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ATARI USER

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issue



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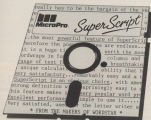
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(see Commodore 128)





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SUPER SOUND CHIP ON WAY

ATARI is on the verge of launching a revolutionary sound synthesiser chip for the ST.

Leonard Traniel, son of chairman Jack Traniel and himself a leading company buff, revealed this to Atari writer Andrew Barnatt.

The early development of the chip – known as the Axx – began in the pre-Traniel days and was the first and user project started after the 80001.

"They set out to develop a custom chip of great complexity but they had limited resources and poor development tools," explained Leonard Traniel.

"Although the architecture was brilliant the early version of the chip didn't work."

"When we took over Atari we saw Axx as an excellent potential product. Now we have sold the design to a company that I cannot name just yet and they are hoping to have the final working chips ready soon".

ST software

SEVEN new software titles for the Atari ST series have been announced by Microsoft.

They include four games – Shuttle 3, Title Challenge, Electronic Pool and Pinball Factory – multi-user bulletin board system 1655 Version 2, word package Paycot, and mailout system Mighty Mail.

All program listings in Atari Year are now available for free downloading on Microsoft, the UK's fastest growing electronic mail service. They join hundreds of programs already available in the telephones section, one of the most popular areas of Microsoft.



Surprise launches at the show

WITHOUT advance warning, Atari launched two new machines and a breakthrough graphics chip on the second day of the PCW Show.

Released is "The World of Atari" corporate stand at Dornale were surprised to see the latest additions to the ST range – the 2080STT and 4160STT – suddenly appear in a glass display case.

At the same time, officials began to demonstrate the 800 enhancer which increases graphics speed eightfold.

Even the Atari press office appeared to have been caught napping, having to prepare information sheets on the spot after the event.

The two new machines have the increased memory capacity of two megabyte and four megabyte respectively.

Both join Atari's ST computer and feature an in-built one megabyte floppy disc drive.

According to Max Barnbridge, general manager of Atari UK, the 2080STT and 4160STT will find a ready market among specialists working in "RAM

disc operations, artificial intelligence applications and high level programming such as Lisp".

Price of the two megabyte machine is £1499 with monochrome monitor and £1,349 for the colour model. The top of the range four megabyte ST will carry a price tag of £1,499 monochrome and £1,699 colour.

Both the 1040STT and the 4160STT will go on sale in the UK in November.

The same month will see the

800 chip go on sale for £60 as an upgrade for the complete ST range.

It will need to be fitted by Atari authorised dealers and independent Atari service centres.

Comments Les Player, Atari's technical manager: "It's very simple in operation. The chip just moves memory around very fast without the need to use the 88000 CPU. This means that animation sequences will run much faster, without impacting normal processing power".

More 8 bit games

NINE all-action games for Atari 8 bit owners are being released by Red Rat Software this autumn.

Just out are Fleaky Factory and Rocker Rapsman, both £4.99 on disc and £2.99 on tape. War-Copter and Axx Drift, £9.99 on disc and £7.99 on tape.

To come this month are Desolation Derby and Domain of the Undead, both £9.99 on

disc and £7.99 on tape, and Treasure Island and Dragon's Breath, £4.99 disc and £2.99 tape.

Planned for release in November is Escape from Planet X, which will cost £4.99 on disc and £2.99 on tape.

Red Rat will be releasing a version of its earlier success Scrambling Blings for the ST series in early December, price £19.99 on disc.

In brief

ATAI has appointed DGT Maintenance as a preferred third party contract maintenance dealer for its 1040STP and 1028TSM machines.

The firm has a network of more than 100 engineers backed by 12 service centres and two repair centres covering the UK and Eire.

INTERACTIVE fiction specialist Infocom is releasing two new titles for Atari machines this autumn.

Further Caddesses of Phobos and Maelstrom bring the number of Infocom titles available for Atari 8-bit and ST to 22.

A NEW business program released by CashLink Software for the ST series is Hostler, designed for small hotels of up to 100 rooms.

It offers a front office system handling all guest charges and transactions, as well as a full back office consisting of sales, purchase and nominal ledgers.

Hostler also provides a word processor and memo writing facility. Price: £1,100.

A TRIO of new products for the Atari ST has been launched by systems software house Metacom.

Cambridge Lisp is an interpreter with integral compiler, said to be the first fully-featured expert systems development environment for the ST.

It opens up applications such as robotics, natural language interfaces and expert systems. Price: £149.95.

Also new for programmers from Metacom are the BCPL compiler at £99.95 and Metacom's Make utility, £49.95.

A PERIPHERAL which offers true 60 columns for Atari 8 bit machines was on display at the BCW Show.

The XEP-60 to be released any day now is one of a string of new products reported to be in the pipeline for the 1300X and 800XL.

CHRISTMAS SHOW RUSH

With two months still to go, exhibitors are rushing to book space at the Atari Christmas Show.

They don't want to risk getting left out of a repeat success story following the enormous impact of the first Atari Computer Show in London last March.

A total of 15,000 visitors turned up then and that massive demonstration of support effectively re-established Atari as a market leader in the UK computer industry.

The spectacular Atari showcase returns to London on

Friday, Saturday and Sunday, November 28 to 30, at the specially located New Horticul-tural Hall, Westminster.

All the leading producers and suppliers of Atari additions and software will again be represented, occupying well over 100 stands in the spacious 20,000 sq ft exhibition hall.

Big names like Software Express, Twister, CDS, Microdeal and Advanced Systems & Techniques will be there - ensuring plenty of interest for 8-bit and 16-bit enthusiasts alike.

New programs and add-ons

for the ST series and 8 bit range will be launched at the show, and there will be opportunities to question the UK's leading experts on Atari computers.

The event promises to fulfil all the wishes of pre-Christmas shoppers, waiting to fill their stockings with the latest Atari hardware and software.

It opens from 10am to 6pm Friday and Saturday, November 28 and 29, and 10am to 4pm Sunday, November 30.

There is £1 off the price of tickets ordered in advance using the coupon on Page 13 of this issue of Atari User.



Some of the latest software packages available for the Atari ST series are pictured with a 1040STP whose screen shows the GEM standard operating system PDS.

More power on tap

DESCRIBED as a "major advance in raw processing power availability", K-Max is a new add-on from Sama Computers which plugs into the rear port of the Atari ST.

Inside K-Max is an interface board and a dual processor board which can contain two Intel 80386 transistors and two blocks of 256k of ram.

Each 80386 is a 7.5 mips (million instructions per second) 32 bit floating point processor.

Parallel means they can easily be connected by simply adding their chips together -

two 3.5 mips processors having the potential of 15 mips.

K-Max is controlled via the ST keyboard and screen using specially developed software.

Sama has supplied a cross-assembler and editor as the main tool for controlling and programming the T414 transputers.

Additional functions include a machine monitor, debugger and disassembler - the ST assemblies T414 code at 60,000 lines a minute, says Sama. K-Max costs from £1,480.

Artwork utility

ALL kinds of artwork spring to life on the Atari ST with Make It Move a new package from Californian software house Aulis Associates.

It comprises a set of utilities designed to enhance pictures and present them in a variety of dynamic ways by using such features as moving objects, video transitions, zooms and fades. Price: \$49.95.

8 bit speed boost

OWNERS of Atari 8-bit machines can load and run discs at twice normal speed and read/write up to five times faster with a new drive enhancement from Innovated Software.

The IS Drive device for the Atari 1050 disc drive has 18k of on board ram and is compatible with all operating systems on the market.

Sector skew is not required to obtain hi-speed as with US doublers. Other features are slow down, fast write, fast read, drive write lock, skew on/off, and fast formatting.

Available exclusively from Crips Computer Centre, West Woking, the 1050 IS Plus disc drive enhancement costs £99.95.

[illegible]

More ST packages

Two powerful business packages have been released for the April ST by Epson.

Invoicing/Order Processing module includes order processing, price list and journal and has the facility to allocate either the complete invoice or individual entries to these main areas — such as sales representatives, sales area and department — as required.

This can be used for many purposes in accounts, sales analysis and reporting, for example show paying and bad debt report per salesman. Price: £100.

Environ Monit Assess (2008) 142:111–120
DOI 10.1007/s10661-008-9402-2

There is also an extensive search and reporting facility, and it is possible to use nominal account numbers to enhance reporting. Price: \$1500.

DEALING WITH DATA

A PACKAGE designed to handle multi-dimensional data efficiently is about to be released by Molecular Software for the Atari ST. GoldFile/ST provides full access functions for the storage and retrieval of complex data structures, and is implemented as a set of library routines.

A demonstrator program showing the use of Gridfile for implementing a simple database of names and telephone numbers is included.

The price is expected to be reduced 10%.



One of the earliest exchanges in the new *Marxism-Maoism* system involved *John* and *Paul* Camilleri of London and [?] *Alan* from *John* *Chamber*.

Making music

1044(10) starts with your date
 11 11 11 starts between parallel
 with two stars parallel from 2
 11 11 11.

Midi Master is a Midi interface featuring an eight track real-time time sequencer, a Casio CE voice editor for editing and storing voices on files or cassette, and a Yamaha CS-3021 voice voice editor.

It's a music player program allowing users to play Music Companion or MIDI song files via MIDI. Price: £22.50.

Perussion Master is a professional quality drumkit featuring nine sampled drum sounds, three drum polyphonic, a facility to load the user's own drum samples, and pull down

... and composing

LATEST release in the R series from Rumba Computers for the Atari ST is R-Minotaur, a music composer package operating under RUM.

It has 2,200 strands in four structural units, with crosslinks, myosin, tropomyosin, filin, myosin and actin, and is used to make

to the user's compositions. The MIDI interface allows music to be played on 4, 8, 12 or 16 channels. There is a full range of applications.

All or selected parts of a tune may be played, and several example tunes are included in the flip which come with it.

New link-up to US database

Mircoslink has achieved a world first with a new submarine link across the Atlantic. It allows subscribers to have instant access to a giant American database - including a dynamic section especially for Mac users.

And the cost will be approximately half that of a conventional masonry wall.

The breakthrough has come about as a result of a deal struck between MicroLink, the UK's fastest growing email service, and New York-based Microsoft.

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With the help of the American partner, EthicalLink has set up a 24-hour information gateway which enables the exchange of messages. Numerous videos on unethical sides of the Atlantic

The computer link opens up a host of new services to Microsoft subscribers.

Included among some 40 special interest groups is one specifically for Atari users which provides all the latest information on what's available for the machine. Write: Atari.

There's an extensive *Good* database crisscrossed with information, along with message and chat facilities.

Our Minematics isn't just about computers. Special interest groups catered for include doctors, dentists, estate agents, lawyers and writers, and there is a micro-conferencing facility.

1000000

Other services include global news round-the-clock from the Associated Press and instant information from Dow Jones, the New York stock exchange and more.

"We are delighted that we are able to offer this first," says Derek Moxley, head of MillersLink. "It's going to transform the way we communicate with our clients, even in the future."

Now the technicians at Mnemonic are working on a reverse link to allow more users in the USA to share all the features offered by Mnemonic.

World of Atari focus was on the ST

THE Personal Computer World Show has become the industry's main forum for demonstrating the latest technology and shoveling off its new ideas. It can not have escaped anyone's notice that Atari planned to dominate the 1988 Show at Olympia, and dominate it it did.

On the lower floor you could see the latest offerings from Amstrad, Sinclair, Acorn and the like, while upstairs Atari had taken over an entire hall with its World of Atari show-within-a-show. But what was there to show for this massive amount of floor space?

Well the single most obvious fact about the Atari stand was that it was predominantly ST-oriented. There were a few 8 bit machines about - mainly on the third-party stands - but Atari seemed far more interested in pushing the ST.

Indeed, the only specially interesting development for the 802 range was the XSP-8080 column box. This seemed a somewhat bulky unit, interfacing as it did through the second joystick port. You might have expected Atari to use the parallel bus for such a device, but instead they used the more awkward joystick option. The display itself was good, but it required a special driver to be hooked from disc in order to run.

On the ST side, though, the story was quite different. Atari was showing three major additions to the range. The much predicted 3mb 2080 ST was on display in a glass case, as was the even larger 4 mb 4160 ST. These new machines - to be released in four to six weeks - were probably far less interesting than the new blitter chip which was running as an existing 1040.

It seems this will be a straightforward modification for existing owners, consisting of six new chips and the blitter itself, with the price including fitting to your cluster. Apparently the chip interfaces to the operating system by re-vectoring the Line A interface, thus speeding up almost every facet of the machine, including the rather slow GEM text displays.

The demo running on the stand

showed a whole flock of birds flying over a coastline landscape, and the blitter version ran three to four times faster than the "straight" 1040. An Atari representative said that the blitter was in final beta-test now, and should be available early in the New Year.

Atari is now awaiting delivery of the revised version of Basic, but how what I've heard so far you might just as well buy a copy of Computer Concepts' Fast ST Basic - a truly remarkable feat of programming with benchmark times at least three times faster than the IBM AT, and an amazing eight times faster than the BBC Micro.

As it also fully supports the GEM environment, I feel that this could well be the Basic of the future as far as the ST is concerned.

The future of the ST is bright indeed if the quantity and quality of ST software support continues at the pace we saw at the show. Notable products included MinorSoft's Art Director - a superb graphics art package which gives more features and facilities than ever before.

Kerns and Microdeal had their latest offerings on display, and the number of accounts, spreadsheet, database, finance and other business packages available indicates that the market is treating the ST as a serious and useful business tool, not just a very pretty graphics machine as certain other 68000 based machines seem to be becoming.

All in all a very encouraging show, with Atari moving ahead in leaps and bounds with the ST range. We are the 8 bit machines being abandoned, although Atari does seem to be leaving that area mainly in the capable hands of the third-party suppliers while it concentrates on pushing back the frontiers of 16 bit technology.

With the 2080 and 4160, the blitter and the TT plug-in co-processor board on the horizon, there has never been a better time to move into the world of 16 bit computers, and there has never been a better machine to do so with than the ST.

André Wiley

An event NOT to be missed!

Atari Christmas Show

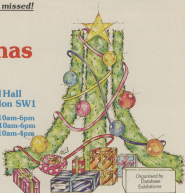
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Sunday November 30 10am-4pm

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



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

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- * New hardware releases from Atari and other major companies
- * Experts from Atari User and Atari ST User to answer your questions
- * Experience the fascinating world of computer communications
- * Everything on show from stocking fillers to complete Atari systems

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

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- ☐ Please add any other card account.

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- ★ Prizes will go to the senders of the first 50 correct entries opened on October 31.

THE QUESTIONS

- 1** Which game, written by American programmer Peter Dinklage, was the most successful ever written for the Atari?
- 2** What is the maximum number of colours the Atari 8-bit computers can display at any one time?
- 3** What girl's name was used to identify the Atari computers during its development over 5 years ago? Clue: it begins with a 'C'.
- 4** Which game was English Software's first machine code program for the 16k Atari 400?
- 5** Name the author of the Atari version of Tetris/angle.

Your answers

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____

NAME _____

ADDRESS _____

POSTCODE _____ AGE _____

COMPUTER OWNED _____

Do you require cassette or disc? _____

Very different...

Program: Collapse
Price: £1.99
Supplier: Fresh, Wellington
Address: Ocean Dr. Marlin's
Lane, London W12 7SL
Tel: 01 275 6355

THIS is a most unusual game and one none too easy to describe.

In the centre of the screen is a collection of grey sticks, the objective being to turn them all blue.

When you've done that you activate a game known as a Peris, which has the effect of reflecting all the sticks on top of each other.

Mission completed, you move to a new screen with a different configuration of sticks and do it all over again. And again until you've completed all the screens.

As well as the grey sticks a number of bridges are spread around each screen. You use them to gain access to the

sticks. However, because there are insufficient bridges to get you to all the sticks, you have to construct more bridges.

Carrying out all this construction work, and under your control, is a small noty-poly character called Zan which operates in two modes — magic and normal.

In normal mode, Zan is yellow and will move left, right and up into only one way down is by falling, turning any grey sticks blue on contact. A press of the fire button puts Zan into magic mode, when he turns red and can move left and right.

A press of the fire button creates a bridge in the required direction or, if near to a blue stick, sets a Peris in sort of whirling dervish-like motion.

Pulling back on the joystick while in magic mode releases a cloud of magic dust to leave the sticks. Oh sorry, didn't I



mention that?

Well, any of the several blabber aliens which float around the screen will get stuck on contact with the dust. Zan can pass over them in this state and collect extra points. Contact with the aliens at any other time is harmful to Zan's health.

I also forgot to mention the flashing diamonds. These can be picked up for extra points. And there are bonus points for reflecting the blue stick marks in one go. And one other small thing — there are 95 screens.

I really don't know what to

make of Collapse. Top marks for originality unquestionable, but the graphics are truly so-so and the abstract nature of the game doesn't generate excitement.

But credit where credit's due — Collapse is different, and that must be good news for jaded players.

Gregory Wheeler

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

Graphics plus

Program: Ultima IV
Price: £19.95
Supplier: CSI Gold Ltd 2 & 3
Address: Mole, Welling, Essex
SS16 7SL. Tel: 027-355 3368

ULTIMA IV, the latest in the Ultima saga, is the tale of the land of Britannia after the fall of the Wizard of Blue.

Lord British, the all-powerful ruler, has sent out a message to all the lords to find a person capable of completing the quest of the Avatar, and you have taken up the challenge.

The beginning is like a graphics adventure. You move between locations until you meet a gypsy woman in her caravan. She bids you to sit and you proceed to answer multi-choice questions about cards which she places on the table in pairs.

As you answer you build up your character which is repre-

sented on an abacus-like object. On your first choice the game starts.

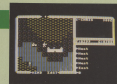
You will be one of eight professions — mage, fighter, thief, and so on — depending on how you answered the questions, and you find yourself outside the horse towns of your profession.

The display shows you as a single figure in the surrounding countryside. You cannot see beyond mountains or dense trees, which sometimes means that blocks of the display are left blank.

Movement is with the arrow keys and other commands like Attack are carried out by single key strokes.

I found that the most useful command was Talk. If you stand next to one of the town's inhabitants and hit T followed by a direction key — his reply will appear in the text window.

If you type Ask he might say: "I search for the blue



stone". Then if you type Stone he will tell what he can.

Do not lie to characters when they ask for a response as this reflects on your character and will do you no good later on. Some characters will join your party if pressed.

Magic is important in this game, but it is also rather tricky. The Book of Mystic Wisdom, which is included with the game gives details of the reagents required for spells, and clues as to their locations.

The whole game is, accord-

ing to the advertising blurb, 16 times bigger than Ultima II.

With two discs, a book on the History of Britannia, the Book of Mystic Wisdom, and a full colour vinyl map of the land, it is good value. Ultima IV is an excellent game which deserves the attention of every keen adventurer.

Simon Manton

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

Simply boring?

Program: *Leaper*
Price: £2.99
Supplier: Bug Bros, Leisure
 House, 222 Regent Street
 London W1R 0BB Tel:
 01-432 0666

LEAPER is a delightfully simple game, which is more or less identical to Leggit from Imagine Software released a few years ago and no longer available.

Surprisingly, to load the game you need to type LOADS followed by BLN.

You control a little green character, Leaper, who can move to the left and right as well as jump. The screen consists of six thin horizontal bars, each with a narrow moving gap.

Your task is to reach the top of the screen by positioning yourself below a gap then

leaping upon it to the next level. Unfortunately if a gap appears below you fall down a level – and this happens with frustrating regularity.

You can run off the screen on one side and reappear on the other, which adds another dimension to the game. But you need to be careful as either you can score off screen and you could get killed.

Each jump costs you energy, a limited commodity. You also have to contend with the Grillos which run along the various platforms.

They come in six different forms – Gas-Guts, The Last Will, Super's Arrow, Mutant Hot Cross Buns, the Goo-Birds and UFOs. Some move along the platforms at a leisurely pace while others really shoot along. Contact with any is fatal.



If and when you reach the top level you must jump up at a letter to eliminate it. You return to the bottom of the screen to face a greater number of adversaries. Your task is to eliminate six letters to spell the word Leaper.

The concept is quite entertaining and in general well executed. Leaper and the other characters are well animated, colourful and humorous, but action does freeze for a split

second when you jump.

The game is good value for money but its simplicity is its weakness. I suspect that the attraction may wear off after a few weeks because it lacks variety.

Mike Howes

| | |
|-----------------|---|
| Sound | 6 |
| Graphics | 7 |
| Playability | 7 |
| Value for money | 7 |
| Overall | 6 |

Worth the wait

Program: *Gloobusters*
Price: £9.99 (suggested)
Supplier: Activision, 28 Pond
 Street, Mansfield, Coventry
 NG19 2PH, Tel: 01-431
 7101

PREPARE to be amazed! It's been a long wait for the enormously successful Gloobusters game to reach the Atari range but at last the Silvers, Romagers and Marshmallows Men are here.

And what an excellent job Activision have made of the conversion.

New York has been invaded by ghastlies and ghordies led-back on reaching space central, the Temple of Zout. As owner of a Gloobuster franchise you must catch these gory extraterrests, earn pots of money and make it to the grand showdown on top of the temple.

You'll be greeted with a shout of "Gloobusters!" followed by a truly laugh-lyrics speech symphony.

When you finally manage to

take yourself away from the mainland into you buy your Gloobuster vehicle and equipment.

You'll either be presented with a loan of \$70,000 or, if you've played before and reached a certain level, an appropriate cash credit depending on your earned account number.

Then it's on to the streets to look for Silvers. The screen shows a map of the city, with the Zout temple about centre screen.

Your position is marked by the famous Gloobuster logo which has to be moved by the shortest route to a likely building (indicated by Silvers' presence) touching land so freezing any Romagers on the way.

The screen changes again to show an overhead view of your car cruising down the street. Any Romagers encountered can be sucked up provided you have a vacuum.

When you arrive at the inferred site the screen shows the front view of the building.



You manoeuvre your man to trap the fleeing Silver using the handheld weapons.

Every Silver captured pushes up your credit rating. If you miscalculate your positioning or let the two streams touch, you'll be silenced.

When a Marshmallow alert is sounded, the Romagers join up to form the dreaded Marshmallow Man. Drop a deluge of bait first before he does much damage.

At the while, two moving creatures – the Gorkkeeper and the Raymaster – are headed for the temple. When they meet there the game ends if you haven't earned

sufficient credit. If you have, you can sneak in two Gloobusters for the grand finale.

The graphics are very good, the music and speech symphonies excellent. Combine these with game play that is simple but great fun and you've got a winner.

Gloobusters looks set to repeat its earlier conquests all over again.

Bob Chappell

| | |
|-----------------|---|
| Sound | 8 |
| Graphics | 8 |
| Playability | 8 |
| Value for money | 8 |
| Overall | 8 |

Eastern bash away

Program: *Ninja Punch-Kick*
Price: £3.99
Supplier: Massmind, 4-12
 Paul Street, London EC2A
 4JA. Tel: 01-237 6889

As if a *Ninja Punch-Kick* wasn't enough, *Samurai* frame hits fast, like life.

So much for setting the Oriental atmosphere. I like not know much about *Ninja* stuff, but what I do know is that this martial arts game is pretty good stuff.

This is a single-player only game in which you control an all-looking, all-punching Ninja. Naturally clad in the traditional black garb of such figures, you set off through five screens to conquer all foes.

As well as walking left and right, your bodily skills include high, fast, medium and low height kicking and punching, all done very swiftly, very smoothly. The animation is extremely good.

In addition to iron fists and lightning footwork, you have

other wheezes in your repertoire — a slashing *Samurai* sword, spinning death stars and throwing daggers.

The sword you carry with you on your shoulder at all times, and can easily fetch your opponent a swinging blow with a quick flick of the joystick.

The stars and daggers may be found lying around in different locations and can be picked up by crouching beside them. Having one or an opponent may weak fatal damage unless the opponent defeats it in time.

Unfortunately the enemy have similar weapons as you won't be the only one doing the kicking and hurling.

Also scattered around the area are small flashing dots which should be collected for extra points. Needless to say, these are strictly guarded by the enemy, who won't let you take them without a fight.

Moving off the screen either to the left or right causes the current picture to be replaced



by the name of the area you are about to enter. The screen clears again to show you in your new location.

The animation in this game's best feature, though — smooth, natural and fast, easily up to the standard of far more expensive games.

Once you've fended off your opponents to their knees — actually, they crumple up like punctured balloons — you move to the next level where tougher fighters are to be found.

It may be because I was playing the game on an old 486 micro the time says it is for 800K, and 1500K machines.

level but it wasn't all clear to me that I had actually moved up a level after defeating all foes — no level indicator appears on the screen.

It's a very good martial arts game with fine rate animation and sound. The sword, stars and dagger elements add an extra dimension to the fighting. For the low price, an unmissable bargain, grasshopper.

Bob Chappell

| | |
|-----------------|----|
| Sound | 8 |
| Graphics | 8 |
| Playability | 8 |
| Value for money | 10 |
| Overall | 8 |

Good collection

Program: *Smash Hits Volume 5*
Price: £9.99 (recommended), £14.99 (deluxe)
Supplier: English Software, 1
 North Parade, Paragon
 Centre, Manchester M20
 1BA. Tel: 061-432 1288

ANOTHER in the series of compilations of casual releases, this time consists of nine anthology features: *Chop Suey*, *Mediator*, *Extrajiggle* and *Questmode*.

Chop Suey is an impressive martial arts game-making you to pit your *Kung Fu* skills against another player or the computer.

As well as being able to jump upwards and shuffle quickly to the left and right, each fighter can kick high, low or to the body. (So and so comes out over the opponent.

Extrajiggle is a sort of Pole

Position with tunnels. There are no other drivers to compete against. What you have to watch out for and avoid are giant spheres and cubes which come rushing out of the sky towards you.

A plane will also fly over, dropping large columns into the track at added obstacles.

There are three courses and allowing modes to choose from. The game plays very fast (the speed of the graphics will turn your hair white). As a result, it can be a bit on the difficult side but if you like a challenge and plenty of speed, you should enjoy this one.

Mediator is an unusual and tough mixture of multi-scene arcade action and problem solving.

Apart from the first, each screen offers something different and you can only progress by overcoming the



hurdles and solving the riddles presented on each screen. A real challenge.

Finally, *Questmode* is a platform and ladders type game offering three basic scenarios. Scene 1 has you throwing catapults down from the castle battlements at ladder-climbing archers.

Scene 2 has you swinging from rope to rope in the hell town. The final scene sees you scaling the castle wall, fighting off all comers.

Questmode is graphically

the weakest of the bunch, but still offers some good play.

This is probably the strongest compilation from English Software yet issued and provided you haven't got most of the games on it, *Smash Hits Volume 5* is certainly a good buy.

Bob Chappell

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

Set yourself up with 16 extra keys

Part 5 of LEN GOLDING's series on
using your Atari to control devices



THIS month's constructional project is a plug-in keypad which gives you up to 16 extra keys, and behaves almost exactly like the standard keyboard.

The version described works as a numeric keypad with its own Return key and single-touch cursor movement, but each key is fully programmable.

It works in a similar way to a joystick, by setting up patterns of high and low voltages on the four input signal pins (as described in the June 1985 issue of *Atari User*). The operating system reads this pattern 50 times a second, converts it into a decimal number between 0 and 15, and stores it in address 632 (for Port 1) or 633 (for Port 2).

Figure 1 shows the circuit for four extra keys, one to each line, and this is

about the simplest worthwhile gadget you can build. You could make the keys extra large for disabled people, colour-code them for pre-readers, or set them up as function keys. You could label them "Yes", "No", "Don't know" and "Help" for a children's quiz, or "Strongly agree", "Slightly agree", "Slightly disagree" and "Strongly disagree" for a questionnaire survey.

You might like to consider connecting something other than

keyboard switches — for example, pressure mats to operate burglar alarms, or central-heating thermostats to monitor room temperature.

However, you're not limited to just four keys. By using all possible combinations of high and low states on the four signal lines, you can generate up to 16 different numbers (16 if you count 0).

Most keyboard switches are simple on/off devices and can't



Figure 1: Four extra keys

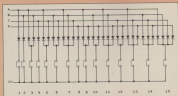


Figure 2: This slide matrix allows 16 different on/off inputs to be channelled through a single joystick port



control more than one line without electronic help. But a simple diode matrix is all that's needed – and the circuit shown in Figure 11 will work perfectly well. When any of the keys is pressed, it connects one or more signal lines via the diodes to GND, while the other lines remain held at 5V by circuitry inside the computer.

Figure 11 shows a practical layout on the Verobloc breadboard – there's room for only 10 of the 16 possible combinations, but you can see the general principle.

The diodes are marked with a black band at their cathode ends, and must be connected the correct way – cathodes to the switches. However, you won't do any damage by trying them both ways round.

Connect the breadboard to Port 1 using the joystick extension lead, then run Program 1.

```
10 POKE 192,1:PRINT "ONLINE!"
20 POSITION 1,5:PRINT "PORT 1(111)"
30 GOTO 20
```

Program 1

The number 16 will be displayed – meaning all lines are high. Now connect a test lead to the Dn line, touch it to each of the numbered points in turn and watch the number

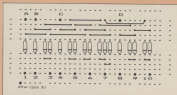


Figure 11: Breadboard circuit for the 16 lines A, B, C, D are outputs to joystick port 1, plus 1, 2, 3 and 4, 5 to 10 are diodes – data coming one of them to Dn and the rest of address 6552 will change

change on screen. The single touch action can be made to generate any number from 0 to 16.

Having established the principles of operation, we can move on to the keyed construction. A printed circuit board is available (see the parts list) and this makes assembly very straightforward.

If you have facilities to make your own, the foil pattern is given in Figure 14. Holes for the diodes are 0.8mm, those for the switches are 1.2mm and the fixing holes are 3mm or 1/8in. A ready-made board is available from PH Design, and this comes drilled and tinned ready for use.

For a professional finish, the design uses full-travel keyboard switches which have removable transparent covers so you can insert your own legends. The PCB holes are spaced so that the keys butt up to one another, avoiding the need for a complicated panel cut-out.

Solder the diodes first, making sure to get them the right way round (black band towards the centre of the PCB), then fit the terminal blocks and switches. Make sure the switch bodies sit firmly onto the board's surface with no gaps, otherwise

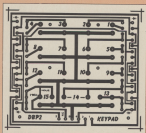


Figure 14: PCB foil pattern

constant pressing will cause the cassette track to peel away from the PCB.

Fit a cable clip to anchor the joystick lead, and mount the whole assembly in a suitable case using at least four of the six mounting holes. The front panel cut-out should be 75mm square.

Now we need some software to drive the gadget. You could program it in Basic, just like a joystick, but it's more impressive if the new keypad can be made to act like the existing keyboard, with no visible software driving it.

This means using a machine-code routine to scan the keypad during the vertical blank interval and activate the operating system's keyboard handler whenever a key is pressed.

There is a shortcut here: Whenever you write a number into address 766, the computer thinks you have just pressed a key which generates that number, and will obediently print the corresponding character on screen for you.

Our software simply reads the keypad (address 832), converts the number into an appropriate keycode and stores it in address 764. The operating system does the rest.

Once in place, the routine will execute every 881/2th of a second, independently of any Basic program which may be running at the same time.

From the user's point of view, the only difference between our new

The new keys can be programmed to duplicate any key combinations

keypad and the existing keyboard is that the new keys don't have auto-repeat, which helps guard against accidental double-entry. The standard keyboard keys can still be used in circumstances where auto-repeat is an advantage.

Two different versions of the software are presented. Program 8 is the simpler, and runs as part of a Basic program using page 8 to store the machine code. Program 10 is the de-luxe version for disc drive owners.

It will create an AUTORUN SYS file which boots automatically at power-up, resets the MEMLOG pointer to make a safe area for our machine code and traps the SYSTEM RESET routine to ensure that the new keypad stays active as long as the computer is switched on. This version is completely invisible to the user, and can be used with cartridge-based languages other than Basic.

Both programs work in exactly the same way. Pressing any keypad key

will return a number from 0 to 14 in address 832. The bit pattern is inverted – which is equivalent to subtracting the number from 15 – and the result is used as an index into a table of keycodes supplied by you. The number retrieved from this table is written into address 764, then the operating system takes over to print out the selected character.

The new keys can be programmed to duplicate any of the standard keys – or key combinations – by changing the values in the keycode table. This table appears in the Basic programs as 15 entries in a single line of DATA line 40 in Program 8, line 70 in Program 10, and can be altered simply by changing the values.

Let's say you want one of the new keys to print a comma, to allow you to type in long DATA statements with one hand, and still hold down your program listing. First you need to find the keycode which corresponds to "," (it's not the AtariII number), so type in and run this line:

10 PRINT PEEK(764):GOTO 10

then press "," on your keyboard. The number that comes up is the keycode you want – in this case 32.

Now decide which of your new keys you want to do the job, and get its number from the underside of the

The parts for the keypad are available from Maple Electronic Supplies, PO Box 2, Newleigh, Surrey SE26 8GR. Tel: 0793 522011.

Approximate cost £8.40.

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

The printed circuit board (order code DAP2) is available from: R.M. Design, 137 Stonefield Avenue, Harrogate, North Yorkshire HG2 7NS. Tel: 0423 508353.

Price £3.40 including VAT and postage.

```

10 FOR I=0 TO 15:GOTO 20:PRINT "CODE";GOTO 30
20:PRINT 0
30 DATA 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 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1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1484, 1485, 1486, 1487, 1488, 1489, 1490, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518, 1519, 1520, 1521, 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1529, 1530, 1531, 1532, 1533, 1534, 1535, 1536, 1537, 1538, 1539, 1540, 1541, 1542, 1543, 1544, 1545, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553, 1554, 1555, 1556, 1557, 1558, 1559, 1560, 1561, 1562, 1563, 1564, 1565, 1566, 1567, 1568, 1569, 1570, 1571, 1572, 1573, 1574, 1575, 1576, 1577, 1578, 1579, 1580, 1581, 1582, 1583, 1584, 1585, 1586, 1587, 1588, 1589, 1590, 1591, 1592, 1593, 1594, 1595, 1596, 1597, 1598, 1599, 1600, 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, 1628, 1629, 1630, 1631, 1632, 1633, 1634, 1635, 1636, 1637, 1638, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1647, 1648, 1649, 1650, 1651, 1652, 1653, 1654, 1655, 1656, 1657, 1658, 1659, 1660, 1661, 1662, 1663, 1664, 1665, 1666, 1667, 1668, 1669, 1670, 1671, 1672, 1673, 1674, 1675, 1676, 1677, 1678, 1679, 1680, 1681, 1682, 1683, 1684, 1685, 1686, 1687, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 1700, 1701, 1702, 1703, 1704, 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713, 1714, 1715, 1716, 1717, 1718, 1719, 1720, 1721, 1722, 1723, 1724, 1725, 1726, 1727, 1728, 1729, 1730, 1731, 1732, 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1740, 1741, 1742, 1743, 1744, 1745, 1746, 1747, 1748, 1749, 1750, 1751, 1752, 1753, 1754, 1755, 1756, 1757, 1758, 1759, 1760, 1761, 1762, 1763, 1764, 1765, 1766, 1767, 1768, 1769, 1770, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1780, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946,
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PCB. This tells you which of the 16 DATA values to change.

Let's say you want the comma to be printed by the double-width key. This is key number 13, so count to the thirteenth DATA entry and change the "13" to "32". Run the modified program and you're in business.

The specified key layout is suitable for most purposes, but you can set the double-width key to the right if you prefer. It then becomes key number 15, and the remaining two keys on that line become 13 and 14, as the

PCB markings show.

There is also provision for a sixteenth key, so that you could make a hex keypad for use with the Assembler Editor cartridge. An extra input is needed for this, and the joystick trigger line is the obvious one to use.

To add a sixteenth key, cut the copper track where it is marked "cut" on the PCB, then connect joystick pin 6 to the terminal marked "NC". If you're programming the keypad in Basic, you'll need to combine the

value in 632 with the trigger line value (844). Here's one way:

**10 KEY=PEEK(832)+
16*(PEEK(844)=0)**

This returns the normal joystick values for keys 1 to 15, and 16 whenever the sixteenth key is pressed. However, if you want a hex pad, the changes are that you're already into machine code programming so you should have no difficulty modifying either of the source listings to take account of key 16. ■

PARTS REQUIRED FOR 15 KEY VERSION OF KEYPAD

| | Maplin Order Codes |
|-----------------------------|--------------------|
| 32 1H4148 signal diodes | CU808 |
| 15 Keyboard switches | FF616 |
| 14 Keypad (1 position) | FF625 |
| 1 Keypad (2 position) | FF637 |
| 2 2-wire PC terminal blocks | RR12P |
| 1 Cable 'F' clip 3'100in | LR65X |

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10 GOTO 100
20 GOTO 200
30 GOTO 300
40 GOTO 400
50 GOTO 500
60 GOTO 600
70 GOTO 700
80 GOTO 800
90 GOTO 900
100 GOTO 1000
110 GOTO 1100
120 GOTO 1200
130 GOTO 1300
140 GOTO 1400
150 GOTO 1500
160 GOTO 1600
170 GOTO 1700
180 GOTO 1800
190 GOTO 1900
200 GOTO 2000
210 GOTO 2100
220 GOTO 2200
230 GOTO 2300
240 GOTO 2400
250 GOTO 2500
260 GOTO 2600
270 GOTO 2700
280 GOTO 2800
290 GOTO 2900
300 GOTO 3000
310 GOTO 3100
320 GOTO 3200
330 GOTO 3300
340 GOTO 3400
350 GOTO 3500
360 GOTO 3600
370 GOTO 3700
380 GOTO 3800
390 GOTO 3900
400 GOTO 4000
410 GOTO 4100
420 GOTO 4200
430 GOTO 4300
440 GOTO 4400
450 GOTO 4500
460 GOTO 4600
470 GOTO 4700
480 GOTO 4800
490 GOTO 4900
500 GOTO 5000
510 GOTO 5100
520 GOTO 5200
530 GOTO 5300
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620 GOTO 6200
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650 GOTO 6500
660 GOTO 6600
670 GOTO 6700
680 GOTO 6800
690 GOTO 6900
700 GOTO 7000
710 GOTO 7100
720 GOTO 7200
730 GOTO 7300
740 GOTO 7400
750 GOTO 7500
760 GOTO 7600
770 GOTO 7700
780 GOTO 7800
790 GOTO 7900
800 GOTO 8000
810 GOTO 8100
820 GOTO 8200
830 GOTO 8300
840 GOTO 8400
850 GOTO 8500
860 GOTO 8600
870 GOTO 8700
880 GOTO 8800
890 GOTO 8900
900 GOTO 9000
910 GOTO 9100
920 GOTO 9200
930 GOTO 9300
940 GOTO 9400
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1980 GOTO 19800
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2000 GOTO 20000
2010 GOTO 20100
2020 GOTO 20200
2030 GOTO 20300
2040 GOTO 20400
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2100 GOTO 21000
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2180 GOTO 21800
2190 GOTO 21900
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2290 GOTO 22900
2300 GOTO 23000
2310 GOTO 23100
2320 GOTO 23200
2330 GOTO 23300
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3010 GOTO 30100
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IT is possible to access the player missile system without using the direct memory access method we have been using so far. This new method is much simpler to operate but has one major drawback - only a single byte can be plotted in the player stripe and this runs the whole height of the screen.

To see how easy it is to turn on a non-DMA player type:

**POKE 53248,180:
POKE 53261,231**

and press Return, and you will see a player stripe. The number 231 is the bit-mapped code that switches on selected pixels along the width of the stripe and this pattern is then copied on every row.

Locations 53261 and 53264 switch on players 0 to 3 and 53266 the missiles. The normal registers associated with player missile graphics can be used with non-DMA players - horizontal registers, colour, size, collision detection and so on - but vertical movement is impossible.

Program 1 is a demonstration of some of the effects that are possible with non-DMA players. The first section shows quadruple size player stripes, adjacent to each other. The number 235 is POKE'd to location 53261 to 53266 to turn on all the pixels within each stripe.

Additional colours are obtained on areas to the right of the screen where Playfield 0 (the text window) overlaps the players. The Graphics Mode 3 test at the top of the screen takes on a different colour depending on which player stripe it is over.

The programmer has little control over what colours appear - experiment by changing the colour registers in the program to see other combinations.

If the stripes remain next to each other, and are set to the same colour - as in the second section of the demonstration program - the effect is like creating a square playfield. Notice that text that appears on the right hand side takes on a different colour to that on the left.

Finally, the program shows double size stripes with selected pixels plotted and illustrates how easy it is to move all the stripes together. By altering priority in register 53761 the stripes can appear to bleed over or underneath the text.

In part VI of his series on player missile graphics **STEPHEN WILLIAMSON** brings all the techniques together in ...



Non-DMA players can be used as an easy method of creating additional colours to those normally possible on a graphic screen. They can also be used as borders, or incorporated into graphs and charts.

Program 11 is Bughunter, a game starting all the player shapes that have appeared in other programs in this series and demonstrated something of what can be achieved by the use of player missile graphics and the Basic language.

The object of the game is to catch a bug in a net and take it to the cage on the right of the screen. Treading on fruit, being bonked on the head by falling fruit or being stung by the bug costs one life. Points are awarded according to how long it takes to catch each bug - the longer the time takes, the lower the score.

To assist you in following the program, Figure 1 is a summary of all the main registers associated with the player missile system.

Player 0 is the man, Player 1 the top of the tree, Player 2 the net and Player 3 the bug. The falling fruit are missiles.

Playfield 1 is the tree trunk and vertical cage bars, Playfield 2 the border line and top of the cage, and Playfield 3 the dark green ground at the bottom of the screen (set to the same color as the text window).

The listing is liberally sprinkled with REM statements that document each section of the program. Lines 60 to 740 initialise everything. They reserve the player missile data area,

set the PWDASE address, load shape and machine code data, set colour, size and horizontal registers, set initial values for the variables and set the Atari clock registers to zero.

If you have followed the rest of this series there a lot of these routines will already be familiar to you so they are fairly standard player missile initialisation procedures.

Three machine code routines are included in the game, the same ones used in previous programs in this series. The first is a high speed clearing routine that clears any garbage that may have accumulated within the player data area. Line 200 calls up this routine.

The second routine transfers specified bytes from one area of memory to another and is used to control up and down movement of Player 3 (the bug). The last routine handles the downward movement of the missiles.

Bughunter is written in a series of subroutines. Each is responsible for a particular operation of the program - movement, collision detection, sound effects and so on. Lines 760 to 830, the control routine, decide the order in which these subroutines are accessed.

This type of program structure makes both writing the program and fault finding much easier than if the program was written largely in one continuous section.

If, for example, there is a fault in missile movement, then it is a safe bet to assume that the error lies within

| | |
|---------------|--|
| D | Vertical direction increment (-1, up; 1, down) |
| DOWN | Vertical coordinate for players. |
| HORIZ | Horizontal coordinate for players. |
| LIVES | Number of lives left. |
| M | Vertical coordinate of missiles. |
| NET | Bug in net flag (1 in net, 0 out in net). |
| PHS | Data area address in pages. |
| PHBASE | Data area address in bytes. |
| SCORE | Total score. |
| SCORE1 | Score of last bug catch. |

Figure 3. When variables used in diagnostics

give the bug its jerky flight pattern, and lines 1000 to 1010 check the horizontal coordinates to prevent it flying off the screen.

Lines 1030 and 1050 use the machine code routine to re-plot the bug shape, first with wings, then without, to give the illusion of flapping.

The sound effect for the flying bug is sorted out in line 1040. The two sound channels are changed according to the current vertical position of the bug stored in the variable **DOWN**.

Missile movement is processed in lines 1060 to 1120. Missiles only move down and line 1090 calls the machine code routine that moves them down the missile stripes. A fresh set of missiles is plotted at the top of the tree when the missile vertical variable **M** has reached a random value between 44 and 60 calculated in line 1110.

This means that either the missile will stay above ground to become a hazard to the man, or will fall to a position that allows the man to pick over it.

Lines 1140 to 1210 check to see whether the bug is in the net.

Line 1160 sees if the horizontal position of the bug corresponds to that of the net. If this is not the case, the rest of the routine is not entered.

Another check is made in line 1180 to see whether the bug is below the net or flying upwards. Lines 1180 to 1190 determine the conditions under which a successful catch is made. The bug must be flying down into the net, and must be caught at exactly the right horizontal position. To make the game easier, these two lines could be altered to allow a greater margin of error.

If the bug has been successfully caught then **NET** is set to 1 and the bug moves 4 pixels down so that it

appears to sink into the net (line 1200).

If the bug has been put inside the cage then lines 1220 to 1350 update the score. Locations 18, 19 and 20 keep count of the internal clock. Line 1230 works out how much time has elapsed since the clock was reset during the initialization routine and subtracts this time from 10000 to give a score based on how long it has taken to catch and cage the bug.

The rest of this subroutine updates the current score and performs some initialization functions before re-starting the game.

Lines 1310 to 1380 check the collision direction registers to see if the bug (Player 3) or the missiles have hit the man. If a collision has been detected then the program jumps to the man dead routine at 1400.

The sound routine at 1360 to 1400 mimics an alarm sound when the bug has been caught.

Lines 1460 to 1620 control things after the man has been hit. The **FOR** ... **NEXT** loop between 1460 and 1500 moves man and net 14 pixels down the screen which, because of the shape priority options set at location 628, means that the players pass under each Playfield 3 (the ground), appear to sink into the earth.

Line 1510 reduces the remaining lives by 1. If no lives remain then the program waits for the start key to be pressed before re-initializing the game. Address 53279 detects the Option, Select or Start keys.

The rest of the man hit routine initializes the system ready to start the program again, and lines 1640 re-plot the missiles near Player 1 (the top of the tree).

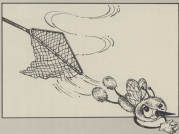
■ Now you've seen how to write a simple game using player missile graphics, why not have a go at creating a program of your own?

Program 11

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THIS month's tape-in game is an epic. Written in a combination of Basic and machine code, *Cubes in Space* follows the G*bert style format, with some very colourful Amiga Mode 4 graphics and Player Missiles.

This is the scenario: You have become bored with destroying yet more alien invaders, jumping on and off platforms and running around mazes feeling pathetic.

Realising there is now a gap in your life you have decided to indulge in a little bit of extra-terrestrial graffiti by drawing lines all around the galaxy-removed Space Cubes, home of the now liberated Pacman clan. (It seems that you weren't the only one bored with running around mazes...)

The Pacman are naturally not at all amused by your vandalistic activities, and decide to have a go at stopping you. Everybody knows that wild Pacman are quite harmless, but due to their prolonged stay in space these ones have become contaminated by assorted cosmic rays and the like, and are hence likely to harm you to a frazzle if you come into contact. You are advised to give them as wide a berth as possible.

There are eight different configurations of Space Cubes - each a little harder to cover than the last. After completing the eighth level you move on to level one again at a higher speed.

You move your graffiti marker with the joystick, but note that movement is diagonal only.

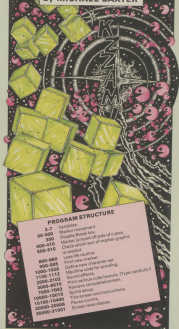
You lose one of your lives if you run into a radioactive Pacman or fall off the side of the Cubes. The game may be paused at any time by pressing the speaker.

Be especially careful when typing in lines 1110 to 1112 (scrolling) and 10000 to 10010 (sprite movement).

There are lots of other data and print statements to keep you busy, so try to make sure that you type in all of the special characters correctly. Don't forget that if you have any problems the checksum should help - or why not get the completed program on the monthly cassette or disc? ■

CUBES IN SPACE

By MICHAEL BAXTER



PROGRAM STRUCTURE

- | | |
|-------------|---|
| 3-7 | Variables. |
| 50-505 | Initial movement. |
| 330 | Disable Basic key. |
| 400-410 | Marker jump/scroll side of cubes. |
| 500-510 | Check which sort of marker graphic is needed. |
| 600-660 | Load tile routine. |
| 660-665 | Print new marker. |
| 7000-7005 | Define new character set. |
| 1100-1112 | Machine code for scrolling. |
| 2000-2100 | Sound effects. |
| 3000-3570 | Print various cube numbers. Type carefully! |
| 7000-7005 | Remove completed screen. |
| 10000-10010 | Sprite wrap. |
| 10100-10400 | Tile screen and copy to screen. |
| 20000-20005 | Player score. |
| 20000-21001 | Screen level display. |

Full setup starts on Page 30

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HARDWARE REFLECT by PAUL FARNFIELD

THIS is a rather neat demonstration one of the Atari's least used features, the hardware reflect facility. The program is written in Basic, but there is a small machine code interrupt service routine which is used to turn the reflect register on during the lower portion of the screen only. This program could have been written in three lines, but the five line limit has allowed a much clearer approach.

Line 10 sets up the screen mode and colour, and the start of the display list.

Line 20 loads the machine code routine into Page 8.

Line 30 calls the operating system where to find the interrupt routine, it also enables the DLI's and links up the custom Display List.

Line 40 simply positions and prints out the text.

Line 50 just loops around to stop the display from being cleared.

```
10 GRAPHICS 10:POKE 768,4:SCREEN 0:REM
  GRAPHICS 0:GOTO 50
20 FOR I=0 TO 10:POKE 8192+I,10000:GOTO 50
30 POKE 8192,10:POKE 8193,10:POKE 8194,10
  POKE 8195,10:POKE 8196,10:POKE 8197,10
  POKE 8198,10:POKE 8199,10:POKE 8200,10
  POKE 8201,10:POKE 8202,10:POKE 8203,10
  POKE 8204,10:POKE 8205,10:POKE 8206,10
  POKE 8207,10:POKE 8208,10:POKE 8209,10
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I HAVE just finished reading your excellent article on printers in the July issue of April User.

I was just a little concerned about the author's recommendation to use a battery charger for supplying the 12 volts DC required to run the unit.

From my point of view it would be no problem as I have worked in electronics for nearly 30 years, but for the novice it could have potentially disastrous results.

The reason for this is that the standard car battery charger has no overloading and/or delivers 13.6 volts and DC at 300mA. That's not a very certain device! Any semi-skilled user?

I would recommend a smoothing condenser of between 1000 and 3300 uF rated at about 25 volts WDG electrolytic. An ammeter across the supply rails, or that a car battery be used as a reservoir. — R.C. Garsell, St Leonards-on-Sea, East Sussex.

Printer switches

I HAVE an Atari 800X with an 810 disk drive connected through an 880 interface and a Texas Instruments EP-810 dot matrix printer attached.

Can you please tell me what I should set the dip switches to on the printer?

I have tried various combinations but still have trouble

getting even simple things like lines to print properly. — K. Hittlings, Winchester, Hampshire.

■ The most important DIP switch to set is the auto-feed, which should be set to ON. Other than that, select UK character set, 11 inch paper, and any other values to suit yourself.

If you have any further problems, contact the dealer who sold you the printer.

Pros and cons of Logo

COULD you please explain what the advantages and disadvantages of Logo are? I only know that it is a language. Can Logo be used on my 800X? Also, is machine code a hard-up everyone says it is to learn?

I bought my Atari at Christmas and when I am quite satisfied I have only one complaint. Why do cassette take so long to load.

I have Mr Do which takes 18 minutes and Spy 2 Spy 2 which takes 18 minutes.

What of my Atari 400 Spectrums or Commodore 64s and their games take

about 3-5 minutes to load.

Is there any way to shorten this loading time — except by doing a disk drive as I don't have enough money? — Julian Turner, Weston-Super-Mare, Avon.

■ Logo started life as an educational language. It is very good for use with children, as you write the programs in English and further words can be defined and used as you go along. However, it is not really suitable as a language to go on to after Basic — for that, something like machine code may be more appropriate.

Machine code does take a lot of learning, although once you have got the hang of it it all makes a lot of sense.

It is very logical, but rather long-winded and also not very forgiving of little mistakes.

If you want a fast, easy speed and power from your computer, but feel that machine code may be beyond you at this stage, then Action is the language for you. People who have written complete commercial packages in this very straightforward language, say it is worth every pain.

There is no easy answer to your last question, unfortunately. The Atari logo system simply can't be

sped up beyond about 800 baud without becoming very unreliable.

The only answer is to keep on saving for a disk drive or to have your recorder fitted with a hardware modification to speed it up, which may not work with some commercial programs.

Digitised snapshots

DO you know of anyone offering a service to have photographs digitised and saved onto disk? — G. Forrester, East Kilbride, Glasgow.

■ Aside from paying out a small fortune for a Camcorder/yes addition and a video camera, does anyone know of a commercial service that can digitise photographs for Mr Forrester?

Locking problems

ITS that lock up bug-busting its head again, dealing with early model machines may find that the otherwise excellent 80 column screen program gives in August's issue words while deleting line numbers.

The answer to this one is none — either modify the program to delete the lines given by the FOR loop in lines 1030 and 1100, in reverse order, or do it by hand.

Finally, when doing things using PRN? the system uses long inter-record gaps when they really don't seem necessary. Is there a way of forcing the system into using short gaps, and still PRINT once or right? — Alan Phillips,

Disc indexing and DOS

On the April issue of April User a disc index utility program was listed which promised to be an excellent utility for my recently-bought 1020 printer. All my disc files could be listed on paper in an orderly and organised manner without wasting paper.

Yet after spending nearly an hour typing in the program and running it, I get a disc error statement after the filenames have been printed. No sign of

the number of files, used disk or free space prompts which should appear.

Is this due to the fact that I am using DOS 2 and DOS 3 with the 800X and 1020 drive?

Also, is there any way in which to overcome this error and get a complete printout without actually using DOS 2.5 as suggested in the article? — Ian Williams, Carmarthen, Dyfed.

■ The program should work fine with DOS 2.0 or DOS 2.5, and we see no reason why it shouldn't work with DOS 3 also.

Check lines 230 and 280, as they are the only ones set between the file names being printed and the bottom line being printed.

If you can, stick to DOS 2.0 or 2.5 rather than DOS 3 — you'll find there a lot more efficient.

Highway: Ferrari, North- Americanisation.

Thanks for the tip to help our Rev B Basic software. To make the cassette system use short inter-record gaps, simply use 128 instead of 0 as the second parameter of the Basic OPEN statement.

For example, use OPEN #1,0,128,"C:" or OPEN #3,4,128,"C:".

Don't forget that you won't be able to reinsert the tape in this mode, and that Basic's GET command may be too slow to pick up some data. INPUT and PRINT should be fine, though.

You will probably find that if you PUT bytes from Basic you will also be able to GET them back again. This is because the gaps will have extended to allow for the slower PUT speed.

Colour compatibility

I **ABSENLY** use an Atari 1300X computer system with a 1000 printer. While I am extremely pleased with the computer, the printer no longer meets my needs and I am therefore in the market for a new one.

I am interested in an Okidata Deskmate 3D detachable colour printer, but I am unsure if it is compatible with my system. Please let me know if this is suitable and if so, where I can obtain the necessary software and instructions. — **Charles T. Miller, R&P Alsenberg, Huntington.**

The Okidata 3D is quite compatible with your com-

puter — all you need to do is get a Commodore interface such as the FCC model to link it to the computer.

Be warned, though, that you won't be able to get instant full colour screen outputs. If you would like you'll have to do a good bit of programming for yourself to get there to work. Ordinary text should print with no problems.

Printer interfaces

I HAVE an Atari 1300X, an 80082, a 1050 disk drive and a Brother M100B printer.

I have sought advice from various sources over a long period of time as to what I

need to link the computer to the printer. The advice I have been given so far has been either vague or non-existent.

The biggest disappointment was writing to FCC systems who advised in Atari User and from whom I got the address. I asked them if their interface would work with the Brother M100B and even enclosed an ad for their use.

They did not even have the courtesy to reply.

Am I am asking to far someone, anyone to tell me what interface I need to connect the two machines, and if instead an interface is available, where can I purchase one.

Can someone please give me some authoritative advice? — **N.B. Fairbrother, Huddersfield, West Yorkshire.**

The Brother M100B has a

Games people play...

Many of you have been writing in with questions on how to get through some of the tougher parts of the latest games, but unfortunately not all of our staff was afforded the time to sit around all day playing games...

Oops — sorry — evaluating and also testing multi-level entertainment software releases...

However, we've decided to let you all help each other out. If you send in your questions and queries, and also include a few tips on your own favourite titles, we'll print the best ones. Here's a selection to be going on with:

PLEASE help! I am desperate — could someone who has *Fractalith* experiment tell me how to get the diamonds?

I have had this game for months but cannot get them, even though I can go back to the start and read the instruction. — **Michael Pope, Baiton, Essex.**

My friend and I have been

reading your magazine for a few months and thought your readers would be interested in tips for the following games. *Ghostbusters*: to get \$888,000 use no name and the code 37232648. *Stealthwar*: to get extra lives and be transported to the halfway mark type Frank several times followed by Fende — do not move while typing.

In *Redzone*, it is possible you can type the command *First* followed by the name of the object or creature, but beware for it will disappear forever. *Oliver Pallen*, particularly in order are Frank, Fende, Nerd, Zoom. *Blue Max* be careful not to bomb your own hangar as the game will crash.

With *F-15 Strike Eagle*, if out of fuel keep your finger on the afterburner key to keep flying. *Tomb and Peter*: in the high jump when the bar is set at 2.40m, you can go under it. We would be interested to hear other parables there, particularly the passwords for *Bunny Bob* and *Wildlands*. — **Stephen Grove and Mark**

Sprey, Loughborough, Leicestershire.

I AM seeking help on *Bunny Bob* James Black.

Do you know how to get past the *Gold Mine*? I have tried many times but failed.

Also, is it possible to save the position you are at on the game as I feel like beating my head against the wall when I run out of lives and have to start at over again. — **Stephen O'Neill, Newquay, Cornwall.**

I THOUGHT you might be interested in the following codes and secrets for *Bunny Bob* and *One Man and His Dog*.

The codes for the latter are: 11. More, 12. Bubble, 13. Start, 14. Pinball, 15. Gemite, 16. Japped, 17. Megacoin, 18. Thawing, 19. Explosion, 20. Groggus, 21. Escape, 22. Glens, 23. King Kong, 24. Helogram, 25. Carry Aye, 26. Coffee, 27. Cassette, 28. Telescope, 29. Computer, 30. Edwards.

Bunny Bob special code numbers are: 3, 6, 40, 49, 89, 100, 101, 108, 109, 2049, 282, 8887.

40 — Pick up the high score with 1 MINON so you don't have to go through the game 10 times to see Yukin.

100 — Give Bob a haircut.

Finally the secret escape in *Bunny Bob* are: 11. Pick up flower pot, press 1 and start, 12. Pick up coffee pot, press 6 and start, 13. Kill all mutants, pick up paint roller, press 3 and start.

13. Get puzzle 4 and start, 110. Get pitch fork 6 and start, 113. Get goblet 4 and start, 116. Get pie and use action code 3 to left 9 and start. — **James Lloyd, Rockferry.**

I AM writing to tell you how much I like your magazine and to tell everyone that *Atari* for the Atari is not really *Atari* but *Blue Thunder*.

I was lucky that the shop keeper said that, or I would have wasted my money. — **G. Wilson, Haddington, Midlothian.**

Centronics interface (the industry standard for computer-to-printer connection), and so the FCC interface should work fine, and is reasonably cheap.

Paperboy for Atari?

I WOULD like to make a complaint, not to Atari Users, but to the Atari software dealers.

It is about the arcade game Paperboy. I think it is a disgrace that Commodore, Amstrad and Spectrum should bring out the game while Atari has not.

I was also wondering if any Atari software houses were thinking of bringing out *Sharks in Gables*, as I have played it in an arcade and think it is a very good game. — B. Cartledge, Stoken New Forest.

Dumping graphics

I'VE battled through disk and then, through disk and tape but I still can't figure out how to dump a graphics screen from my 80088 onto my Atari 1020 printer. Is it possible? If it is can you please help? — Jonathan Evans.

See our article, Screen dumps with the 1020, in the September 1988 issue. By the way, don't tell others you're in a thick coat and an umbrella!

Basic update

I BOUGHT my 80088 over a year ago now and it is now out of guarantee.

I recently discovered it has Rev B Basic. What should I do, if anything at all, to get the updated Rev C machine?

Recently in future issues I would like to see an occasional free gift, for example, small game on tape.

To receive this cost just for the issue you could put the price

ATARI USER

Mailbag

We welcome letters from readers — about your experiences using the Atari 8000, about tips you would like to pass on to other users, ... and about what you would like to see in future issues.

The address to write to is:

**Mailing Editor
Atari User
Europe House
64 Chester Road
Hazel Grove
Stockport SK7 5NY**

on 20 or 30 pence. I think this would please many people and increase your market. — Steven Hall, Kidderminster, Worcs.

It is your 80088, is out of guarantee when you find out that it has Rev B Basic you can always purchase a game cartridge of Rev C, which will only cost you about £5.95 from most good Atari dealers.

As to your second question — while not entirely sure we can get away with asking people to pay an extra 30p for a free gift.

Cavern Escape — again

FORWARD in my earlier letter about Cavern Escape I notice you have issued a correction in the August issue of Atari User and that it works without the 8508.

I have corrected all the errors in the current Checksum but it still will not work. Please let me know where I go to from here. (Help it please!)

Is it possible to produce a Checksum which tells you whether the tape you have found is in scanner after you have typed it in? I find Gas II might give some calculating, especially if you only have to correct lines at the end of one or two long programs. — B.M. Marsland, Crompt Heath, Bristol.

At 10 we said in the August

issue, the listing is fine with or without line 5508 — and apart from that it was printed quite correctly.

If you have now got the checksum values to match and you are still having problems, could it be related to the old Rev B (or even Rev A) bug in Basic? Check your revision and see if that might be where your problem lies.

That XL handbook

I HAVE tried to get The XL Handbook, Century Publications, but no bookshop in Edinburgh stocks it. Could you please tell me where I should be able to get it? — Brian Ballard, West Lothian, Scotland.

I AM rather new to the Atari world, and obviously new to your magazine.

On buying the Atari 8000, and tape recorder I opened the box and after frantically searching for a user manual, I was back to "Owner's Manual" Newark branch.

They said "No, you are not supposed to get a manual, besides the reference guide" in their usual upper class voice.

Is this true? If so could you recommend a good basic book?

Also, I had problems with

the graphics listings featured last month. How do you make your own creature in preference to the bag? I fiddled with the data statements but got no good result.

— Stuart Vye, Long Barnington, Nottinghamshire.

You can get copies of The 13008 Handbook, which covers the 8000, as well as the 13008, from most major Atari dealers, or by mail order from Software Express or Silos Shop if you have any problems.

As for Mr. Vye's problem with his creature — have a look at Stephen Williamson's Player Module article in the June 1988 issue, which featured an editor which allows you to create your own shapes.

Loading problems

ABOUT three years ago I purchased an Atari 400 and 410 recorder from Lesby.

About a year ago I discovered the computer would not load programs, I even tried the master process but all this gave me was ROOT error.

The tape recorder worked well and I had the saved programs on an 80088, and they worked.

On 14th I bought Magic Modules from Quiksilver I had only used cartridges so I didn't always get the error.

I sent the data recorder back for repair and after waiting five months tried again. I loaded a cassette into my computer and after the waiting has finished I heard the usual beep (coupled up with a horrible noise).

Over 148 are now printed on the screen, I tried again and again but to no avail. So this time I sent the computer and recorder back. Six months elapsed and I received a postcard saying there would be a small delay.

After six postcard I rang and was told the parts were just being fixed. I waited a

crash and bang again to be told the parts were just going to be fitted.

Does it really take six months to repair a small fault? I think Lundy's repair services should post their socks up!

Also, I heard about an adventure writing program by Codewriter. Could you give me a phone number on which I could inquire? — **Stephen Bush, Hertford, Hertfordshire.**

■ We're sorry to hear of your misadventures, but hope you've got a fully working machine now.

The Codewriter program is no longer available, but you could try asking round some of the mail order dealers to see if they have any left.

Extending Alphacom 81

CAN somebody help me in getting my Alphacom 81 thermal printer working with one of these programs: 1. Pinpoint, 2. MapInfo/4, 3. Paveserver, 4. Rubbarcane, 5. Printing? — **David T. Beech, Bristol.**

■ Can anyone help Mr. Beech? We don't know of a driver that will allow the programs for mention to work with an Alphacom thermal printer, but there are an awful lot of resourceful readers out there. Please let us know if anyone has managed to get any of them working.

If you are considering buying a printer do try to stick to something that is Epson RXLS compatible, as this will save you an awful lot of headaches in the future.

Transferring programs

I HAVE a 130K2 with 1080 disk drive. Please can you tell me if there is a way of transferring several programs from one to Hardisk from within another program?

I have tried using the Run and Save commands in the *Indexer* mode, but of course

INDEXER just typed into my Hardisk the modified version of *Get-it-Right* but keep getting error 10 at line 4310. I am unable to find an error despite checking it thoroughly.

Could you also advise me where I can obtain a 5-pin modular lead as I wish to connect my 3000L to my video.

I have also been looking for *Summer Games II* and *Winter Games* but have not been able to find them — are they around for the Atari yet?

Finally, can the Home Filing Manager 310 be obtained

other than as a disc pack, and is the search *INDEXER* still available? — **James R. Goodworth, Nottingham.**

■ Your problem could be caused by one of two things. The first is that you might be trying the checksum on a CHAVEE or SAVE "Gross" program. Don't forget that you must use LIST format to record your program before running *Get-it-Right* on it.

If that is not your problem, check over any lines that set up to use the variable LDR are correct — especially lines 80, 4000 — 4040 and 4310.

The error is caused by trying to find a valid number in LDR where none is present.

Most of the larger mail order firms can supply you with a lead, or alternatively you could take your code of the March 1988 issue of *Atari User* into a local hi-fi shop and ask them if they can make up a lead as shown on page 48 for your type of video.

Summer Games II and *Winter Games* are not yet available, but the *Touch Tables* is. As for *Home Filing Manager*, check around and see if you can find one.

MSI advise that the main problem is that I suspect that the answer is connected with Input and Print.

Also please can you review some peripherals and accessories in future issues, and another series on machine work would be appreciated. — **G.R. Goodfellow, Newbury, Berkshire.**

■ All you need to do is OPEN a channel for input to the file on disc, and another for output to the ramdisk.

Then simply GET each byte from the first file and PUT it back into the second. Use a TRAP statement to detect the end-of-file error when the last byte has been read.

To transfer a file called MYPROG.DAT, you would do the following:

```
10 OPEN "A:", "R" AS #1000000000
20 OPEN "C:", "W" AS #1000000000
30 COPY #1
40 GOTO 30
50 CLOSE #1000000000
60 CLOSE #1000000000
70 END
```

You could speed this up considerably if you modified Aaron Spelling's binary-get and binary-put routine for transferring blocks of memory to and from files.

Simply read the data into a long string, then send it out to the second file. Keep doing this until the whole program has been transferred. See the Data Files article on Page 62.

Double sided discs

EITHER I got it wrong or my first thoughts were right and there's really something wrong with your *Get-it-Right*.

I've typed the program, checked and double checked it but it won't work. The problem is that it doesn't print any numbers at all.

By the way, is the 4812 IF START=0 THEN CC=1... or IF START=0 THEN CC=1...?

I've bought four double sided, double density discs from BASF. I asked the salesman how to use the two sides of the disc and he said I should cut a notch opposite the existing one. Is this possible? Will it damage the disc drive? The disc's reference is 8 25 20 510. — **Joel Paulo P. Silva, Lisbon, Portugal.**

■ The line reads: IF START=0 THEN CC=1....

If you still have problems, why not get the memory tape or disc with it on?

Cutting a notch in the other side of the disc is an accepted practice. There are arguments on both sides, but we use B-sides in the office all the time with no problems to speak of.

All you need to do is mark up a hole exactly opposite the original one — use another disc as a template if you like. Then carefully cut it out with a sharp knife or scissors.

Ensure that you don't get any bits inside the slots, and that you don't cut into the metal itself. You can even get discs pre-cut like this if you search about a bit.

Autotun for cassettes

CONGRATS on a first class magazine. I get more information out of *Mailbox* than most of the books I either buy or borrow. The 3-discs are very useful too.

I am writing to ask if you can tell me how to make my programs autotun. I have a 9000L with a 1010 data recorder. I have planned up a lot of data and they insist that this is only possible on disc.

If this is so then how is it that some of my better games, once loading has finished, will go straight into the run mode?

Please, please will you help me solve this very frustrating problem. — **Ian James, Lanes, Sussex.**

■ The Help Line was half right. It is only possible to have a program automatically run

on else, but there is no reason why someone couldn't come up with a routine to do the same thing on cassette.

If through people are interested we'll print one in a future issue that will allow user Basic programs to load and go via the normal loading down the Start key procedure.

Saving on the 800 XL

I WOULD like some information on how to save some of the programs on my Atari 800XL.

The cassette I got with my computer is a phone-number recorder but after I have used it a game from Atari User I cannot seem to save it.

Also, when I try to save it I have to hold down play and record as they don't stop alone, and when I try to load the program back into my computer it goes in so far and then stops.

I would also like to know at the end of each program what the Get It Right! is like with Ray and Cheekums' names. — **Dale Peterson, Thornton, Colo.**

■ It sounds very much as though you have a faulty recorder. Try taking it back to the shop you got it from and asking them to repair or replace it.

You will probably find that you can SAVE things correctly then.

Have you read your August issue and found out what the Get-It-Right! letters are for yet? All is made clear there.

Swapping ideas

I OWN a 800XL and 1370/1080. I would like to swap ideas with people in Europe, especially Germany.

I have a lot of disc games and a good few cassettes. Please could you put me in touch with someone? — **Darren Scully, Dublin, Ireland.**

Colourful characters

IS there a PORE statement or something to change the sound of the cursor? If so please could you tell me how.

Also, how do you get multicoloured characters? I wish to know as I am writing my own game.

I think Atari User is a great mag. It has helped me quite a lot. — **Richard Hider, Havert, Hampshire.**

■ You want PORE 231.1. This disables the key lock on XL or XE machines. PORE 231.0 to turn it back on again.

As for multicoloured characters, have another look at John White's article in the April 1988 Atari User using Graphics Modes 12 and 13. We think this should answer most of your questions.

Getting it right

MANY thanks for the updated version of Get It Right! I was obviously one of the lucky ones having already obtained your December 1985 and January 1986 editions, but the added printed edition makes life much easier checking Cheekums' listing on paper as opposed to in an option.

However, I do have one problem with checking large programs on my Atari 1055 printer, in as much as I only use single sheet paper, and there is no mention in the instructions of any way of interrupting the printer while it is printing.

That is, after it has printed the next line is also printing while I insert a new sheet of paper and then type CONTROL or some other command for it to continue printing. I have experimented but cannot find any combination of escape or Control keys to assist in this task.

The other thing I thought of was to save the report program in sections, checking each section (less than one page in

length) at a time, but I am not yet experienced enough to be able to then put the sections together as one program after checking.

Finally, would it be possible to add a line or two to the Get It Right! program to count the number of lines printed while checking Cheekums and then taking the program longer the greater while the paper is changed? — **Chris Barker, Woodley, Berkshire.**

■ The following lines could be added to the Get-It-Right! listing printed in the August 1986 issue to pause the listing when you hit the spacebar.

```

1000 IF INKEY$=" " THEN GOTO 1000
1010 PRINT " "
1020 GOTO 1000

```

The disc will continue to turn for a few moments after you press the spacebar while the computer is working out a line, but no further lines will be printed until you hit the spacebar again.

This also applies to the screen for those who are too lazy to use two-fingers to press CONTROL.

Monkey Wrench II

I HAVE been using an Atari computer for about five years now. I began on an Atari 800.

After a life as Janey's my parents returned me a Monkey Wrench II with cartridge. This proved to be incredibly useful.

However, when I was given my own computer, an 800XL, I found that this utility did not work. When the cartridge is inserted a black screen is all I get, allowing no inputs or output.

Can you help? I am open to suggestions. — **D. Hudson, Catterick, Essex.**

■ As you have quite rightly said, the old Monkey Wrench cartridge will not work on XL or XE machines.

You could send it to the Bates for an 800XL version, but perhaps better still you might like to consider getting a copy of Basic XL or Basic XE from O.S.S.

Both feature lots of the

useful features of Monkey Wrench, and might be quite a bit cheaper as they are available from O.S. sources such as Software Express.

Lost in Space Maze

I HAD just typed out your Space Maze and on the first board there is a tower, 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 walls and transfer on what I thought was fuel but was killed.

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

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

Screen flicker

I AM writing to ask about a problem I have with my Atari 800XL.

The screen display flickers and freezes, in parts, with some games, notably scrolling games like Boulderdash. I have had an 80800 and this is not a new fault. I've changed televisions to no effect.

Can you tell me if this is a hardware defect which needs dealer attention, or might it be the modulator needs a reset?

The 800XL is still guaranteed, but if it only needs a reset this would save time.

I have unfortunately bought your magazine from the shop and don't remember reading of a similar fault. — **J.C. Bower, Salisbury, Cleveland.**

■ This sounds like a fault in the computer, it could be a dry joint, but to be on the safe side you should take it back to your dealer for repair.

THIS program lets you edit various types of media — cassette or disc files, disc sectors and defined areas of memory. Modified data can then be stored back on any of the four media, regardless of where it originally came from.

To leave as much space as possible for the editing buffer, the program does not include many ROM statements. After typing in the listing, it is possible to edit a file of up to approximately 13k. Disc and cassette subscribers will also have a compressed version which enables approximately 17.5k to be edited.

The editor is designed to accept either hexadecimal or Atascii input, which can be toggled by holding down the Option key and pressing M on the keyboard.

Other options are:

- N Goto next block
- P Goto previous block
- G Goto block number to
- C Convert a number from hex to decimal or back again
- F Format disc
- S Save data
- A Abort

You should save the program after typing it in as if there is the slightest error in the way you have typed in the machine language data statements the computer may lock-up, losing everything that has been keyed in so far.

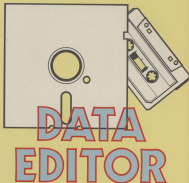
After typing RUN, a title screen is displayed and 'Please wait...' appears as the program goes through its initialisation routine. After about 30 seconds the main menu is displayed.

There are five options, allowing you to load the edit buffer from a cassette or disc file, disc sectors or memory, or alternatively to exit the program.

When loading from cassette the program prompts insertion of the tape and to press Start to continue or Option to abort. On Option the program returns to the main menu to allow another selection. If Start is pressed, the tape file is loaded and the editing screen appears.

Follow the same procedure for disc files, but you will obviously need to enter the filename too.

When loading from disc sectors, start by entering the first sector to



By AARON SPILLING

load, followed by the number of sectors to load. Then, as with tape loading, press Start to continue or Option to abort the process and return to the main menu.

To load from memory, enter the starting address in decimal, ranging from 0 to 88639, followed by the number of bytes to transfer to the buffer.

The editing screen is displayed automatically after loading. The top line shows 'biting block xx of yy', where xx refers to the current 128 byte block being worked on, and yy is the total number of blocks currently in the buffer.

Below this is the actual data, with hexadecimal codes on the left of the screen and Atascii text on the right. At the bottom of the screen are notes to remind you of all the available options.

Simply hold down the Option key and press the highlighted letter of the function required. For example, to move to the next screen block, hold

down Option and press N.

The bottom line displays the status of the editor — hex in Atascii mode and the caps and inverse video settings. To toggle from upper-case to lower and back, press the Caps key only — neither Option nor the Shift key are necessary.

To move the cursor around the screen hold down Option — not Control — and press one of the arrow keys. You can then change the data by typing in the new information.

If editing in hex mode you may only use the 0-9 and A-F keys, and as you change the bytes the Atascii representation is automatically updated and recorded in memory.

To change between the hex and Atascii modes, press Option and M. The cursor is always displayed in the hex area of the screen, but when in Atascii mode you can enter any keyboard character you like and both the text and hex codes will be updated.

There are three ways of moving on

PROGRAM DESCRIPTION

- 30-100** Screen handling routines for printing text, inserting it, drawing borders and moving portions of the screen.
- 110-180** Short machine language routines to load or save data to or from a disk file. This routine can be used in your own programs and is contained in L2. The data for L2 is contained in lines 3150-3160. To use this routine first open your file then use a USB call in the form of `X=US9AD9910`. Channel, Code (7=read, 11=write). Address of buffer. Length of buffer. When loading, set the length of buffer variable to the maximum possible number of bytes to load. The actual number of bytes loaded is returned in X.
- 200-270** Get or put disk sector routine. Again this can be used in your own programs and is contained in CODE. The data for which is in line 3170. When calling this routine, set `ADDR` to 02 for a read operation or 07 for a write. `SE` to the starting sector number, `SE` to the ending sector number and put the buffer address in `ADDR000`.
- 380-410** Memory loading routine. Contained in `ADD`, this can also be used in your own programs (data in lines 3180-3190). Call with `X=US9AD9910`. From, To, Length to move.
- 430-480** Console load or save routine. Contained in `TUS` data in lines 3200-3260. Call with `X=US9AD9910`. Channel number, Read/write, Address of buffer, Length of buffer. The actual number of bytes loaded is returned in memory locations 203-204. Appended or save routine.
- 720-8010** Data file load or save routine. Data section load or save routine. Memory load or save routine.
- 1000-1340** Keyboard routine. This is used to replace the standard input routine of the Atari. This routine allows a flashing cursor, numeric only or string input, and waits for a specified number of keys to be pressed. This is called by setting `AVMM=7` for numeric input, or 0 for string input. `APP` is the maximum number of keypresses to accept (including Backspace). `PR` is the actual number of keys pressed. When the number actually pressed the routine is exited. However if `Return` is pressed before the maximum number of presses are made the routine exits; is found in `ADD`.
- 1300-1930** Hex-decimal-to-hex conversion routine. This will convert any number from 0-65535 (`80000-FFFF`).
- 2000-2120** GOTO block number routine.
- 2130-2260** Format disk routine.
- 2280-2390** Display editor options and state of caps and video or logkeys.
- 2400-2520** Clear screen and display current block of buffer.
- 2530-2660** Home cursor and look for Option key and/or keypress and/or cursor.
- 2680-2710** Check for valid options and GOTO sub-routine accordingly if found.
- 2720-2770** Accept hex input and modify screen or buffer.
- 2780-2890** Accept Atari input and modify screen or buffer.
- 2900-3370** Main menu. Information routine.

to another block:

- To move to the next block press Option and N.
- To go back to the previous block press Option and P.
- To go to a specific block, press Option and 0.

To convert a number from hex to decimal or vice-versa press Option and C and enter the number to convert. If the number is in hex precede it with a B sign.

To format a blank disk before saving data press Option and F. Make quite sure that you have removed your program disc before using this option.

To abort the edit, hold down Option and press Esc, which will immediately return you to the main edit menu.

To save the data press Option and S. The save menu will appear, which allows you to save the data to any of the four media options. Make your choice and follow the on-screen prompts.

```

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Birthday tips for Level 9

By Brillig

LEVEL 9 Software, which celebrates its fifth birthday this year, has provided much pleasure to untold numbers of adventurers. Happy Birthday to the team and long may they continue.

By way of a small tribute here is a collection of tips for these Level 9 adventures, including the very latest, *The Price of Magic*.

We're also featuring hints from two of Infocom's Enchanter trilogy. As any Infocom's aficionado will know, the standard punishment for wandering in the dark without benefit of lamp or other source of light is to be

pounded on by a gnu and inevitably slain to death.

Not all of Infocom's adventures star these feared (yet strangely welcomed) denizens of the dark, but even so they do seem to crop up fairly regularly. I'm pleased to say.

In Brian Moriarty's new adventure, *Trinity*, reviewed in this month's issue of *ANALYST User*, the mere mention of a gnu meets with a sigh as a response. Although gnus fail to put in an appearance in this one, their omission is more than made up for by the inclusion of one of the most fearsome-looking Gnarly Wights it's ever been my misfortune to meet up with.

Go and get Trinity — it's marvelous. And be sure to visit the one-eyed cutie.

Really what do you think about seeing direct, but simply coded, solutions to problems in *Anal User*? Would you rather they weren't coded at all? Or perhaps, like some adventures, you might prefer not to be given solutions, but instead would rather have cryptic clues so that some of the brainwork is still left up to you.

I'm sure you've got strong views on the subject, so why not write in and let me hear them? ■

GLITCHES OF THE MONTH

This month two illustrious adventure companies to have their glitches revealed for all to see.

Firstly, in Infocom's *Trinity*, you'll eventually find yourself standing by a waterfall. If you then type **GET WET**, you'll receive the following

response: "You're already holding the handful of honey".

Secondly, when you're in front of the guru's hut in *Rainbird's The Pawns say CLIMB THE HUT*: You won't end up on the roof as hoped but merely inside the hut — it must be open-topped.

HINTS 'N' TIPS

LORDS OF TIME

Having problems in the amphitheatre? To deal with the floor:

**NOEL ENTT ATEN ENTW DART
TWED WTE HTWD HNT**

To elude the gladiators:

SLAD NADD AGN WENT NAGW

Can't pass the invention room?

HTWD SOON ENTA KRUU ETUD W2

THE PRICE OF MAGIC

Want to help the ghost and get the plate armour?

TPHE CEN? NISE WORO NALL UNSE NOBE LKCU

WISH YOUR G

Can't see in the dark?

**WEDN AGER ENEN TWDR FTWG HUEE KEEN TRED
SEVE NITH GIVE EYES ON**

What use is the wargame on the large table near the roof garden?

**KOS AMWT NTD EKAW UOTF KLE PSAN RAEI LEW
UOT**

RED MOON

To carry the sword from the forge:

SEVO LGRE WOME LEHT NAEW



Adventuring

Problems in the metal room?

STEVE WHITE GUY ARNE HORN EW

000000

This adventure features, for the first time, an actual green's fair. However, these are no ordinary greens but mutations — they aren't scared of lights.

But just how do you manage to get by them, the godless ones, you mean?

TKN QTC ETOR PCY AMZE OBOH FENT DEER LUD
MOOLA LEHT FORD BLAF HYND JTY
SWAN TYRE KERE OBOU KRO SWOM EBYE NORA
OYTA MOAM T

DOWN FROM GRAD OVER GRILL SADDLE A
 STAYS DUFFY COOL DRYT WIDE DUDGE HIGER WRAE W
 TWEL LIPS RENT HIGER FLAS BODY ONLY YAMP AND
 MOULD WITH DOWN SEED GRAE HIGER LICE CRON

When you meet a gnu in the dark in this adventure, and in Spellbreaker, have you ever seen what happens when you attempt to REACT? www.spellbreaker.com

Abstract

In this final and toughest part of the excellent Exarchus trilogy, there's a grave case which is simply tearing with the nasty lures. There's only one way to survive this gruesome experience.



THESE RESULTS SHOW THAT THE HIGHLY SOLUBLE POLYMER OF
POLYMERIZATION OF VINYL MONOMERS IN THE PRESENCE OF A
CATIONIC CATALYST CAN BE USED AS A CATALYST FOR THE
POLYMERIZATION OF VINYL MONOMERS IN THE PRESENCE OF A
CATIONIC CATALYST.

As soon as you've completed the above, perhaps for fun you might like to try the following. They won't help you to escape but they're a *bloody*!

2004 15
 ELITE ARCA FTA
 ELITE A FA 2004

Lastly, when you first enter the room, have a go at **WOMENING** a once.



THESE RESULTS ARE IN ACCORD WITH THE FINDINGS OF OTHER STUDIES THAT HAVE SHOWN THAT THE USE OF A SINGLE-ENDED SCALE IS MORE APPROPRIATE FOR MEASURING A SINGLE CONSTRUCT THAN A BIPOLAR SCALE.



1. **Introduction**
2. **Background**
3. **Methodology**
4. **Results**
5. **Conclusion**

Abstract The purpose of this study was to determine whether there were differences in the prevalence of self-reported depression between men and women who had been exposed to violence by intimate partners. Data from the National Longitudinal Study of Women's Health are used. Results show that among those who have ever been married, 6% of men and 9% of women reported having experienced depression during their lifetime. Among those who had been married at least once and were currently married, 7% of men and 8% of women reported having experienced depression during their lifetime. Among those who had never been married, 3% of men and 4% of women reported having experienced depression during their lifetime. These results suggest that exposure to violence by intimate partners may be associated with higher rates of self-reported depression.

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ATLAS CONVERTER SERIES

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Table 1

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Figure 1 consists of four bar charts arranged in a 2x2 grid, labeled (a) through (d). Each chart shows the percentage of respondents for different levels of agreement with the statement 'The government should do more to protect the environment'. The x-axis for all charts represents the level of agreement, with categories: 'Strongly agree', 'Agree', 'Disagree', and 'Strongly disagree'. The y-axis represents the percentage of respondents, ranging from 0 to 100. The data is as follows:

| Chart | Strongly agree | Agree | Disagree | Strongly disagree |
|-------|----------------|-------|----------|-------------------|
| (a) | ~75% | ~20% | ~5% | ~0% |
| (b) | ~65% | ~25% | ~8% | ~2% |
| (c) | ~55% | ~30% | ~12% | ~3% |
| (d) | ~45% | ~35% | ~15% | ~5% |

Downloaded At: 11:53 11 September 2009

Three small bar charts are displayed side-by-side. Each chart has a vertical axis labeled 'Percentage' ranging from 0 to 100. The first chart on the left has a horizontal axis with two categories: 'Yes' and 'No'. The second chart in the middle has a horizontal axis with three categories: 'Yes', 'No', and 'Don't know'. The third chart on the right has a horizontal axis with four categories: 'Yes', 'No', 'Don't know', and 'Refuse to answer'. Each chart contains a single bar for each category, with the height of the bar representing the percentage of respondents.

| Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | |

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NEWSLETTER

Helping relieve famine

MICROLINK was able to keep track of progress in a remarkable computer game marathon which raised more than £5,000 for Ethiopian famine relief.

The event involved micro owners all over the country playing the role-playing adventure Dungeons and Dragons.

Two teams of nine took part in a stamina-sapping Dragonathon at the Trafalgar Square Community Centre in London and wrote themselves into the Guinness Book of Records after 54 continuous hours.

Other major Dragon Aid events were held simultaneously at Aberdeen and Birmingham, and hundreds of mini marathons took place in family living rooms throughout Britain.

Organiser Action Mars said the on-line adventure raised at least half of the £5,000 which will go to Red Cross's (and Aid Trust.

RADIO FANS ARE TUNING IN TO MICROLINK

WHILE 38,000 members communicate with one another across the ether, the Radio Society of Great Britain has been conducting its business closer to the ground via telephone, email and traditional sales.

But all that is changing thanks to the society's group of mailboxes on MicroLink.

Chief executive David Evans says: "We are using MicroLink as a means of exchanging information between myself and a large number of members in the field who serve on our 18 committees, and other individuals both nationally and internationally.

"Being a commercial organisation, by law we cannot use the services to conduct our business as the national organisation for

radio amateurs in the UK.

"We represent the licensed amateur at government level and also publish books, magazines and technical material under 25 different titles.

"A remarkable two-thirds of our members are micro owners and we hope MicroLink will eventually be used for much of our committee work and the transmission of material for our publications, taking the place of ordinary sales and, to a certain extent, the telephone".

Sales link

WHEN MicroLink subscriber John Heritage heard that friends of his were having difficulty selling their house he came up with a bright idea.

Why not advertise the £84,950 det. det. res. in Plant, Marplestone, on MicroLink's bulletin board? His duty did not within a few hours recorded more than 20 responses from other subscribers intrigued by the special offer of "at least three per cent discount" for MicroLink members.

But before the offers started rolling in the property was sold through normal channels.

Sunny solution

OUT on the sunny Costa Blanca, David Corrales is spreading the word about MicroLink to Spanish-based business people and fellow expatriates.

Corrales, whose background is in insurance, believes there's a real need for fast reliable communications within a community that has strong ties with other countries, particularly

the UK. He has been living in Alicante for 18 months, setting up a company providing computers, modems, account's services and camera software to Spanish residents with links abroad.

He has made MicroLink his choice as the recommended communications system for his clients, setting a target of 500 new mailboxes in the first year.

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