your programs and articles accepted we'd like you to bear in mind the following points before you submit your masterpieces.

● Everything you send to us must be labelled with your name, address and the program's or article's name. A daytime telephone number would also be helpful. Any work you submit must be your own and must not have been submitted to any other magazine.

● There is a gap for a few software reviewers for both the 8 and 16 bit computers. We are looking for quality writing rather than the ability to get telephone number high scores.

● Reviewers must be able to turn out a 500 word review within a few days. In most cases you will be allowed to keep the software in addition to receiving payment at the standard editorial rates.

● If you have an interesting idea for an article, or a series of articles, you can always drop us a line to test it out before you put pencil to paper.

● If you are submitting an article or review please print or type it double spaced — a blank line between each line of text — on one side of the paper.

Always use black print on white paper. Number each sheet and state the total number of sheets. For example, "Page 4 of 7". Also include a word count at the top of the first page.

● A number of you have told us in your letters that you've written some great games, but feel that they would be too long to publish. If you are in this situation, and don't know whether to submit your latest masterpiece, don't forget that we regularly publish longer listings in the

form of special bonus items on the monthly disc and cassette releases.

This also applies to anyone who has written a long machine-code program which would otherwise be difficult to print.

● Always send in your programs and articles on tape or disc. A printed listing is helpful, but if we like the program we can always take the time to list it ourselves.

If you want your cassette or disc returned, please enclose an a4e large enough to accommodate all of the material that you sent us.

● If the program is for the ST and is written in Basic or Logo send it on a disc along with the relevant language. If you send an 8 bit program on disc always make sure that it is in single density, and also contains the DOS files.

● Remember to include program instructions, and an explanation of your reasons for writing it if it is a utility. Also include a sub-routine breakdown showing what happens in each part of the program.

● Include as many remarks within your programs as possible. This helps both us and the readers to understand its inner workings. Try to imagine that you are seeing it for the first time — which parts of the program are hardest to understand?

● Never have a GOTO or GOSUB to a remark line, so that readers can safely leave out the remarks when they type your program into their machines.

● Get someone who has never seen your program before to test it. You'll be surprised how many bugs and mistakes will show up. Testing will also help you to write better instructions.

If you follow the above guidelines you'll not only have a much better chance of getting your work published, but you'll probably become a better programmer or writer in the bargain.

We look forward to seeing your work inside the covers of Atari User in the near future.

Andrew Bennett

Contributors should be sent to:
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The majority of MicroLink subscribers can connect to our mainframe computer in London by making a local phone call. This is possible because they use British Telecom's P55 system, which has access points all over Britain. A local phone call is all you need, too, for direct access via MicroLink to all the other countries belonging to the international Telecom system.

Telemessages - at a third off

The modern equivalent of the telegram is the telemessage. Send it before 11pm and delivery is guaranteed by first post the following day (except Sunday). The service was introduced by people printing their message to the operator, which costs £3.50 for 50 words. But you can now get it via MicroLink, for only £1.25 for up to 200 words! For an extra 60p your message can be delivered in an attractive greetings card.

Go teleshopping on your micro

With MicroLink you can study the British-Fuel timetable - and then buy your ticket in advance. You can book theatre tickets. And even order a bag of flowers. It's all part of the tele shopping revolution!

Send and receive telex messages

With MicroLink you can turn your micro into a telex machine, and can send and receive telex messages of any length. You will be able to communicate directly to 96,000 telex subscribers in the UK, 14 million worldwide - and even with ships at sea via the telex satellite network. Business people can now send and receive telexes after office hours, from home or when travelling.

What does it all cost?

Considering all the services you have access, MicroLink is remarkably inexpensive. You pay a one-off charge of just £5, and then a monthly charge of just £20 a month. On-line costs are 3.5p a minute between 7pm and 8am or 11p a minute during office hours. There is an additional 2.5p a minute P55 charge if you are calling from outside the BT London call area. Charges for telex, telemessages and storage of files are given on the next page.

How much it costs to use MicroLink

Initial registration fee: £5

Standing charge: £3 per calendar month or part.

Connect charge: 15p per minute or part - cheap rate; 15p per minute or part - standard rate.

Applicable for duration of connection to the Service. Minimum charge: 1 minute.

Charge rates from 9pm to 5am, Monday to Friday, all day Saturdays and Sundays and public holidays. Standard rates from 9am to 5pm, Monday to Friday, excluding public holidays.

Wiring charge: 30p per unit of 1,000 characters per month.

Applicable for storage of information, such as telex, short codes and mailboxes. The number of units varies on average calculatability reference to a daily sample.

Telex registration: £10

Outgoing telex: 5.5p per 100 characters (UK); 11p per 100 characters; 15p per 100-20, America; £1.25 per 400 (flat of world) £2.75 per 400 (flat of world).

Substant messages sent on the night service are subject to a 50p surcharge.

Incoming telex: No charge

It is not possible to deliver a telex without a mailbox reference. If a telex is received without a mailbox reference the sender will be advised of non-delivery and asked to provide a mailbox address. Each user maintains a list of mailbox using the facility will

incur a charge of 41p storage units a month. Further storage charges will be incurred depending on the volume of telex storage and the use made of short codes and message file facilities.

MicroLink PHS service: 15p per minute or part (2000 baud); 3p per minute or part (1200/75 baud).

Only applies to calls outside the UK. Limited use only.

Telex messages: £3.45 for up to 250 words. Telex messages can be sent with an attached printing and for 15p extra.

Mailposting: No charge

If you have a BT Mailbox you can be paid electronically whenever a message is waiting in your mailbox.

International Mail: For the flat (2000 characters - 20p to Germany and Denmark; 30p to USA, Australia, Canada, Singapore, Hong Kong and Israel. For additional 1,000 characters - 10p, 15p.

These charges apply to the transmission of information by the Telex network to other Telex services outside the UK and/or flat of World. Multiple copies to addresses on the same system/telex group incur transmission charge.

Billing and Payment: All charges quoted are in pence (P/P). Currency of bills are rounded monthly.

Software over the telephone

MicroLink is setting up a central store of software programs which you'll be able to download directly into your micro. The range will include games, utilities, educational and business programs, and will cover all the most popular makes of micro.

Talk to the world - by satellite

MicroLink is part of the international Telex network. In the USA, Australia and a growing number of other countries there are many thousands of users with electronic mailboxes just like yours. You can contact them just as easily as you do users in Britain - the only difference is that the messages from your keyboard go speeding around the world via satellite.

What you need to access MicroLink

You must have three things in order to use MicroLink: a computer (it can be any make of micro, hand-held device or even an electronic typewriter provided it has communications facilities), a modem (it can be a simple Hayes type using 3000/75 baud, or a more sophisticated one operating at 300/300 or 2400/2400 baud), and appropriate communications software.

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Magikal moments

Program: *The Price of Magic*
Price: £2.99 (essential)
Supplier: Level 5, PO Box 26,
 Milton-Super-Mare, Aveo
 8524 8224. Tel: 0824
 814880

THESE I was stripped almost to the buff, stinky and reeking from an over-generous application of Andre Solains, and ready to be transformed into a put-broiled god. Then *The Price of Magic* arrived.

I should have resisted the temptation to load it up there and then. Such is the hypnotic power of the Austin clan's text and graphics adventures that once I had begun to play my chances of pulling away before sunset were negligible.

A sequel to Level 5's successful *Red Moon*, *The Price of Magic* is available for XL and XE systems and is Lemmik protected. Your aim is to defeat the sinister Mydgar who has gotten a little too big for his curly-tied carpet slip-

pers.

There are no treasures to collect. The name of the game is magic — you must acquire and learn to use 18 spells.

At the start you know as much about magic as Frank Bruce knows about the mating rituals of yaks. But to win, you must know everything — about spells, that is.

Each spell requires a certain object to focus through before it will work, so it is essential to find as many objects as you can.

Once you've discovered the name of a spell — they tend to be scattered around as inscriptions on scrolls, parchments and other less obvious items — it's easy enough to find out what object goes with it.

Just CAST VIM or whatever — if you haven't already got the appropriate object, the program will tell you which one you need.

However even when you've got the right object you've still got to work out what effect the



spell has and when and where to best use it. Not so elementary, my dear Watson.

There's bags of locations to explore without fear of coming to a complete stop because of an obtuse puzzle.

There are plenty of objects too, and you don't end up looking like an over-ambitious rag and lame merchant if you take everything around with you.

I preferred to play with the illustrations — over 300 of them — turned off. They're attractive enough, but added little to my enjoyment and sometimes seemed to conflict

with the textual description.

Among the many superb features are the sophisticated parser (I found being able to examine all objects in one go), huge vocabulary, massive text, very fast entry and response, good combat system and character interaction.

Another thoughtless from the level 5 stable. Long may it continue to produce them.

Bob Chappell

Sound	4/5
Graphics	3
Playability	10
Value for money	3
Overall	3

Ageing Rambo

Program: *Shamus*
Price: £2.99 (essential)
Supplier: Amstrad
 Software, Units 2 & 3,
 Walnut Way, Rufford St.,
 Walsingham 26 14X. Tel:
 021-266 3366

IN the early days of the Atari certain games appeared that seem to become legends — for example *Star Raiders* and *Eastern Promises*.

Another superstar was *Shamus*, a fast and furious shoot 'em up. When it first appeared it cost about £30, but now it can be yours for just one tenth of the price.

In its day *Shamus* was superb, with fast moving graphics and absorbing multi-colour walls. I must admit it looks rather crude compared

to today's standards, but even now it has an appeal that most current games lack.

Shamus is an American teen for a private eye, but in the game you are more of a Rambo character who shoots anything that moves.

You are the Shamus sent to hunt down and destroy the Shadow in his lair. The lair consists of a large building split into four levels of 32 rooms each.

Each level is inhabited by Robo Droids, whirling Drains and Snap Jumpers. These nasty friends of the Shadow have only one instruction in their memory banks — to wipe you out.

Armed only with Ion Slivers — Ionic Short High Intensity Vaporisers — you journey through the colour coded



levels starting with black, to assist, through blue and green to red, the most difficult.

Each level has four keys and four keyholes scattered at random about the complex. The keys are coded for each keyhole, so you must visit almost all the rooms.

Moving over a keyhole causes one wall to disappear allowing you to progress deeper into the complex.

To the first time buyer, I would recommend this classic, but don't expect to be stunned by the graphics. What you will get is one of the most addictive games in a long time.

Paul Irvine

Sound	7
Graphics	8
Playability	8
Value for money	10
Overall	8

Nice one, Ollie

Program: Ollie's Follies
Price: \$3.99

Supplier: Americana Software, Unit 2 & 3, Millard Way, Millard, Birmingham 36 143. Tel: 021-358 3288

OLLIE'S Follies is yet another platform game, but what it lacks in the novelty department it more than makes up for in the addiction stakes.

Like most games of this type, the object is to progress through a number of increasingly difficult screens. In this case there are 24 of them, so you can see that there's a good deal of play in the game.

Reflexing fans charging straight into the game has its rewards. While on the title page the program soon launches into a swift preview of all the screens, served up in

several consecutive showings.

Ollie, a young lad clad in blue overalls, can leap, turn and run to the left or right.

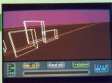
On each screen he must make his way over a series of platforms and ramps to an exit which leads to the next screen.

Although Ollie can jump short distances, if he falls too far he begins to spin head over heels and loses one of his five lives.

Some of the platforms are paralysed by revolving nooses. If Ollie touches one he loses a life.

Scattered around the screen are some floating balls—these turn out to be emeralds which, once touched, turn his hair a different hue.

The effect only lasts for about five seconds, but whilst it does—and a single touch is away to tell you—Ollie has the



power to touch and destroy robots with impunity.

Screen 3 introduces large fans which cause him to get blown off the ramp if he's not sharp enough. He must also dive down a large tube at the bottom of which is a platform guarded by a wandering robot.

The screens get more and more difficult with added hazards and ever more cunning platform layouts.

There are sliding ledges, robots, bats, helicopters, tight-

ropes, springboards, belts of lightning and laser walls.

Ollie's Follies is very enjoyable and likely to keep you coming back for more until you've cracked it. At the low price it's too good a bargain to miss.

Rob Chappell

Sound	7
Graphics	8
Playability	8
Value for money	9
Overall	8

Mercenary plus

Program: The Second City
Price: £5.99 (casual), £3.99 (full)

Supplier: Avantage, 142 Worcester Road, Birmingham B2 2HS. Tel: 021-449 8510

ANY of Paul "Encounter" Weekes' superb Mercenary Escape from Targ will welcome this new release. The Second City is not a follow-up, but an alternative data set for use with Mercenary.

Buyers take heed—The Second City is not a stand-alone program and will not run by itself.

Only Mercenary owners will be able to use it since it is designed to be loaded in only when Mercenary is resident in your Amig.

Once Mercenary is loaded and the opening sequence of the crash landing on Targ has been completed, The Second City is installed by the usual restore-saved-game procedure. Very briefly for those

unfamiliar with it, Mercenary is a heady mix of flight simulation, strategy and arcade action using incredibly fast 3D vector graphics. You'll believe your Amig can fly when you see it.

In this alternative scenario the green landscape and blue skies of the beautiful haven of Targ Central City have been replaced by the red earth and purple heavens of the wintry southern hemisphere.

As first sight things seem pretty familiar, but there is much that is not. The two rival races—Mechanoids and Palpatin—are still here and still require the services of a skilled mercenary.

Commodity values have rocketed though. The Palpatin Commander's brother-in-law has been recruited here as prison governor—I stole his ship at the beginning of the game and he was not best pleased.

Visiting the city is via elevators as usual, but the



rooms are even trickier. More than once I found myself in a prison with no visible means of escape—what are those two dots on one of the prison walls?

One room is pitch black and seems massive—I took a long time to find the way out.

There's plenty of objects lying around, but I didn't much like the result of picking up a skull and mistaking it for a—well, I can't see I wasn't warned.

What makes this game stand head and shoulders above all others involving

flight sequences is the breath-taking speed of the vector graphics.

Developing over, around, down and through a structure is simply joyous. This additional data set is worth buying for the chance it gives you to extend and vary an already classic game.

Douglas Woolfer

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

Sovereign remedy

Program: *David Philosopherium*
Price: £14.95 (incl.)
Supplier: Aristocrat, 58 Long
 Acree, Cavendish Gardens,
 London WC2E 9AN. Tel:
 07-838 3371

If you have trouble with the unusual name of this text and graphics adventure let me help you out by mentioning the subtitle — the *Philosopher's Stone*. Slightly stuffy, eh?

The plot concerns a lovely king who has remarried after the death of his first wife. The remarriage has given him an heir, a steedon who is a right nasty piece of work — funny how often there is a royal rotter in adventures.

He can't wait to get his grasping digits on the old cot and sceptre, so is poisoning

the king.

Out to all the readers goes an SOS — save our sovereign — but unfortunately to kings, the steedon rotter has killed all the quecks to keep well clear.

As death begins to about "Come in number 1 your time is up" in the king's ears, a single hope remains. Only you, a former steedonist who has long since hung up the sceptre and mortar, can now save him.

The game opens with a nice little tone and impressive title screen — dull and dripping candle on an ancient throne.

However the rest of the graphics are only average — simple trees, forests and houses — you know the sort of thing.

Each of the 88 locations has a lengthy picture with text underneath. The descriptions



are fairly brief and presented in gothic-type manuscript.

You start in your house — one room and a loft, no wonder you gave up steedonism — and must try to leave the walled and well-guarded town.

Originating in Germany, the game appears to have been competently translated for the UK market.

However the parser can only handle simple walk-around commands and the vocabulary seems to have omitted some

of the more usual and accepted words.

On the plus side the pictures are drawn very neatly and there is an immediate response to input. Occasionally you're even given a hint when you ask for help.

Bob Chappell

Score	4/10
Graphics	8
Playability	7
Value for money	8
Overall	8

8 bits to the bar

Program: *Caliban Music Composition*
Price: £25.00
Supplier: Caliban, 18 Dunlop
 Street, Fitzroy, London N1. Tel:
 0443 434343

MUSIC Composition is a collection of utility programs for writing and playing music on the 8 bit Atari.

Side one of the double-sided disc contains the music creator, a compiler, as well as a drum machine and a sound effects generator.

Side two holds a two-part music tutor, guitar tutor, playering and a combiner program.

Composition requires Basic, and boots-up automatically when the disc is in place and the Atari turned on.

The main screen is divided into two sections — the lower half shows the main menu console, containing eight rather obscure items.

These are toggled by the joystick when it's not control-

ling the piano-style keyboard. The software for writing music is reasonably straightforward once you've got the hang of it.

You simply move the joystick left or right along the keyboard and hit fire when you get to the right note.

It is then saved, its steps and duration changed by moving the same stick forwards or backwards.

A hair trigger arcade action type of stick would probably be more of a hindrance than a help in this situation. A keyboard option would have been useful.

A right-wielding friend of mine found the joystick controlled input rather slow and thought an option to shoot notes straight on to a stove with cross hairs might have been useful.

Playering is a fun piece of software that simply plays four types of music — disco, lounge, country and waltz.

The drum machine allows



you to create several hours of semi-realistic drumming — the best sequence is described in patterns, phrases and sections.

The compiler program combines up to four pieces of music into one long piece. You can write music in smaller sections, then combine them into one grand masterpiece.

Sound Effects Master provides you with some over used sound effects such as the Star Raiders hyperspace whoosh.

The music tutor shows a series of lessons, with see-to-see-hear style education.

The guitar tutor shows all

the major, minor and seventh positions on the screen, and also the correct fingering.

Caliban Music Composition is a sophisticated music making utility, at a reasonable price.

It does have a few design faults, but overall it is an impressive package — you certainly get a lot of code for your money.

Jason Kingsley

Score	10
Graphics	8
Playability	7
Value for money	8
Overall	8

Golden oldie

Program: Temple of Apshai Trilogy
Price: £14.99 (3 titles)
Distributor: US Gold, Units 2 & 3
 Apshai Way, Hatfield, Herts
 AL9 9JH. Tel: 057-355 1348

I CAN remember with great pleasure playing Apshai on one of the original Commodore Pits as it shows how long in the tooth the series is – we too, for that matter.

Now these three games – Temple of Apshai, Upper Reaches of Apshai and Curse of Itz – have been updated, repackaged and issued by US Gold as a trilogy.

Apshai is a role-playing adventure in which you wander through labyrinthine of tunnels and chambers battling monsters and gathering treasure.

The games are very similar to each other, differing only in labyrinth layout and contents.

The screen is divided into two windows: in the right hand window a variety of data is displayed including your number, seconds sustained, fatigue level and weight carried.

It also provides the quantity of healing herbs, oils and arrows in your possession, the name of the monster you are fighting, battle reports and other messages.

The left hand window gives a graphically simple map of the passageway and chambers in the immediate vicinity. You are represented as a small animated figure which from time to time is evicted by various animated monsters.

There are 20 single-key commands at your disposal. You can move your character various distances, turn 90 degrees to the left or right, and turn about face or rest.

In a fight you can attack, parry, thrust, and fire a normal



or magical arrow.

You can also search for traps, examine a wall for a secret door, open a door, pick-up or drop a treasure, listen for or speak to a monster, apply a salve or drink an oil and list your treasures.

Accompanying the package is a quick-reference card and a superbly presented 80 page book which describes every room, monster, trap and treasure in full detail.

It also provides a wealth of background lore and useful

gameplay information.

Apshai was the best of its kind in its heyday. Although it now seems slightly stuff, being mostly monster hunting, it is still a pretty fair role-playing game and, at the price, a bargain.

Douglas Woodier

Sound	4
Graphics	2
Playability	2
Value for money	2
Overall	2

Mouldy oldie

Program: Cloak of Death
Price: £2.99 (casual)
Distributor: Big Byte, Liberty House, 222 Regent Street, London W1R 7QB. Tel: 01-637 0880

CLOAK of Death was first released about two years ago by Argus. I wish I could say it was worth re-releasing, but I'm afraid the game's more of a mouldy oldie than a golden oldie.

To give you some idea of its pedigree you have to load and run the game with CLOAK and RUN from Basic – now when did you last have to do that with a commercial game?

At the start you find yourself in a dark hall in an old house which is reported to be haunted.

The front door has slammed behind you and there appears to be no way out. You must

step alive long enough to find the exit.

Each location is described using both text and an accompanying picture – the graphics can be turned off though.

The cassette intro grandly proclaims that Cloak of Death is a spine chilling adventure with none of the art blood curdling graphics.

However the truth is that this is a sub-average adventure with sparse textual descriptions and mediocre graphics.

It has more than its fair share of inconsistencies and logicities. In a sitting room the text told me that I could see a grandfather clock – but there was no sign of it in the picture.

Looking into a sink I was told there was some water there. When I tried to DRINK WATER the program didn't



understand this.

Further examples: Examining a door revealed that "The lock is broken". My attempt to LIFT LATCH was countered with "I don't recognise that noun".

Dropping a wicker chair, standing on it then typing LOOK revealed items that anyone would expect to see even if they weren't standing on a chair.

But picks of pure meat go to the library where there were shelves full of books – how surprising. Trying to take or read a book got me nowhere

but when I typed EXAMINE SHELF I was told "I see something".

Typing LOOK revealed a book, I was allowed to take it, but only that one. Perhaps the rest were placed in the shelves.

Taking a cue from the program I switched off Cloak of Death and went off to read a good book.

Bob Chappell

Sound	nil
Graphics	4
Playability	2
Value for money	4
Overall	4

An event NOT to be missed!

Atari Christmas Show

Royal Horticultural Hall
Westminster, London SW1

Friday November 28 10am-6pm
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THIS month let's look at collision detection, shape priority, overlap and size. Program 1 displays a wing-flapping bug, a tree and a purple man standing on the tree. Figure 1 is a list of the players and playfields used to make up these shapes.

The bug can be moved via the joystick. It moves fairly slowly because of the amount of processing taking place after each move, but for the purposes of this demonstration speed is not important.

If the bug - Player 3 - touches any of the playfields (other than Playfield 0) or another player, a collision has taken place and the collision display at the bottom of the screen will change according to the type of collision that has occurred.

Figure 1 is a list of the collision detection registers and the values found in them when a collision takes place. They may be familiar to you, for registers 53248 to 53255 are also used as horizontal registers.

When you poke a number to the horizontal registers, Artie switches that number away from the register and uses it to alter the horizontal position of the player or missile shape.

Because of this, when we are using addresses 53248 to 53255 as horizontal registers they are called write-only registers. Information can be stored in them, but not retrieved.

When a collision occurs, Artie passes the collision code into the collision registers, and this can be read using a PEEK statement. Thus when

Get shape priorities right - and look to collision detection



Part V of STEPHEN WILLIAMSON's series on player missile graphics

Player 0	Green top portion of tree.
Player 1	Unused.
Player 2	Purple man.
Player 3	Bug.
Playfield 1	Tree trunk.
Playfield 0	Yellow line around edge of graphics screen.
Playfield 2	Unused.

Figure 1. Players and Playfields within Program 1

addresses 53248 to 53255 are used as collision registers they are read-only addresses.

To see how collision detection works, move the bug (Player 3) over to the tree trunk (Playfield 1), and the playfield collision number will change to 1 which, from Figure 1, can be seen to represent a collision between Player 3 and Playfield 1.

Now stop the program by means of

```

10 KEY INPUT$=INKEY$
20 KEY INPUT$=INKEY$
30 KEY INPUT$=INKEY$
40 KEY INPUT$=INKEY$
50 GRAPHICS 1:GOTO 50:GOTO 700:G
60 HORIZONTAL 0,0,0
70 HORIZONTAL 0,0,0
80 HORIZONTAL 0,0,0
90 HORIZONTAL 0,0,0
100 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
110 HORIZONTAL 0,0,0:GOTO 100
120 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
130 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
140 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
150 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
160 FOR J=0 TO 4:GOTO 100:GOTO 100:G
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170 FOR J=0 TO 4:GOTO 100:GOTO 100:G
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180 FOR J=0 TO 4:GOTO 100:GOTO 100:G
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190 FOR J=0 TO 4:GOTO 100:GOTO 100:G
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900 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
910 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
920 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
930 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
940 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
950 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
960 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
970 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
980 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J
990 FOR J=0 TO 4:GOTO 100:GOTO 100:G
NEXT J

```


are only cleared after all of your hits are complete.

The second thing Program 1 demonstrates is shape priority.

Move the bug until it is part way over the tree trunk, then press the P key to change the shape priority. Part of the bug will now be obscured by the tree.

Memory location 623 alters the priority and, as can be seen by the text display, now holds the value 2.

Figure 18 is a list of the priority options. As you can see, a 1 means players have priority over playfields, which means that player will appear to be in front of playfields. Option 2, which is instigated when you press the P key, gives playfields priority over Player 2 and 3. Because the bug is Player 2, the tree trunk (Playfield 1) appears on top of it.

If you move the bug directly underneath the tree so that when option 2 is chosen the bug is not visible, you will notice that the playfield collision register still detects a collision between Player 2 (the bug) and Playfield 1 (the tree trunk). So, even if you cannot see the actual collision, the program can still detect it. When writing programs that include both shape priority and collision detection, you must allow for this phenomenon.

If you study Figure 18 you will notice there are some restrictions to shape priority. You can only choose one set of priorities - 1, 2, 4 or 5 - which may not always conform to what you want to achieve in a program. You cannot, for instance, give Player 3 priority over Player 2 if you move the bug to the green

Register	Player
63256	0
63257	1
63258	2
63259	3

Place these registers with 0 for normal size, 1 for double size of 2 for quadruple size.

Figure 16: Player size registers

section of the tree. (Player 0) it will always appear underneath it.

Because of these restrictions it is important to choose carefully which shapes you allocate to which players in order to achieve the correct effect.

Another option associated with address 623 is value 32, which is known as overlap. Move the bug underneath the man then press the Q key and you will see a third colour (white) appear on areas where the two, players overlap. This only works for Player 0 in conjunction with Player 1, and for Player 2 with Player 3. You will not get a third colour when, for example, Player 1 is over Player 3.

You cannot choose which colour you get during the overlap option - by altering the colour registers of Player 2 and Player 3 in line 180 to see what other third colours appear during the overlap option.

You will observe from the contents of address 623 that if you want more than one option these are added together. That if you have a shape priority option 1, together with the overlap option 32, the contents of 623 should be 33 (32 plus 1).

Registers 63256 to 63259 are the size registers (as well as being read

only option registers) - see Figure 16. These are three sizes to choose from - normal, double and quadruple. If the size registers are not altered the players or missiles will default to normal size.

The size option alters the width of each individual pixel. Vertical size can only be altered by plotting more pixels within the player strips, or by using the double resolution option.

In line 230 of Program 1, Player 0 has been set to quadruple size by means of the command PCK 63256,3 and Player 2 changed to double size. Try altering these values to see how this affects the program.

Program 1 also introduces a short machine code routine that clears the player missile data area. In previous programs in this series this has been done from Basic by creating a FOR...NEXT loop that pokes zeros into the Player data area.

This is fine when dealing with just one player, as the time taken to clear 256 bytes is not very long, but if you are using a program that uses more players and missiles there is quite a wait while the program clears the whole data area.

The machine code routine cuts this delay by rapidly putting zeros into the player missile data area. It is an adaptable routine that can be used to put a specified number of zeros into a specified memory area.

The data for the routine is contained in lines 670 to 680. The formula for calling the routine up is:

An USR(Address of MC routine, Address of area to be cleared, how many bytes to clear)

In line 110 the machine code clear routine is accessed using the above formula.

Program 1 is an example of using double resolution players. The procedure used is similar to that in Program 1, except that the shape data is loaded into a different part of the player missile data area. (Player 0 from PMBASE+512, Player 1 from PMBASE+640, Player 2 from PMBASE+768, Player 3 from PMBASE+1024. See player data area memory map in Part 3).

The loading of the shape data into the correct player data area is taken care of by lines 120 and 140. In line

Priority options	Value
Players 0-3, Playfields 0-3, background	= 1
Players 0-1, Playfields 0-3, Players 2-3, background	= 2
Playfields 0-3, Players 0-3, background	= 4
Playfields 0-1, Players 0-3, Playfields 2-3, background	= 8
Other options	
All missiles to have same colour *	+ 16
Overlap of players to have third colour	+ 32

* The colour will be the same as value stored in colour register 717 (Playfield 3).

Figure 18: Address 623 priority selection and overlap



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resolution missile starts at PMLASE plus 388, and for single resolution missiles at PMLASE plus 788; 40 is added to this value to plot the pixels part way down the screen.

In Program 11 we are only using missiles one pixel high. If you want taller ones, you would need to poke in more data. Of course, because the missile stripes are only two pixels wide, there is a limit to how complex the shapes plotted can be.

If you input a value of 1 then the right half of Missile 0 is plotted. A 2 plots the left-hand side, and if you add these two together by inputting a value of 3 the whole width lights up.

Line 170 has switched on all the missile pixels along the width of the missile stripes by POKING a value of 255 (128+64+32+16+8+4+2+1), which is the initial status of the missile when you first run the program.

You can see that by inputting various values, any combination of

missiles can be achieved.

Missile movement is similar to that of players — altering the horizontal registers moves them from left to right, and re-plotting the data achieves vertical movement.

Because of the way missiles are plotted, it takes careful planning if you are writing a program that has, for example, all four missiles moving to different positions at the same time.

Collision detection for missiles is exactly the same as for players — just use the appropriate collision registers from Figure 11.

Usually missiles take on the same colour as that of the player with the corresponding number. By adding 16 to address 623 (see Figure 10), all missiles will take on the same colour as Playfield 2 (set by colour register 711).

Having all missiles the same colour is useful if you want to create a 99th player. Providing you do not want to use the missiles individually you can

set the horizontal missile registers in such a way that the missile stripes are adjacent to each other, forming one stripe eight pixels wide which can be made to act like a fifth player. To see this to work add line 235:

```
235 PONE 63282,134:
POKE 63283,142:
POKE 63284,150:
POKE 63285,158
```

These horizontal registers are set eight pixels apart to allow for the fact that the program is using quadrate size missiles. If you were using different size missiles, the above values would have to be altered to take account of this.

The shape information for this 99th player can then be loaded into the missile data area in exactly the same manner as a normal player. Vertical movement is the same, but horizontal movement requires that you alter all the missile horizontal registers each time you want to move the block.

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Talk to the USA - the Atari way

WHILE many popular home micro owners find their thirst for knowledge on the subject of Spectrums, Commodores and the like satisfied by services such as Microsoft's GIG, what of Atari owners with such cravings?

The answer lies, not in England, but across the North Atlantic in America, where online systems proliferate.

Let's take a look at what's available on the giant US database, CompuServe, located in Columbus,

Ohio. In the US, CompuServe - whose large DEC-based set of computers holds literally gigabytes of data covering all aspects of computers, business and life in general - are the undoubted leader in providing on-line entertainment.

The diverse topics covered by this almost monolithic database include human sexuality, writing and politics, to mention but a few. Included in this diversity is the Atari area - a veritable Aladdin's cave of information for Atari owners. Both 8 bit and 16 bit owners are more than welcome here.

CompuServe's offerings fall into six main categories: Home Services, Business and Financial, Personal Computing Services for Professionals, User Information and the Index. Selecting any one of these choices takes you to further menus, each with as many as 25 further choices. Thus, from the deceptively few choices from the top menu, CompuServe takes you to literally a whole microcosm of options.

Where CompuServe really scored over its main rival in the early 1980s - The Source - was in its introduction of a real-time chat facility.

Called the OS Simulator, interactive chat took off right from the word go, and although expensive in terms of computer processing power, CompuServe's brave decision to offer a service everyone else thought would fail miserably has turned out to be their main source of online revenue - a fact much envied by The Source.

I'm sure we've all heard of the old joke about the daughter phoning her boyfriend in America, and poor old dad being leveled with an enormous bill. This problem has always dogged UK computer users who wanted to access the large American databases.

However, while bulletin boards in the US must be accessed via direct

dial, there exists in several countries - including the US and the UK - a network designed solely for the purpose of allowing computers to communicate with each other via a peripheral known as a modem.

Big computer users are connected permanently to the network via special terminals. Smaller and occasional users can connect into the network via dial up databases, or packet switching exchanges.

To access a Packet Switching System (or PDS), you proceed exactly

ATARI AT THE TOP

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**By
STEVE
GOLD**

As you would when signing on to a bulletin board – you dial the number (normally local), connect your modem and communicate with the service concerned. In the case of packet switching, you must first link with the packet switching node – log-on in communications parlance – and then set up a datacall to the distant host computer.

I know this sounds complicated, but rest assured it isn't. It's easy, and above all else, it's CHEAP. Datacalls, because of their nature of packaging data down telephone and datelines, can share a single line, provided the data is clearly packetised for easy detouring at the distant host computer.

By skilful use of hi-tech switching, several datacalls can be stacked onto a single call, allowing the callers to share the costs of making a datacall.

In the case of North American datacalls the savings can be quite large – calling the US works out at 7.5 pence per minute, as opposed to the 80 pence or so that a typical voice call costs.

When the data costs are added to the time costs, then the actual cost of making a call to a US service such as CompuServe can work out to a quite reasonable 12 to 18 pence a minute.

The Atari areas on CompuServe are huge. Split into four parts, the Atari sections of CIS fill a complete DDC 10 mainframe, which forms just part of the CIS network of DDC computers, all of which are located in Columbus, Ohio. The four main sections on CIS are: *Atari Online*, the Atari 16 bit forum, the Atari 8 bit forum and the Atari developers forum.

Atari Online, as the name implies, is an area run by *Atari*, the US magazine for Atari owners. Contents include features from future issues, as well as extracts from previous issues.



A flavour of what the service is like can be seen from the excerpts on the left.

The Atari 8 bit, 16 bit and developers forums are for the differing requirements of the XL, XE and ST owners and are, in effect, a microcosmic bulletin board system. In their own right, controlled separately from CompuServe by SIG-OPS –

Special Interest Group Operators, a corruption of the term sysops, which stands for system operators.

Like BBSs, the forums allow callers to read, leave and reply to messages left on the board, as well as load and download public domain programs. Several terminal programs

American Scene

EDWARD SHARRK reports

HAVING fully recovered from a hectic few days (see) at the Consumer Electronics Show in Chicago, I'm able to report on a couple of the more interesting items on show for the 8-bit Atari range.

First off was the much anticipated XEP-80, a box about the size of the 850 interface which gives a crisp 80 column display on a black and white monitor.

Currently most software cannot take advantage of this new capability, but many software companies are enhancing their programs to use the 80 column mode. The XEP-80 should be available by the end of the year for around £80. It is also likely to become part of the word processor package that Sam Tramiel announced at the Atari User Show in London in March.

Hardware company ICD announced a new I/O and memory board for the 8-bit range. The ICD Multi I/O board comes with parallel, serial and hard disc ports as standard and is available with two sizes of memory. The 388K version will cost £199, while the 1mb version will be £249.

Also at the show, Infocom announced two additions to its ever growing range. *Leather Goddesses of Phobos* is a new Infocom Plus adventure that has you kidnapped by wild women and taken off to Phobos, one of the moons of Mars.

LOP is another game from the keyboard of Steve Meretzky of

thousands of their range of interactive fiction adventures.

Both adventures are set to be available simultaneously in the US and the UK in early October.

Activision, the Californian entertainment software company, has reached an agreement to merge with Infocom. Activision chairman and chief executive officer James Levy said Activision will exchange two million Activision shares, currently valued at £7.5 million, for all outstanding shares in Infocom.

Activision will take over the distribution of all Infocom products,



thereby cutting the price on all Infocom products in the UK. For its part, Infocom will maintain separate product development and marketing operations in Cambridge, near Boston.

Activision has also recently acquired Gamestar, creator of Championship Golf, and GBA Championship Basketball, two ST games due for an autumn release, and Creative Software, a productivity software company.

Activision was founded in 1979 when five dissatisfied employees left Atari to form their own VCS games cartridge company.

In the Atari ST software world we're starting to see some very powerful desk accessories. These programs stay resident in memory and provide features that can be used at any time by programs which take advantage of the GEM environment.

From Michtron, we have Cornerman. This program offers features comparable with the much acclaimed

Sidetrack package for the IBM PC and clones. It includes a full ASCII chart in a scrolling window, a calculator with decimal, hex, binary, and octal functions, a note pad, a phone dialler, a clock (which appears in the upper right corner of any GEM screen), and much more.

Cornerman is probably most suited to a 1mb ST, since it uses up a fair bit of RAM, but it has drawn rave reviews from several G20 owners in my area.

A recent arrival on the US scene will probably give Cornerman a run for its money: Macro Manager, from Blue Moon Software (distributed by Shannar International). It is a very complete accessory. Its calculator works in algebraic and Reverse Polish notation (remember that?) and also includes financial functions. It also contains a weekly planner with project time reporting, electronic card file database, alarm clock calendar and an electronic typewriter feature.

One of the latest programs to hit the stores in the States is Thunder from Batteries Included. This is a



realtime spelling checker for GEM applications. While you're typing, it checks your spelling and buzzes if you make an error. Neat.

By clicking on the desk accessory menu it will tell you what word was wrong and offers you a choice of corrections. Thunder comes with a 50,000 word dictionary for starters, which is expandable via two further dictionaries, one with supplemental words and the other with replacement words. You give it a word and an automatic replacement for words you commonly misspell. Abbreviations are automatically expanded for you.



Planetfall and Hitch Hiker's Guide to the Galaxy series.

The other new offering is called Moonmist. This beginner level offering is slightly more grown up than Infocom's other beginner games and the firm hopes it will attract further

IT'S arcade time again, and this month we have a real challenge for you. Your task is deceptively simple — you must build a number of fences with the materials provided.

Unfortunately most of your tests have been exposed to a radiation leak from a nearby nuclear power plant and are even now roaming the countryside wrecking havoc among the local fence-building population. Should one touch you you will die.

Still, a job's a job, and you must find a way to build the fences. You will see three items at the top of the screen — a spade, some fence posts and some fence rails. Using your joystick button, you may pick up three posts or three rails at a time.

To plant a post just position yourself under a hole and press the button. Similarly you may erect a section of fencing by

By A. & R. LINES

collecting railing pieces and standing next to a fence post as you press the button. If you bump into anything else you will simply bounce off again.

You may fill in the holes by collecting the spade, but this won't help your high score an awful lot.

Once all the fences have been erected you can move on to the next level. If you exceed your time limit, or one of the roaming tools touches you, you lose a life.

Points are only awarded for erecting a piece of fence, although there is a bonus for completion of each level.

When typing the program in, don't forget to POKÉ \$2.0 first. This will enable you to enter some of the longer lines. You may also use abbreviations — such as GR. for GRAPHICS, and \$\$. for SETCOLOR — to speed up your typing.

If you have any problems use the checksum table and the Don't-Right! program from the last issue. This will ensure that you have typed it in correctly.

FENCE BUILDER



Trinity, a winner from the shadow of the Bomb

By Brillig



As a result of messing around with a little-known version of a *Sanctibility* spell that I found bot-stained and barely legible in my 1939 edition of *The Wizard's Digest Book of Spells*, I am now the surprised and delighted owner of a 620 STM.

I couldn't similarly manage to conjure up in my cauldron Infocom's new ST adventure *Trinity* to go with my new machine (such spells are useless against the likes of the Professor Magic Company). However *Software Express* in Birmingham must be personal friends of Belboe because they immediately arranged a review copy for me.

Trinity will be reviewed in more

depth when I've had a chance to get deeper into it, but I thought you might welcome a small forecast.

Like *Mind Forever Voyaging*, this is an interactive *Fiction Plus* game and so needs 128k of memory – it uses medium resolution mode (90 columns). Once loaded the program rarely needs to access the disc, so response time is very fast indeed.

The adventure, written by Bryan Moriarty of Watlington farm, breaks new ground for Infocom, being their first to concentrate on a serious theme, and the first to use actual places and events. Although I certainly wouldn't like to give you the

Tips for the Enchanter trilogy

Starting with Infocom for this month, the following is a pot-pouri of tips and fun items to try out on the marvellous *Enchanter* trilogy. It progresses in ascending order of difficulty level and consists of *Enchanter* (standard), *Sorcerer* (advanced) and the newly-released *Spellbreaker* (expert).

The tips have been coded in a very simple fashion so that you won't accidentally read something that might otherwise spoil your enjoyment. Each tip is written backwards, with all spaces and most of the punctuation removed, and presented in blocks of four letters. To decipher, simply read from the right to the left of the tip.

ENCHANTER

1. How can you survive the sacrifice?

- LLEP SOOH SOEH NESU ESU P
 - XREL LAGE ATWJ ZOHF TROF ZHTW OULF HTON WZHF DTI
2. Is it possible to take the sacrificial dagger?
- ZOF RQAS ENTE MVR USOD NCV OSEY
3. I can get to the control room in the engine room using the EXER spell but how do I get back safely?
- SOOH ZHND AEWV TO TE LXNU TEAF ZMFI
 - SMOY ESE
 - MWOD NDAL LONC SOKA TEOD SOTM WLE ZF

For fun, try talking to, or befriending the guards in the cell, listening to the guards' conversation while in the cell.

SORCERER

1. How do you win the hawkler's game in the Amusement Park?
- NOYF DPFL SOOF ENFD JHNU DY

- XROF ZHTW CSAT P
- FHW IMAX EDNA GMLF ZHTW ZMOL
- LLAR ZHTW KAT
- NOYF OYFE SOOF ENTE NRO
- SOEH WZND HTTA LLAR ZHTW DAWF

For fun, try: Sitting on the parrot's perch, leaving the acade with the ball, asking someone about himself.

SPELLBREAKER

1. How do you get the beam's cube?
- FVNE HTYU ASAC
 - EWC ACYF KAT
2. How do you tell one featureless white cube from another?
- SOEH HTOD NUIS SOEH TFAK DOLD WZND ENMF WZHF DTLP
 - NWU ACYF AMFH ZMUL WZHF CEMF NO Z ENMF ACYF RW

For fun, try: Smelling the eggs and the orange smoke; sleeping in the egg's cave; following the rabbit from the meadow.

impression that Trivis is a turn-of-events affair — it certainly isn't — the theme and ultimate objective dictate a less lighthearted approach.

Trivis begins with you, an American tourist, taking the air on a bright sunny day in Kensington Gardens, London. The place is swarming with nannies pushing prams, while on the pond people are selling their model boats. A little old lady is selling crabs for feeding to the birds. Nearby a savvy young Cockney lad sits blowing soap bubbles. All very charming, very English.

But one or two incidents portend darker things. One old lady is struggling with her umbrella in the strong wind. When you try to help, you see that her Oriental features have been horribly disfigured by deep red lesions. Sirens go off, and people start scattering. The lad-soldier suddenly shrieks "It is time!" and before

GLITCH OF THE MONTH

THIS is not so much a glitch, more a sloppy bit of programming in Autodesk's newly-released Lapis Philosophorum, there's a market where "you can buy anything, from food to cattle". But just you try to BUY FOOD and you'll get the unintentionally comendatory return, "Nothing like that is here".

you realise what is happening, London takes a direct hit from a nuclear bomb. World War II has begun.

Unless you enter another time, another place, another dimension, you have no chance of survival. And that's just for starters. You'll soon find yourself in a world swash with weird creatures, unusual objects and bizarre riddles, where time and space behave unexpectedly.

Your task is to discover the logic

behind this strange universe. If successful, you should finish up in the New Mexico desert, just minutes before the very first A bomb test. In case you didn't know, it really was here that the first atomic detonation took place — and the codename was Trivis.

The game looks to be another certain winner from these masters of text adventures. More anon.

That's all for this month, but don't forget to keep your letters rolling in. I want to hear more about your own tips, glitches, news, problems and wrinkles, if you are willing to lend a helping hand to other bemused adventurers. Let me know your name, address and preferably telephone number, together with the titles of the adventures you are willing to give advice on.

I can't guarantee to give a personal reply to all your letters, but an ear would help (the Post Office won't let me pay postage with troll's gold).

Enjoying adventuring!

Brillig

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APPLYING STR\$ TO A VARIABLE

Can you help me with certain operational aspects of the Atari 800XL?

Firstly is it possible to Apply the STR\$ function to a variable? For example:

Str1000(X)=STR\$(X)

If yes, is there an alternative method to attain this result?

Secondly how are the USR function arguments following the starting address of the machine code routine being called related to the routine itself?

For example, line 1170 of the River Maiden Superint program in the June 1988 issue of Atari User.

Thirdly how do you implement a flashing cursor on character on screen?

Finally can you get a more detailed directory map to establish exactly which addresses are portable, and the system operation to which they are related? — G.A.R., **Bodly, Ganges.**

■ Yes **Str\$(X)=STR\$(X)** will indeed return a string containing the number you requested.

The USR function arguments are simply a way of passing information from the Basic program into the machine code routine.

They are each pushed onto the 6502 stack in two byte format — low first, high second — so that you pull the low byte off the stack first.

In addition the routine finally pushes the total number of arguments on to the stack,

so even if you do not use any parameters you must still remember to PLA the count — zero — off the stack before doing an RTS back to Basic.

Regarding your third query we featured a small routine to give a flashing cursor in our very first issue, but we may well have an even smaller one in the Five-Issue series soon.

Finally a very good machine map called Mapping the Atari is available from Computer Books, which should tell you everything you might want to know and more.

You can get it from most of the large mail order firms if you have any problems locating one locally.

800 XL light pen

I WOULD like to know where you could buy a light pen for the Atari 800XL and how much it would cost. — **Adam Urison, Ramsgate, Kent.**

■ You can get a light pen for your 8 bit Atari from Superint of Bookden, Essex for £18.50. For that you get the light pen, plus various programs to use

with it. Superint also runs a bulletin board on 0288 290839 for those of you interested in modems. It runs at 300/300 at present, and should have the option of 1200/1200 shortly.

Games in Iceland

WHY are some online gamers in England complaining about software prices? Games costing £10 in the UK cost about £18.50 in Iceland.

If that were not bad enough there are just two retailers in Reykjavik who import Atari games, and they do not stock most of the ones available in the UK.

Fortunately I discovered the mail order service offered by some UK computer shops.

Some Software has been a great help to me, and I can now buy Microtronics budget games, Boulderdash 2 and many more.

Finally will UK Atari owners please contact me to swap programming tips and so on — **A.T. Gunnarsson, Alfheimar 3, 104 Reykjavik, Iceland.**

■ Great! Atari User travel the

world? It seems that we have it made with our cheap £9.99 games.

Perhaps other overseas readers would like to let us know how they fare for software and hardware availability and prices in their neck of the woods? We look forward to hearing from you.

Out of fuel in Space Maze

I HAVE just typed out your Space Maze and on the first board there is a screen, but what is it for?

On Board 2 there is what I think is a fuel station, but I have not been able to get there.

On Board 3 I get through the rocks and land on water! I thought we had but was killed.

Could you please tell me how to get fuel? — **Carl Dickin, Preston, Lancs.**

■ To refuel all you need to do is hover inside the fuel clamp by giving quick bursts on the rockets until you are stationary. The fuel will then load automatically.

Gathering in the £££s

I WOULD be interested to read your recent letters and replies about the pound sign using Altanewline and the 7027 printer. However there is a much easier way to produce this.

All you need to do is to turn on the International Character Set at the top of the document by typing:

[CTRL-0][27][CTRL-0][23]

on a separate line underneath the print formatting block.

From that point on the

pound sign can be summoned up by:

[CTRL-008]

The trick is not to use the 7027 option when prompted to select the printer. On the disk version select option 1 — the 7025 printer. On the earlier cartridge version select option 2 — the 820 printer.

The only slight drawback is that unloading now has to be achieved by:

[CTRL-0][27][CTRL-028]

It can be stopped again by

typing the Return key or by **[CTRL-0][27][CTRL-028]**

Other international character sets can similarly be produced by substituting the relevant number from the 7027 manual.

This letter was printed using this method, to prove the point. — **Paul Rae, Horesey, London.**

■ On that point I think we'd better declare the great Atari user 1027 pound sign debate well and truly closed.

Locked-up tape

I HAD the same problem with the Whiteboards tape as Cade Brent in Mailbag.

I kept looking-up on me and I had to reload. I eventually found out it was a fault in the original tape.

I wonder whether you are familiar with the robot game Chessers. I have found the spinner and the belt, and



main of the board and check off the water.

I have even tried to move every object in sight, but I still cannot open the door. I just knock on it, and I believe it's a door.

Can you give me a clue on how to open it?

Also if anyone is telling me to find a static object. There are two or three being about, but they all tell me — James Kelly, Nevada, Yorkshire.

Can anyone help out with James' problems? If so, drop us a line and we'll let everyone know next time.

If anyone else has any questions on other games, or hints and tips that you think other readers may find interesting, why not let us know and we'll run a page of them in a future issue.

Maths programs

I MUST strongly disagree with Alan Coate's review of Software Factory's *CSF* and *GCSE* D level maths series.

I would like to say that as a school teacher who has just taken *CSF* maths I found that the style of programs helped a great deal with my revision.

I do not agree with the remark that you have to be well above O level standard to understand the questions.

I am not anywhere near that

standard, yet I could understand the questions and the explanations on the *Help* pages, and did not feel demotivated by them.

I agree that there are not a lot of graphics, but I feel this doesn't matter as it is an educational series and not a game.

He also mentions that there is other existing software available to pupils. Well, you'd so find any of this standard for *Atari*.

I hope that this review will not put people off entering an interest in the series as it is well worth the money. — N. Sherrack, Kenley, Surrey.

I RECENTLY read the review of the *CSF* and *GCSE* maths programs in your May 1988 issue.

I used these programs while doing a two-year O level maths course, and after reading the review felt I had to comment on several things mentioned by your reviewers.

On the whole I found that the explanations given on the *Help* pages were clear, and I did not find the questions particularly difficult.

Regarding graphics, although younger children may find them interesting the older pupil like myself does not.

Your reviewer said that the course is so good for those who want to teach themselves, but surely it is not

designed for self-teaching. It is for use in conjunction with normal classroom lessons.

And where is all this other existing maths software? I haven't been able to find any suitable for the *Atari*. — M.J. Miles, Streatham, London.

Vanishing ghosts

COULD you help me with the problem I am having with *Star Wars* from your September issue?

On the main screen you can hear the ghosts moving after Horace, but you can't see them at all.

When you move Horace about the score goes up, but then you see into a ghost.

When I checked through the listing I found nothing wrong, and no errors are shown when I run the program. — Scott Gosney, Kent.

Check your typing again with the check-sum listing for the game in the March issue.

Television systems

I RECENTLY got an *8000L* in England and will be returning to the US in January.

The transformer is obviously 220V and I was wondering if I could buy a 110V transformer when I return?

I assume that the computer is compatible with the *Atari* systems in the US, along with the software I've bought here. Is this correct?

If so, is there any place in the UK where I could get the necessary items needed to use the system once back in the US? — Jerry Harvey, Newbury, Dorset.

The answer to all of the questions you ask is yes, but you missed out one important one.

You can indeed run all *Atari* computer software on UK or US machines with no problems, and you will have no trouble getting a 110V power supply when you get back to

the States.

Unfortunately the TV system used in America is not the same as that used in England. We use PAL, and America uses a totally different system called NTSC.

PAL gives a much clearer picture, with more stable colours, which is why we switched to it about 18 years ago.

The two systems are incompatible, and you will not be able to get your PAL system *Atari* to display a picture on an NTSC television.

This means that you will need to either take a PAL TV set over with you, or perhaps better still sell your old machine before you leave and get a new one which will run all of your existing software over in the States.

Contact the *Atari* Helpline for further information.

In the pipeline

I HAD my *Atari* set on buying an *Atari*. Unfortunately the ST is out of my price range, so the 8 bit models are the ones I am interested in.

Will any new models be appearing in the near future because obviously I would like the most up-to-date one?

If not, could you tell me if the 1300X is compatible with *8000L* and *8000X* software, and do you think it's a good buy? — Mike Halliwell, South-Orkney, Scotland.

No one really knows what *Atari* have up their corporate sleeves, so it's a bit difficult to say what 8 bit machines they will dream up next.

A lot of informed guesses are going around regarding a possible 256K XE machine, but that certainly won't be available this year.

Anyway the 1300X is fully compatible with all *8000L* and *8000X* software, and is indeed a very good buy.

If you don't feel the extra 8Kb will be of much use to you, why not look around for one of the 128 *Classic/Compo* packs of an *8000L* with a 128K disc drive?

Sound on tape

I MUST recently read that the 1010 program database can be used to tape programs and sound simultaneously.

If this is so can you tell me where I could buy a microphone, and how much it would cost? — Ian Noble, Tyne and Wear.

The 1010 — and indeed all of the *Atari* program recorders — can indeed play music while loading games, as it uses a stereo tape head.

However there is no easy way to record in stereo with the 1010. The only way to do what you are asking would be

to connect the output from the *Atari* on to the right channel of a stereo tape deck, and your microphone on to the left channel.

Pins 3 on the 13 pin I/O connector is the audio data-out, and pins 4 and 5 are ground.

Don't forget to control the pause facility yourself though, as the computer will have no control over when to stop and start the deck.

Incidentally, you can only record this way, not play back. To play back you must use the 1010.

Reading data

I HAVE had an 80085 for about a year now and despite the appalling amount of information issued by Atari I am now embarking on writing my own programs.

However I am slowly going bananas over a problem I cannot solve.

I am putting together a filing program using "read data" statements and it will not print more than one string only.

The same one is repeated on every line, yet the numeric data is correct and in sequence for every line. For example:

```
10 READ A$,B,C
20 FOR I=1 TO 10
30 POSITION 3,1:PRINT A$
40 POSITION 3,4:PRINT B
50 POSITION 3,7:PRINT C
60 NEXT I
```

results in only one A\$,B,C line, such as a date, being repeated on every line.

The rest of the program, including the mathematics, works fine. Please help, before the family hear me scolded. — J.G. Mincham, Redford, West Midlands.

■ In the program as you've described it the reason you only get one string printed is that you have only READ one string.

If you put the READ A\$,B,C line inside the FOR...NEXT loop, you'll get 10 different values.

As it is the loop doesn't have any way to alter the value of any of the three variables, so it prints out the same results 10 times.

Disc drive commended

I WANT to compliment the excellent new 5mb disk drive from Comarc for the ST.

Usually I object to the decoration of any of these drives being 1mb, as their useful capacity is only 720k — which is impressive in itself —

ATARI USER Mailbag

WE welcome letters from readers — about your experiences using the Atari micros, about how you would like to put us on to other users... and about what you would like to see in future issues.

The address to write to is:

Mailbag Editor
Atari User
Europe House
58 Chester Road
Hazel Grove
Stockport SK7 5NY

as only attempt to mislead the non-expert customer?

Having got one of the Comarc drives a month ago I can report that it operates as fast as the standard Atari drive.

It has all the same characteristics, but is very much quieter — almost silent in fact — and costs £75 less as well — I bought mine from a dealer for £754.

Another advantage is that the unit has a built-in power supply, and is mounted in a very neat grey package which suits the ST very well and measures only 2 x 4 x 1in.

I was slightly sceptical at buying a device for which I had read no reviews, but can definitely recommend this one to you. — C.B. Franke, Southampton.

Miserable manuals

AS an 80085 owner of some three months I am sure I am not alone in decrying the abysmal manuals supplied with an otherwise excellent machine.

Apart from religiously buying Atari User each month I have found it difficult to get useful literature.

I have finally managed to obtain a copy of Mapping the Atari but, still being very much a beginner, find it rather heavy going.

I would think that with over

150,000 XUs sold over the 18M088 Xmas period there would be a great demand for an in-depth monthly programming tutor, starting at the bottom and working up. — Rick Robinson, Stalford, Warwickshire.

Circular solution

I OWN an 80085 and am doing a program for my 12 Levels which involves circles.

Could you tell me if it is possible to draw circles on the 80085? — G.P. Lees, Staffs, England.

■ There is no function in Atari Basic for drawing circles, but you can write a program to draw them yourself quite easily.

The following subroutine will draw one for you.

```
1000 DEF FN CIRC(X,Y,R)
1010 FOR I=0 TO 360 STEP 1
1020 GOTO 1030+R*(COS I)+Y*(SIN I)
1030 PRINT I
1040 RETURN
```

To use it simply set X and Y to the centre coordinates of your circle; R and YR to the radius, then GOSUB 1000.

You may set XN and YN to different values if you want an ellipse rather than a circle.

If you increase the STEP value 5 in line 1010 you can create polygons instead of

circles.

Divide 360 by the number of sides you require to get the STEP value; for example, if you want five sides use a value of 72.

WP on the 800 XL

SINCE its launch I have noted several queries in Mailbag concerning word processing on the 8 bit machines.

I bought the 80085 10500 disc drive and 1027 printer from Comarc over a year ago in a package which included Atlantis.

Earlier this year I decided to upgrade and, while visiting relatives in the US, managed to pick up a copy of PaperClip for the 80085/10200 at an exceptionally low price of £45 — why is it still here?

What outstanding value, it seems to do everything, including all the usual functions plus double column printing, tables, double underlines, boldface and hanging indents.

It comes with approximately 30 printer drivers which cover most popular models, and it also has a program which allows you to write your own.

The problem is that the poor old 1027 can't begin to match all this additional capability, so I started thinking for an alternative.

After looking around I finally settled on the Star 50-10 from Digital Business Systems and, after nearly six months of fairly heavy use, I'm very pleased with it.

Of course I also had to buy an interface — from Chips Computer Centre — and a printer cable from Elliot Shop.

I ordered the necessary Atari by telephone and within three days everything arrived. I'm very grateful to all three suppliers for an outstanding service.

I would like to elaborate a bit — pen included — on the 50-10.

It comes complete with

➔

Printer and raster head, external disc switches, a comprehensive user manual and the MLI mode - software/disk switch controlled - which is exceptionally good.

In the near future I want to upgrade my system even more with the 1800E, another disc drive, monitor and telephone printer: if anyone would like additional information I would be glad to help.

I would also like to hear from anyone using a different interface - good or bad - and/or telephone printers.

I'm especially interested in the Juli 2000 typewriter/printer and FCC Systems' electronic interface. - **Andrew P. Bellon, 18 Huber Class, Marston, Marston, Bedford, MK43 0PT.**

Cable? No problem!

I ANSWER to the letter in the June edition of Atari User about monitors. You did not answer Mr Bishop's first question about the Ferguson M203 and the degree of resolution it could deliver with the ST.

What I can offer is the assurance that it gives a super clear and well-defined picture with my 800XL. This may be some help to Mr Bishop's first question but of help to any of his users who are considering whether to buy a monitor, especially when they read what follows.

The letter from Mr Fellaine complains about the attitude displayed by Sony toward his enquiry about a cable to see linking their XA-140FP monitor with his computer.

Let me tell you what happened when I bought my Ferguson.

Having decided I liked the look of the M203 I had asked someone to make me a cable to link it to my 800XL.

However when I got the set home I found an unassuming little card inside promising to supply a cable to link the M203 to any computer. About

six popular models were mentioned, but Atari was not one of them.

I duly telephoned Thom FM Ferguson who at once said that their old inbred standard is Atari.

So the Thursday night I filled in the post paid card and sent it off. On the Saturday morning I got my cable, connected it to the CV socket and it worked perfectly.

The rest is me! Nothing, except the telephone call which was not in fact necessary. How THATS my call service!

Incidentally, I also have a super small TV in the same piece of equipment. So take my advice, get an M203 for your Atari. - **George Walker, Littlehampton, West Sussex.**

WHERE can I get a connecting lead to connect an 800XL T and a Grundig TV monitor. - **F. Harding, Bathwell, Leeds.**

• Try Slice Shop or Software Express or a local dealer with an engineer.

Basic time piece

IN the February issue you published a program for a digital clock. I have tried to use this, but it is inaccurate.

I wanted to incorporate it into a program that I have

written and found that in two hours FS minutes running, the value is 24 seconds out.

I assume that it is possible to make it more accurate and would be very grateful if you could advise me how. - **M.J. Hake, Sells Coomes, Worcester.**

• In this month's Five-Liners you'll find this very subject listed.

The problem is that the screen refresh is just a fraction under 50 times a second, and so the clock program drifts by a few seconds per hour.

Unfortunately, since the program in the February issue is written in machine code, it is a little tricky to tinker by. 4080888.

So unless you have a fair knowledge of machine code your best answer would be to work with the Basic version. Coding describes in this issue.

Interface interest

I AM delighted to see your latest set of articles on some of the interesting applications of the Atari 800XL and look forward to the following ones with keen interest.

I am a night simulator technician and perhaps take an extra interest in the more practical applications that the Atari is capable of.

The problem is that trying to

obtain any technical information about, for instance, the 800XL circuit diagrams and peripheral interfacing requirements is almost impossible.

Could I see a manual cassette recorder instead of a designated one? What I like is the pin-out to the cassette recorder I'm stuck. - **R. Horsted, Wadsworth, Cornwall.**

• The best source of technical information on the workings of both the operating system and the hardware parts on the Atari machines is the Technical Reference Notes, available from most Atari dealers.

These also include the circuit diagrams and OS listings for the 800/800, which are not applicable in your case, but the rest of the book is worth its weight in gold.

As to your other question the Atari cassette system uses an FDC decoding circuit in the recorder itself, so you can't just look up an ordinary cassette recorder.

However these are companies which make converters. Contact one of our advertisers for more details.

Device timeouts

Hi your Get-it-Right! program why did I get an error message of device timeout on the 3000?

Also I typed Space Base

Better colour reproduction

I OWN an 800XL, 1080 printer, monochrome monitor and some good programs.

My only problem is that my XL is an American model which means no colour, and being NTSC 3.0 it is incompatible with our Secam system.

Would a European color composite video monitor work?

Manufacturers is the best word processing and graphics

and games use a bit without colour.

Can you please help? - **J.M.D. Mankharia, Athens, Greece.**

• As you have by now discovered the NTSC television system used in the States is quite incompatible with either the UK's Pal system, or the French Secam which your local TV network uses.

Unfortunately the same

applies to composite video monitors, and a Secam monitor will not work with an NTSC computer - or vice versa.

That said, if you want to spend just a little bit more you could get a multi-standard monitor which will work with all three systems.

Both JVC and Sony make these and a local TV dealer should be able to advise you on price.

from the August Atari User and when I ran it it stopped on line 10.

It took me 7.2 hours to type it, and it is driving me batty trying to send it out. Could you please help? — **Philly Worell, Little Sutton, Wexham.**

■ Use T000 of Out-to-Right! opens an output channel to the printer to allow a hard copy version of the checksum to be printed.

A device timeout is the Atari's way of telling you that it allowed the printer a given amount of time to respond to the OPEN command, and that time limit expired with no reply from the printer.

Check that the printer is properly connected, and that it is on-line and has a stack of paper.

If you're using an RS232 interface also check that works OK.

To test the printer try typing LPRINT "HELLO" and you should get HELLO printed on a page. If not you may have a faulty printer or interface.

Once you've got this problem sorted out you can run the checksum on Space Wars and find out where your typing mistake is. From the information you've given it's difficult to say where the error is, but Out-to-Right! will tell you.

Dutch contact

I LIVE in The Hague, Holland, and have an Atari 800X, and 1050 disc drive. Could you put me in touch with any other Atari Users in the UK. — **Rob Ruyter, via Beestdreef 26, 2546 AC The Hague, Netherlands.**

Esmeralda error

I HAVE an 800X. Could you please help me re Atari User January 1985 game Don't get the Worms — Reserve Esmeralda. When I run the tape with a F010 program monitor I get an error code 8

Recovering disc's contents

COULD you help me with a problem concerning a few programs I have written?

I saved them to disc like I normally do, but when I tried to retrieve eeg. Error 184 appeared and DOS wouldn't load it.

I have checked the programs and will there by loading in DOS off another disc then inserting this disc, and they seem to be there.

I looked up ERROR 184 and it says "File Number

Missing".

What does this mean and how do I avoidance the problem of erasing my programs? — **J. Weston, Bolton.**

■ What has happened is that you've somehow managed to scramble the disc's contents list. This was probably due to your removing the disc while the drive was still trying to write to it.

The drive has actually overwritten some of the file

contents, and these can not be recovered.

You may be able to recover some of the files by formatting a new disc, writing DOS files to it, and then trying to copy each file in turn from the corrupt disc to your new one.

Do not, under any circumstances, attempt to write to the old disc until you've recovered what files you can and then reformatted it. If you do you'll just get into a worse mess.

(input statement error on line 5550).

8880 FOR Q=0 TO 7:READ V:POKE 84+Q,V:NEXT Q. — **R.E. Moore, Park North, Swindon.**

■ You will almost certainly find that your problem is a misplaced number between lines 8700 and 8723.

The READ statement gets its data from here, so if there are any mistakes in the data they will be thrown up when line 8550 attempts to find them.

Revision B bugs

ON reading in the July Mailbag "Check your colors — Rev C!" and my 800X is the best and came up with 98.

Immediately contacted the rest of the family who between them have five 800Xs and found that three are Rev Cs and my brother and wife are Rev Bs — both computers being bought at 9800.

Further investigation revealed that the Rev Bs would not accept programs that the Rev Cs would accept, even after program alterations.

Also, on long programs Rev Bs repeatedly displayed errors with eventual keyboard lock-up.

We were contacted the manager of 8000s as suggested in Mailbag. His technical

department was informed by Atari that the articles in your magazine were incorrect and as far as they were concerned there is no difference in either computer.

If this is true could you tell us why A. Clear went to the trouble of writing our Mailbags for a problem that Atari says does not exist?

Unfortunately for us 800Xs will do nothing until the disagreement between your article and Atari is resolved. Can you please clarify the situation? — **R.J. Wilson, Yelverton, Devon.**

■ To tell you the truth at first, these ARE bugs in Revision B based on the 800X1 — we aren't talking through our teeth.

We have spoken to an Atari representative about this problem, and he assures us that if your machine is generally faulty and was bought recently it will be exchanged via your dealer.

If you go into a shop and say: "This machine is Revision B, and I want Revision C", they might quite understandably be reluctant to assist you without checking further.

Your best approach is to explain that the machine crashes frequently, and that you'd like it repaired or exchanged.

If it is out of guarantee period, Atari will provide you with an update cartridge at minimal cost to convert to Revision C.

Why no cassettes?

WHY C4-cassing third asks me: "Why don't you buy some Antiochsoft cassettes like Mike Marante and Paving Disambiguation (for your 800X)?" Do I pay a visit to the local Atari stocker only to be told they are only available on disc.

I've seen both these titles on C44 cassettes, and my friend says they are also available on disc. So why hasn't Antiochsoft put these titles on cassette in its Atari range?

The 800X has got 844, like the C84 Atari 87 — **Richard Martin, Penzance, Cornwall.**

P.S. Is R40 Over Mission available on Atari cassette?

■ There are several good reasons why games which come on tape on the Commodore did sometimes only come on disc for the Atari.

The first and most obvious is the fact that without the turbo loaders available on the Commodore, such tape games would otherwise take 18 to 20 minutes to load, and many companies find this unacceptable.

There is no practical way of designing a turbo loader for the Atari without modifying the hardware, so at present

we're stuck with 800 baud tapes.

Also, to work on all Atari machines including the old 800, the games must be limited to 47k at a time, whereas Commodore 64 games can use up to 62k.

This means that the Atari versions of very large games normally need to re-load from the disc after each level or stage is completed.

Well, Dear Moscow should be available for the Atari on disc and tape by the time you read this.

Off at a tangent

The tangent function on my 800XL doesn't work. I have tried everything but I just get an ERROR 8. Does one of my readers know why this happens? It's extremely frustrating.

function is critical. Could you help me? Are there any other ways to overcome it?

Since I cannot obtain the exact cause for the checksum failure and cannot afford to buy the cassette itself, you please let me know if I can obtain a separate floppy. — S.G. Pass, Thornaby-on-Tees, Cleveland.

● The reason you are having trouble using the tangent function is that, like many other home computers, the Atari does not have one!

When you type TANG, the computer tries to find an area called TAN and the ERROR 8 simply indicates that it couldn't.

However, as any mathematician will tell you, tangent is simply a function of sine over cosine. If you want TANG, all you need do is ask for SIN/COS(X).

Don't forget that there isn't a valid tangent of a 90 degree angle. Looked at as sine over

cosine, it's obvious why — 0/0=0/0 gives zero, and you can't divide by zero.

As to the checksum, we hope you found last issue's reprint useful.

Recorder connection

Can you help? My 800XL has a disc drive, but I wish to connect my Minicord disc recorder to the disc drive DC, cassette games being cheaper than disc. Do you have a master disc directly to the computer.

My main problem is that the D plug has 13 pins and my disc recorder has three sockets like this:



Any help will be gratefully

received. Many thanks in advance for any help you can give on this matter. — J.G. Evans, Cheltenham.

● Unfortunately there is no way to connect an ordinary tape recorder to the Atari directly. The computer I/O uses a special form of coded data called FSK which a normal recorder cannot reproduce.

However you have two choices. There are a number of small devices which will convert the signal from the recorder into a form the computer will understand (starting at about £20).

Alternatively you could buy an Atari disc recorder such as the TD10, which is really your best option as that will allow the audio track to work correctly.

If you do see a normal recorder make sure that it is stereo, not mono, for this same reason.

ATARI OWNERS

WHAT ARE YOU MISSING?

At PAGE 4 Magazine we recently had a readers survey. Here's what some of our existing readers said.

- | | | | | |
|--|---|--|--|---|
| "The printer is not the best resolution." | "More applications of Page 4!" | "The way all computers fit in one magazine is brilliant." | "The layout is good and nothing like Page 1 and 2!" | "It is also nice to suggest I have more than one magazine to read!" |
| "The font is Great British!" | "More news, programs that work and how to program them." | "Page 4 is simply the best magazine ever!" | "I'd like more magazines delivered to my home." | "Page 4 is a magazine, period! It is a magazine, people, people! I don't like it any more!" |
| "Page 4 has been working for months with no error!" | "It is very well published magazine - my favorite!" | "It is well researched and informative magazine. I may have been wrong, William?" | "A good magazine, very good!" | "Better get production on track!" |
| "Not good magazine - it has helped me a lot!" | "Thanks, have you decided to return?" | "Invaluable!" | "Congratulations to your published articles, etc." | "The more magazines the better!" |
| "I give magazine that I read for weeks on returning." | "More content in the same quality please!" | "I say this magazine, keep it up!" | "Thank you for the only Atari magazine worth reading!" | "I think it is an excellent magazine with fast turnaround!" |
| "Wonder!" | "Page 4 is a well researched magazine which has helped me a lot in my work." | "Great! Keep it up!" | "Thank you very much for the magazine!" | "Excellent magazine - I have got more!" |
| "I'd be pleased magazine was successful, complete that magazine is available." | "I'm learning and working!" | "Super bug!" | "Thank you for the magazine - very informative." | "Good idea for the magazine - a good read that's for sure!" |
| "Excellent magazine, especially with your Great British content!" | "The magazine is very interesting and informative!" | "Excellent to receive it!" | "Thank you for the magazine - very informative. Please keep on the good work!" | "Excellent magazine, please get more!" |
| "The font that they use for the reader!" | "I'd be pleased magazine is good quality, unlike the paper. Excellent work!" | "The way you put Page 4 in the 80 is an excellent idea system. It is a brilliant combination of a new magazine, a paper that's cheap!" | "Excellent magazine, keep up the good work!" | "I've had more than a dozen magazines, they're going well in being delivered." |
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PAGE 4 - COMPLIMENTING AND EXPANDING THE WORLD OF ATARI

HAVING covered the theory behind a two-channel mains controller it's now time to fit all the bits and pieces together.

Don't be put off if you've never done any electronics construction before — we're using a commercially made printed circuit board, so all you have to do is plug the various components in and solder them correctly. The more ambitious among you can always try etching your own PCB from the template we printed in the last issue.

Before you do anything else lay the PCB on a piece of strong paper and mark the outline and fixing holes. This will be used as a template when you come to drill the case, saving a great deal of measurement.

You will need a soldering iron rated at between 15 and 35 watts, with a 1mm to 2mm bit. Anything larger will be too hot or too cumbersome for use on delicate components.

It's also worth buying the special tin — 20/80 avg. — solder, as this is much more likely to go where you want it without forming untidy blobs. A damp sponge is useful for wiping excess solder from the bit.

Make sure all of your materials are scrupulously clean, as dirt and grease will stop the solder adhering correctly. Hold the soldering iron bit in contact with the component lead and PCB track simultaneously.

Melt a small quantity of solder by touching it to the lead and track — not the iron — and keep the heat applied until you see the solder flow evenly on to the track and around the lead.

Remember that small components can be damaged by excessive heat, so don't hold the soldering iron in contact for any longer than necessary, and allow the component to cool down again after soldering each lead.

With transformers it's best to solder one lead then turn the board over and make sure the case is vertical before doing the other two.

For extra safety you could attach a temporary heat sink to the components while soldering — a small building type paper clip works quite well.

Figure 1 shows the layout of

Now it's all circuits at GO...

Part 4 of LEN GOLDING's series on using your Atari to control devices. We're ready now to tame the mains

components on the printed circuit board. Start by fitting the resistors, diodes and transformer, followed by the IC socket, terminal blocks, jack sockets and wire link, then the relay, C1 and transformer.

Don't fit the fuse holders C2 and C3 at this stage, since these will become live during normal use and it's safer to keep mains voltages on the PCB's underside during initial testing.

The resistors may be wired either way round, but the remaining components must be fitted as shown. Diodes have a black or coloured band at their cathode — or negative — and, the bridge rectifier has — marked and the transformer has a small metal tag nearest their anodes.

The capacitor has a wide grey band printed with characters and the number 0 to indicate its negative side.

The transformer will only fit one way round, but 340V and 0V are marked on the board for extra safety.

Prepare the joystick extension cable by cutting off the unwanted socket, stripping back about three inches of the outer insulation and being half an inch of each wire.

Use some kind of continuity tester — a small bulb and battery will do — to find which lead goes to which pin, bearing in mind that cables, even from the same source, may vary in the colours they use.

Now it's time for the preliminary testing. There are three separate stages to the circuit — see last month's diagram — and we can check each one in turn.

Leave the opto isolator out of its socket for the moment, and don't connect the mains. Temporarily fit the joystick wires to their PCB terminals and plug the lead into joystick port 1.

Run Program 1 and hold the test LED across pins 1 and 2 of the IC socket, with its cathode — shorter lead — to pin 2. It should light when you type 1 and turn off when you type 0. Do the same with pins 3 and 4 — cathode to pin 3 — this time typing 2 and 0.

If either is at fault, turn the board

```
10 FREE 3400,3400,0000 0000 0000 00 00 0000 00 00
: <page>
20 FREE 3400,3400,0000 00 00 00 0000
: <page for output>
30 FREE 3400,3400,0000 0000 0000 00 00
: <page>
40 FREE 3400,3400,0000 0000 0000 00 00
50 FREE 3400,3400,0000,0000 00
```

Program 1

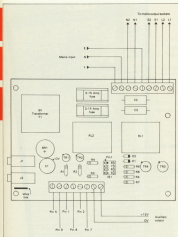


Figure 1: Component layout on the PCB for the mains controller

over and make sure you haven't left any connections unsoldered. Also look for dry joints which have a dull, crumbly appearance, and for blobs of solder which have either adhered to the component lead and not the track, or have bridged across two tracks.

Remake any joints that look suspicious. When the first test works satisfactorily it means that stage 1 is correct.

Now check again to see that all polarised components – especially the two diodes – are fitted the right way round. Correct polarities are marked on the PCB, and if you get any

of them wrong the component will self-destruct.

Fix the PCB temporarily to a piece of scrap wood or ply using No. 4 wood screws. This will hold it firmly when the mains is connected, and reduces the risk of your touching a live track.

Wire up the mains supply, taking great care from now on because some of the tracks and the screw leads on the mains terminal block will be live. If everything is wired correctly all the other components will be safe to touch.

With a small screwdriver or a piece

of thin wire bridge across pins 6 and 8 on the IC socket. The right hand relay should operate with an audible click. Do the same with pins 7 and 8, and the left hand relay should work.

If not, disconnect the mains and check all the tracks, joints and polarities again. Especially make sure that the two diodes are connected the correct way round – cathode to 0V – and replace them if you got it wrong.

When all is well insert the auto isolator, making sure that the small dot on its case is closest to the pin 1 position, and plug the joystick lead into port 1. Check that the relays operate correctly when you type 1, 2 or 0.

Finally disconnect the mains and joystick leads, then fit the two fuseholders along with C2 and C3.

REMEMBER THAT THE METAL PARTS OF THESE COMPONENTS WILL BECOME LIVE WHEN YOU NEXT CONNECT THE MAINS SUPPLY.

That's the electronics part finished. It only remains to prepare a suitable case – preferably all plastic – and connect the various inputs and outputs. If you have to use a box with metal panels make sure that all exposed metal is properly earthed.

It's difficult to mark accurate positions for holes and cut outs directly on to a case, so make paper templates and stick them in place using Copydex. They will peel off cleanly when you've finished drilling and cutting.

The mains cable and joystick lead should be run through rubber grommets to prevent chafing, and they will each need some form of cable clamp to take the strain if they are accidentally jerked during use.

Mains appliances can be wired directly to the terminal block, but it's more versatile to use some form of mains plug and socket. Standard 13A wall sockets will work, but Euro style 6A mains connectors are smaller, neater and cheaper.

The PCB is fixed using internally threaded spacers, so you can have a

bolt at each end instead of fiddling with spacers, nut and bolt assemblies.

Attach the spacers to the PCB with $\frac{1}{4}$ in brass metal bolts, but use nylon bolts through the case to ensure that the exposed heads cannot become live under any circumstances. You may need to shorten each nylon bolt using a sharp craft knife.

Wipe the mains cable and joystick lead into their respective terminal blocks and secure them with cable clips.

Fit the mains sockets' Neutral and Earth leads to the PCB terminals marked N and E, and the live leads to the two marked outputs. Then assemble the case and plug in.

The software is easy – just use the first line of Program 11 to set everything up, then POKE \$4016 with 1 to operate relay one, 2 to operate relay two, 3 to operate both together or 0 to turn them both off.

Program 11 is a simple on/off flasher routine, and Program 12 is an equally simple delay switch. For some ideas on more complex timing operations have a look at this month's Flex-User's on Page 48.

You can plug external sensors into the jack sockets – by the cadmium sulphide cell we used in the first article of the series with Program 14 to switch a table lamp on when it gets dark and off again when it is light.

These jacks can supply 5V at about 30mA – total – provided nothing else is drawing current from this or any other joystick port. If you need more power, you can draw a nominal 12V at about 300mA from the terminals marked 12V DC and 0V on the PCB, but remember this is an unregulated supply and will vary from about 14V to 12V, depending on the load.

Details of how you can modify the gadget to handle greater loads and more channels were given last month.

● Next month we'll be turning our attention to inputs, with constructional details for a plug-in numeric keypad.

10 FREE SAMPLES OF FREE SAMPLES FOR 10
 1010, 10 FREE SAMPLES
 10 100
 10 1000000-1010 1000 10000, 10
 10 100 1010 10 1000000 1010 10

Program 11

10 FREE SAMPLES OF FREE SAMPLES FOR 10
 1010, 10 FREE SAMPLES
 10 1000 1000 1000 1000000 10
 10 100 1010 10 1000000 10
 10 1000 1000, 1010 10

Program 12

10 FREE SAMPLES OF FREE SAMPLES FOR 10
 1010, 10 FREE SAMPLES
 10 10 1000000000 1000 1000 1000
 10 10
 10 1000 1000, 1010 10

Program 14

PARTS LIST

Resistors:		Mains socket	
R1, R2	10K		sockets
R3, R4	470ohm	Brown/black/orange	M10K
R5, R6	47K	Yellow/black/brown	M300K
R7, R8	2.2K	Yellow/red/orange	M47K
		(red/black)	M242
Capacitors:			
C1	470uF 25V	PC electrolytic	FY100
C2, C3	0.047uF	250V AC suppression	FF500
Semiconductors:			
T1, T2	BC108	transistors	GR10K
T3, T4	2N2906	transistors	GR17T
Q1, Q2	1N4148	signal diodes	GR500
BR1	W008	bridge rectifier	GR17T
DI1		Diode optic isolator	GR17T
DL1		Red LED	GR17T
			ML10K (optional)
Connectors:			
J1, J2	3.5mm PCB	jack sockets	FR20C (optional)
1	8 way	PC terminal block	FR300
1	4 way	PC terminal block	FR100
1	3 way	PC terminal block	FR100
1	2 way	PC terminal block	FR100
1	8 pin	DIN IC socket	FR100
2		Euro facility chassis sockets	FR100
Hardware:			
1 pack	$\frac{1}{4}$ in	brass threaded spacers	LR100
1 pack	$\frac{1}{4}$ in	brass round-head bolts	FR100
1 pack	$\frac{1}{4}$ in	brass nylon bolts	FR100
1		Cable clip 3/16in	LR400
1		Cable clip 3/16in	LR400
1		Cable-securing bracket	LR400
1		Small potentiometer	FR100
1 set		Stick-on test lead case	FR100
			FR100 (optional)
Miscellaneous:			
2	12V	flat relays	FY100
1		PCB mains transformer 5V	FY100
2		Chassis fuse holders 20mm	FR400
2	3.15	anti-surge fuses 20mm	FR400
1		Pack 200W solder	FR100
1		Joystick extension lead – for example Tandy 216 1876	FR100
		All plastic case, for example Maplin ABS box 2008 – order code LR225, or ABS box M84 – order code LR224.	

Printed circuit board – order code D9P1 – available from: P.H. Design, 127 Spoonhill Avenue, Harrogate, North Yorks. Tel: 0423 506355. Price £3.95 inc. postage.
 Joystick extension lead available from Tandy stores or large computer shops. Price around £3.50.
 Other components available from Maplin Electronic Supplies Ltd, PO Box 3, Rayleigh, Essex S58 8LR. Tel: 0713 852911. Approximate cost £16 plus s.p.

ELECTRONIC watches are cheap and accurate, so it might seem a bit pointless to turn your expensive computer into a digital clock.

But if your program can measure hours, minutes and seconds it can also influence events in real time, and this opens up all sorts of new possibilities.

You might, for example, want to set a maximum number of hours and minutes for your user to complete a game, or measure how long it takes to solve a problem, or disable the processor when it's time for the kids to go to bed.

If you build the reflex box described in this issue you could use a digital clock program to switch electrical appliances on or off at set times during the day.

Alternatively, you could write a countdown program to operate your photographic enlarger, switch off your lawn sprinkler, launch your space shuttle or whatever. So here's how to do it.

Three addresses—18, 19 and 20—are set aside by the operating system for use as an elapsed time counter. Atari call the three registers a real-time clock, but that's a bit misleading because it doesn't measure hours, minutes and seconds. Instead these locations count vertical blank periods—50 per second—up to a maximum of 16,777,216. To see a clock register in action, try this:

10 PRINT PEEK(20):GOTO 10

You will see the count go up to 255, then reset to 0 and start again. All three of the clock registers work in similar fashion, but they are associated together so that address 19 is incremented whenever 20 overflows and returns to 0, and 18 increments whenever 19 resets.

Since the registers are updated 50 times a second it should be relatively easy to convert their values into seconds, then minutes and hours. Program 1 looks promising, and works reasonably well for short time delays.

Unfortunately, the update rate is more like 49.8 times per second, so this program is about 0.3 per cent inaccurate. For intervals up to a few minutes the difference is hardly worth bothering about, but it means up over longer periods, and certainly isn't

precise enough to run a digital clock.

The strategy used in Program 2 is rather different. Here we combine the values from all three registers, then divide by 49,85688 to get the number of seconds which have elapsed since starting the clock. The result is added to the original start time, to get current time, then converted back into hours, minutes and seconds.

Since this method operates on much larger numbers than Program 1, any minor errors in division tend to disappear, and the clock is accurate to within two or three seconds a day. The display may appear to hiccup occasionally as it corrects itself to the nearest second, but this is a small price to pay for accuracy.

Line 10 sets up the strings and asks for the start time in hours, minutes and seconds. The clock starts as soon as the RETURN key is pressed. Line 20 zeros all three registers, converts the start time into its component number of seconds and selects Graphics 2 for the display.

Line 30 reads the three registers, works out how many seconds have elapsed since the clock started then adds this value (ET) to the start time (ST) to get the current time (CT). This is converted back into hours (H), minutes (M) and seconds (S).

The rest of Program 2 simply displays these hours, minutes and

```

10 PRINT CHR$(121);PRINT "START NUMBER
  OF SECONDS: 00000"
20 INPUT "HOURS: "H:INPUT "MIN: "M:
  INPUT "SECS: "S:INPUT "ST: "ST
30 FOR I=0 TO 1000000 STEP 100000
  ET=ET+1
  CT=ST+ET
  H=INT(CT/3600)
  M=INT(CT/60)-H*60
  S=CT-M*60
  PRINT "HOURS: "H;"MIN: "M;"SECS: "S

```



PROGRAM 2
 10 H=0: M=0: S=0: ST=0
 20 INPUT "HOURS: "H: INPUT "MIN: "M: INPUT "SECS: "S: INPUT "ST: "ST
 30 FOR I=0 TO 1000000 STEP 100000
 ET=ET+1
 CT=ST+ET
 H=INT(CT/3600)
 M=INT(CT/60)-H*60
 S=CT-M*60
 PRINT "HOURS: "H;"MIN: "M;"SECS: "S

Clock on for some bright new ideas

seconds, with leading zeros when appropriate. TS holds the clock display, and it is initialised to 00:00:00. The numeric values for hours, minutes and seconds are then converted into string form (HS, MS and CS), using the STR\$ function.

Line 50 uses a variant of the normal technique for joining strings together, and ensures that each substrings appears at its correct position in the display, regardless of whether it has one character or two.

Now a clock which just sits there ticking away to itself is not particularly inspiring (even if you can get it into five lines of Basic), so the next step is to make it initiate some action when a pre-set time is reached. One way is to delete the GOTO 30 in line 30, and add a few extra lines like this:

```

40 IF HS="10" AND MS="30" AND SS="0" THEN GOSUB 100
70 GOTO 30
100 POK# 54016,1:RETURN

```

Used in conjunction with the main control box, this will switch an electrical appliance on at precisely 10.30am. The clock display may

```

10 DIM H(100),M(100),S(100),ST(100)
20 DIM HS(100),MS(100),CS(100)
30 H=0:M=0:S=0:ST=0
40 FOR I=0 TO 1000000 STEP 100000
  ET=ET+1
  CT=ST+ET
  H=INT(CT/3600)
  M=INT(CT/60)-H*60
  S=CT-M*60
  HS=STR$(H)
  MS=STR$(M)
  CS=STR$(S)
  HS=LEFT$(HS,2)
  MS=LEFT$(MS,2)
  CS=LEFT$(CS,2)
  TS=HS&":"&MS&":"&CS
  PRINT TS

```



PROGRAM 1
 10 DIM H(100),M(100),S(100),ST(100)
 20 DIM HS(100),MS(100),CS(100)
 30 H=0:M=0:S=0:ST=0
 40 FOR I=0 TO 1000000 STEP 100000
 ET=ET+1
 CT=ST+ET
 H=INT(CT/3600)
 M=INT(CT/60)-H*60
 S=CT-M*60
 HS=STR\$(H)
 MS=STR\$(M)
 CS=STR\$(S)
 HS=LEFT\$(HS,2)
 MS=LEFT\$(MS,2)
 CS=LEFT\$(CS,2)
 TS=HS&":"&MS&":"&CS
 PRINT TS

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SEPTEMBER: Maze Maze: Help Harvey the Maze match the maze mazes' mazes. **Data Files:** Convert your machine code routines to DATA statements. **Display List:** Demonstration program. **Screen Dump:** Dump your Moby-D system to a 1001 page. **Beats:** Take the beats pattern.

OCTOBER: Password Test? Hit Memory Dump: Examine memory in hex and dec. **Display List:** Demonstration program. **Warp Trap:** Action game for one or two players. **Computer Games:** Make your own micro-messpage. **Assembler Update:** Improve words for RAN assembler. **Base Data:** Make the most of the 1000's extra memory.

NOVEMBER: Guy Fawkes: Help Guy escape from the guards. **Connect:** Teach your Atari to be a psychotherapist. **Display List:** Demonstration program. **Bitwise Operations:** Utility to

provide logical functions. **Circle Draw:** and fill a circle. **Plus:** Features of the month - **Crosshatch:** machine code pencil game.

DECEMBER: Countdown: More version of the famous TV game. **Get It Right!:** Atari User's own check-out program. **Music Box:** as loaded on your Atari. **List Utility:** Makes listing easier. **Display List:** Demonstration program. **Plus:** Features of the month - **Just's Program:** machine code entertainment.

JANUARY 1986: Hello: Hello Mr. Happy mouse. **Get It Right!:** Atari User's

BASIC COMPILER: The entire set of Basic Compiler programs from the March to June issues on one tape/disc. Write easy routines for your programs that will run at machine code speed. Contains the Compiler, Library and many example programs. (N.B. Requires an assembler.)

own check-out program. **Alien Attack:** The game to accompany the machine code version. **Linker:** Make listing programs easy. **Data File:** the editor or another player of this strategy game. **Dump:** 1000 printer/ploter routine. **Plus:** Features of the month - **Screenable:** Fighter machine code game.

FEBRUARY: Micropainter: Programs to manipulate BitMapPaint screens. **Circle:** four- and eight-bit utility. **Flasher:** Flashing-pattern utility. **Binary:** Write to play, hard to master. **BitMap:** The thinking person's word game. **Plus:** Features of the month. **Viewer's List:** - an adventure game you may never escape from.

MARCH: Home Play: King's new program. **Basic Compiler:** Program to accompany the new series. **Alien Attack:** Final part of assembly

being. **Plus:** Features of the month. **Witness in the Courts:** - can you keep your head and help Witness find his?

APRIL: Synthesizer: Activate the hidden depths of the Atari sound chip. **Disc Index:** Keep track of the files and free space with the index printing program. **Graphics:** Make the most of Modes 12 and 13. **Master:** Can you beat the game that leaves little to be desired?

MAY: Career Escape: Can you help to let the Joe escape from the labyrinth with King Blamblam's gold? **Player Mouse:** Program to accompany the rest of the series. **Spelling:** Automate those weekly school spelling tests.

JUNE: Maze Creator: Create/hundreds of maze mazes for last month's Career Escape game. **Player Mouse Development:** Create your own DATA shapes with the Player Mouse Editor. **Five Lines 5:** Simple Disc editing routine - build it into your own programs.

JULY: Space Maze: Manoeuvre your space ship through the treacherous space terrain. **Player Mouse Example Programs:** display your Player Mouse graphics. **SingleTap:** Turn programs to run directly via your own controller port interface. **Five Lines 2:** Create BBC type displays on your Atari. **Master:** Control those bugs in the Atari's Bay 8 Base.

AUGUST: Frank the Frog: Play, Avoids Action in Basic and machine code. **80 Columns Display:** Use 80 column displays on your Atari. **Get It Right!** By popular demand, an updated version of our check-out program. **Player Mouse Programs:** Three programs to show you PRG's vertically. **Five Lines:** More of our utilities in five lines.

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August issue: Frank the Post First arcade game, Gadgets - Menu Control (see Part 2, Out in Sight) to print & update, 68000 custom display update software, Paper/Music Graphics game Part 4, Five Lines Advertising, Laser game reviewed, News, Method, PLUS Atari ST Users' 87 Graphics interview, Graphics Accounts and 1988 Best Award, Atari ST Users' and system and ST Artists, American Icons, Game Review, ST Roundup.



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