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ATARI USER

Vol. 2 No. 11

March 1987

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this
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Don't miss this launchpad for all that's new in Atari computing

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10am-6pm Saturday, April 25
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On display for the first time in the UK will be new Atari products that are set to rock the micro world.

Star of the show will be Atari's IBM PC compatible, offering a radically new design at a price that will revolutionise the PC marketplace. There, too, will be the latest models in the ST range - the Mega ST workstations. Plus the remarkable Atari laser printer, the machine that has broken the price barrier in desktop publishing.

All of these - along with breakthroughs for the ever-popular 8-bit range and hundreds of new software packages - will be on display at the April Atari Computer Show.

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Atari Show launch for new PC model

65XE makes its bow

WITHIN 48 hours of Atari UK's new 8 bit level entry machine taking its bow, it attracted advance orders for 75,000 units.

Known as the 65XE, it was shipped from America to make its spectacular sales debut at the London Toy Fair.

In its basic form it is a games machine but can be upgraded to a 130XE compatible computer.

Offered in a grey case like the ST range, the 65XE is to be sold for £89.95, the price including a joystick and a games cartridge.

Interface

However it does not have a built-in cassette as previous reports from the States indicated, but simply a cassette interface.

The upgrade kit, which costs £40, adds a keyboard, lightgun and cassette recorder to convert it into a true 8 bit micro.

Atari had previously planned to replace the successful 2600/VC5 games machine over here with the 7800/VC5.

However officials at Atari UK persuaded their American cousins that the British market would benefit from a machine that could run cassettes — not just cartridges as in the case of the 7800.

"We feel that this offers the users over here the best of both worlds", said an Atari spokesman.

It has now been confirmed that the April Atari Computer Show has been selected as the UK launch pad for the company's IBM PC compatible machine.

At the same time it was made official that the event has been chosen for the official unveiling of the revolutionary priced laser printer and the latest in the ST range — the Mega ST workstations.

Company officials had previously considered releasing all these breakthroughs at the Which? Computer Show.

However it was subsequently decided to hold over until the April event, so providing Atari users with the opportunity to see the machines first.

"We felt we owed it to our faithful army of Atari fans out there", said a company spokesman.

"This will transform the event into a never to be forgotten occasion".

Such is the importance now being placed on the show that chairman Jack Tramiel and a gang of wife will be jetting across the Atlantic to attend.

But even long before it was known that there would be major launches at the show, demand from exhibitors had been at an all-time high.

And a large number of these are reported to be preparing to release further new products.

While most companies involved would not divulge details before the show, Atari UK managed to unearth several who would.

On the ST front, Precision Software is to introduce a multi-file relational database. Known as Superbase Personal, it is designed for use with Gem and is likely to carry a price tag of around £100.

Highsoft also has a new package for the ST in the form



Atari boss Jack Tramiel will be there

of a basic compiler. Compatible with Microsoft Basic, the price has yet to be decided.

Nor will 8 bit users be overlooked. In fact it would appear that on the software front new titles for this range will overshadow those for the ST.

In-depth manuals plan

FULL operations manuals — many in excess of 100 pages — are now to be offered with the Atari 8 bit range of packages from MicroProse.

The in-depth publications are already the hallmark of the giant American software house's 16 bit simulations.

But in a move to strengthen its position as the market leader MicroProse will now issue the extensively researched SimCity with its lower priced packages — including those costing just £9.95.

The glossy covered works contain not only detailed operational instructions, but also historical background information, notes from the designer and advice on further reading material on the subject.

"We pride ourselves on

Real Flat Software has three new games — Asteroid, Death Racers and Forbidden Island — all costing £7.95 on tape, £9.95 on disc.

And as the budget title scene, Tynesoft will be offering a range under its new Micro value label all priced at less than a £1.

"This show is shaping up to be the most significant event ever in the Atari calendar", says Derek Maslin, head of organisers Database Exhibitions.

The Atari Computer Show takes place at the Novotel, HammerSmith, London from April 24 to 26.

Doors open at 10am each day and close at 8pm on Friday and Saturday, 4pm Sunday.

A money saving advance ticket order form can be found on Page 53 of this issue of Atari User.

authentic and accurate simulations that provide not just a few hours of enjoyment but hundreds", says Stewart Bell, managing director of MicroProse in the UK.

"So that every player can get the most out of our simulations, we've decided to issue manuals with all our products".



The 65XE system includes keyboard, joystick and light pen

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Problem solving service

A HAMPSHIRE man has started running a correspondence course specially devised and priced for young Atari users who want to learn how to write programs.

Ray Garing bought an **BOOK** four years ago to teach himself Basic and machine code.

He is now an expert in Atari Basic and has devised his own style of structured programming which is simple to write and debug.

"My correspondence course is run on a very personal basis", Garing told *Asa's User*. "Each lesson is tailored to the needs of the individual because no two people learn at the same speed."

"I sell only one lesson at a time – priced £3 – because this allows schoolchildren who follow the course to save up and buy each stage when they can afford it."

"I've also included a problem-solving service because when I was programming and got stuck I had no one to turn to for help.

"I deal with people's problems on a personal basis for a minimum fee of \$1, rising in accordance with the amount of work I have to do in order to solve them.

"Although my correspondence course is relatively new it has already proved popular."

Atari keeps eye on Parliament

A NEW publication which registers Parliament's activities in relation to health is being produced with the aid of an April 1945ITE.

Healthcare Parliamentary Monitor appears fortnightly while Parliament sits.

It aims to provide a non-partisan account of all health care developments, all Westminster and all the Welsh.

The newsletter is distributed to companies and individuals with a specific interest in health-care — health authority managers, family planning clinics, community health centers, pharmaceutical companies, pharmacists, medical equipment manufacturers and suppliers, and medical academics.

It covers debates in both houses, particularly those on

Plans and actions, government and Private Members' bills, and select committee members' reports.

Editor Rodney Deitch told Alan Chan: "The most important criteria for me when I was evaluating different micro systems was to get the right balance between price and performance."

"The best value for money was definitely supplied by the Atari ST. It is important for me to upgrade the system shortly, and I am already looking into different desktop publishing packages as well as laser jet printers.

"I've found the ST indispensable in the task of putting the newsletter together. At the moment I'm using HabaWriter, HabaView and HabaMerge and find them extremely easy to use."



New option

STARS II file users have a new joystick option available to them - the Phaser One from Britannia Software.

Its design incorporates a pistol grip trigger action, with the joystick placed on top of the device to permit equal dexterity by both left and right handed users. Price \$139.95.

Adventure for all

AMERICAN publisher Strategic Simulations has converted Phantasia for the Amiga II, the machines and Phantasia II for the ST.

Pharosin is a multiple role-playing game where a party of up to six characters is assembled to search the Isle of Ulrope for nine rings that will rid the land of the Dark Lord.

Players can create an elf who is a wizard, a dwarf who is a fighter, or combine in creative ways the eight races and six classes of characters which include humans, elves, dwarves, thieves, warriors and wizards.

More than 80 types of monsters oppose the player in a total of 18 dungeons.

Phantasia II takes players to the Isle of Fenoreath, a place of beauty and magic beset by evil power from an uncharted orb controlled by Nikolaos, the Dark Lord.

Players gather a group of adventurers to sail to the island, use spells and weapons to invade it, escape dungeons and destroy the dragons.

Travel by rail to London for the Mori Computer Show, then visit the theatre, stay the night at a top hotel – and all for an incredibly low price!

ATARI COMPUTER SHOW

London
April 24-26

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A	250	221
B	220	224
C	230	220
D	227	220
E	270	221
G	234	227
H	230	220
I	234	222

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333 334 *U. Schürmann & M. Schürmann*

2000	1000	1000	1000
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1998	2,900	2,910	2,980
1999	2,950	2,980	3,000
2000	2,950	2,970	2,980
2001	2,970	2,980	2,980
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2005	2,970	2,980	2,980
2006	2,970	2,980	2,980
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2012	2,970	2,980	2,980
2013	2,970	2,980	2,980
2014	2,970	2,980	2,980
2015	2,970	2,980	2,980
2016	2,970	2,980	2,980
2017	2,970	2,980	2,980
2018	2,970	2,980	2,980
2019	2,970	2,980	2,980
2020	2,970	2,980	2,980
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2022	2,970	2,980	2,980
2023	2,970	2,980	2,980
2024	2,970	2,980	2,980
2025	2,970	2,980	2,980
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Continuation Process

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Computer Literacy

Component	Price per 1000
Component cost	1.000
Price for	1.200
Price for	1.400
Price for	1.600
Price for	1.800

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Page 10 of 10

PLATE 1000	SIZE 1000	11.250
PLATE 1001	SIZE 1001	11.250
PLATE 1002	SIZE 1002	11.250
PLATE 1003	SIZE 1003	11.250

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The parting of the ways...

FOLLOWING an overwhelming response from our readers after the recent survey in *Atari User*, it has been decided that the magazine will say goodbye to its younger cousin - *Atari ST User* - which from now on will be published as a magazine in its own right.

Starting with the April issue, *Atari User* will return to being wholly aimed at owners of 8 bit Atari computers. There will be lots of room for more utilities, games listings and tutorial series.

Atari ST User will at least double in size and this extra space will allow us to support ST users better than ever before. Forthcoming

features include detailed reviews of all the latest software and hardware and a major new series on Gem programming which will include details of everything from dialogs to windows.

Publishing two Atari magazines every month will allow us to give much greater coverage to all that's happening in the rapidly expanding world of Atari.

Whether you own an 8 bit, ST or both, we're sure that you will welcome both magazines and we look forward to your comments and suggestions on ways you would like to see them develop in the future.

● To take out an annual subscription to *Atari User* or *Atari ST User* please use the subscription form on Page 53. If you are already a subscriber to *Atari User* and wish to transfer your subscription to *Atari ST User*, please write (giving the name and address to which we send the magazine) to: Subscriptions Dept, *Atari User*, Europe House, 68 Chester Road, Hazel Grove, Stockport SK7 5NT.

Talk your Atari into action

CDMP these trigger-finger blasters by adding a voice-operated fire button to your favourite joystick. Asterisk your friends with a talking head, whose lips move when you speak into a microphone.

Or keep track of vibration from any source - fridges, washing machines, TV speakers or even major earthquakes. Or just train your computer to do tricks when you whistle. This content can do it all.

Since you can trigger it by touch or by blowing gently across the sensor, it could find a less frivolous use in Passover-type systems to help severely disabled people open curtains, answer the door or switch the TV on and off.

It can also be easily adapted to accept inputs other than sound, and more about that later.

You can't connect a microphone directly to the joystick port for two main reasons. Firstly, the output from most mikes is very small – a few thousandths of a volt at best – and the computer isn't sensitive enough to detect it. Secondly the signal is AC, which the internal hardware can't handle.

We need to simplify the value's output and convert it into a DC value.

Part 9 of LEN GOLDING's series on using your Atari to control devices

which switches cleanly between 0V and 0V. Then it can be connected to any of the five groff input lines on (most) location card.

Figure 1 shows the detail. It's not the simplest possible design, but it is very versatile and costs only a few pence more than a rudimentary sound switch.

Stage 1 is a fairly conventional AC amplifier which converts the microphone output into a respectable voltage swing at CB.

Stage 2 is less conventional, built around an ordinary quad 2-input NOR gate chip. Two of the gates are wired as a monostable, which converts brief

input pattern into output pattern long enough for the controller to detect).

The remaining two gates form a Schmidt trigger, which ensures a clean on/off transition at the output. Stage 2 is in fact a self-contained analogue-to-digital switch which behaves in the following way:

The input (point A) is externally held at 2.7V, by the action of VR1 and P2. In this state the output is held at +0V (point 1).

When a brief negative-going pulse is received from C1, point A falls below 2.5V and the output then switches very rapidly to ON (Fig. 3). The Schmitt trigger action ensures that

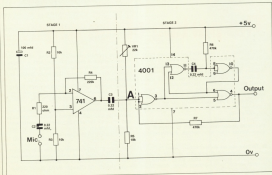


Figure 1. Circuit diagram for the neuron-activated switch.

retree distance, or a pin dropping on a hard surface close to the microphone.

To give your joystick a voice-operated fire button, use both ends of the extension cable. Cut the cable to remove a section from the middle leaving you with suitable lengths – about six inches in from each end of the cable is best.

Strip back the black outer sheath to expose the ring internal wires and join each wire back to its partner, matching the colours. Solder the joints and insulate all except the ones to pins 8, 7 and 6, then connect those three joints to the terminal block as shown in Figure 8.

If you want to disable the joystick's own fire button, leave the socket and all else is disconnected.

Plug your joystick into the extension socket, load up a game and set the gadget's sensitivity low enough to eliminate spurious triggering. Then shoot, slap or whistle to blast away.

There's scope here for some simple hand-aiding games if you can stand

the racket. You may need to position the mike fairly carefully, so that it doesn't pick up sound from the TV speaker or other inappropriate sources.

If you would like the output pulses to last longer than one tenth of a second, there are two options. You can increase the value of R8 (10 megohms will give a delay of around three seconds) or you can build a delay loop into your software, as shown in Program 8.

Program 8 is the "talking head" I mentioned earlier. Lines 10 to 80 put a simple face shape on screen, then lines 80 and 70 use the gadget's output to modify addresses 708 and 718, which control the mouth colours.

This gives the effect of lips opening and closing. OK, it's a primitive program – but you could use the same principle for a much more impressive multi-coloured display, say in graphics mode 7.

Remember though that inexpensive mikes respond best to high frequen-

cies. The gadget will pick up most consonants without difficulty, but it may not detect vowels unless you're very close.

The gadget can easily be modified to accept other types of input – for example, you can trigger it by touching the microphone input, even if there is no mike connected.

It's easy to make a touch-sensitive switch by attaching a wire, or metal pad (for example Magni type HY088), to the terminal pin nearest the mounting hole.

Many types of sensor – such as thermistors, pressure transducers and moisture detectors – change state slowly, so can't be connected directly to the safe input lines.

Others (like photoresistors), can switch on and off so rapidly that the trigger pulses may be long gone by the time your computer gets around to looking for it. This gadget can be used as an interface for both types of signal.

To modify the board, leave out all the amplifier components and fit a two-way terminal block in place of R8.

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On your bike

Program: BMX Simulator
Price: £1.99 (cassette)
Supplier: Code Masters, 1
 Beaumont Business Centre,
 Beaumont Close,
 Selly Oak, Birmingham B29 7JY.
 Tel: 0255 66676

THIS is another action-packed game involving head-to-head competition against the computer or a friend.

The title is a little misleading - it's not a true simulator since the view is from above, but that shouldn't detract from what is a fairly good game at the price.

Your task is to race your BMX bike round a track, avoiding various obstacles. There are seven different courses, each more difficult than the last, and with less time allowed to complete

each race.

A steady hand and a level head are needed here. The courses can be learnt gradually over a period of time, so even the worst games player sees a marked improvement as he plays.

Richard Darling, author of the Commodore 64 original, has also incorporated an action replay feature, complete with slow motion, which is unique for a game of this type.

The graphics aren't bad, but I've seen better. The courses are appropriately laid out, and the "Bones", as they're called, slow you down on the way up and help you speed up and turn on the way down.

There are ramps and rough ground to traverse, and obstacles which stop you getting back on the



course if you wander off line.

As the view is from above, the bikes appear quite small, but if you crash the rider flies over the handlebars and bike and rider are revealed quite realistically.

The music, written by David Whitaker, is catchy and pleasant, and includes a short fanfare at the end of each round. Sound effects include pedalling and thuds as you crash.

If you're a BMX fanatic, or prefer racing to speeding, then this game is right up your street - and it's cheap enough to buy without leaving too great a dent in your pocket money.

Rob Anthony

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

Fine quartet

Program: Shoot 'Em Up
Price: £3.99
Supplier: US Gold, Units 2/3,
 Redford Way, Redford,
 Birmingham B3 7JX.
 Tel: 021-358 2288

COMPILATION packages abound these days, and that is generally good news for both software houses (who get extra mileage from selling games), and Joe Public (who gets the benefit of buying games at very much reduced prices).

Critics might say that they are an excuse for jolting out otherwise unsaleable games on the back of one big seller.

While that may well be true in some instances, it is definitely not so with this latest offering from US Gold.

The four games in the package are Super Zaxxon, Blue Max 2001, Fort Apocalypse and Dropzone.

are sometimes a little skimpy, but US Gold has provided a comprehensive and well detailed set for all four.

Super Zaxxon is a fair representation of an old arcade favourite. You fly over enemy fortresses and through tunnels in glorious 3D, dodging force fields, shooting, bombing and battling with fire-breathing dragons along the way. Graphics and sound are both satisfactory, and although the pace is a little slow it remains very playable.

Blue Max 2001 owes much to Zaxxon for its style, there being many similarities in the gameplay and appearance.

Again you must bomb or shoot anything that does or doesn't move, progressing to the next level after a precision bomb run on a special target.

While Fort Apocalypse is let down to a certain extent



by blocky graphics, the game itself is excellent and thoroughly addictive.

Your task is to rescue stranded prisoners in your helicopter, dodging and shooting floating mines, tanks and robots, ultimately blasting the very heart of the fortress.

Dropzone is by my mind the best of the collection, and perhaps the best all-out blaster I have seen for the Amiga.

The graphics are superb, the sound excellent and the action smooth, fast and furious.

Your moon base is attacked by aliens and you

must gather in your comrades to the relative safety of the base.

Apart from the aliens you'll have to watch out for molecular acid clouds, proton lightning bolts and erupting volcanoes. This game is sheer chaos and destruction from start to finish.

All in all, Shoot 'Em Up lives up to its name.

Nick Reynolds

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

Rambo rampage

Program: *Gun Law*
Price: £1.99 (suggested)
Supplier: Watcom, 8/20
 Paul Street, London EC2A
 4PH,
 Tel: 01-377 6882

THE sales hype on the *Gun Law* pack starts off: 'Four months of bloody alien attacks have taken their toll...'

However anyone buying this game and expecting to see aliens is going to be in for a surprise and possibly a disappointment.

There you are in your smart blue army uniform at the bottom of the screen, brandishing your machine gun, ready to seal out the invaders from outer space. But hold on, these are soldiers shooting at you. In fact they are identical to you in every respect, but for the fact they are wearing green

instead of blue. Whatever happened to the aliens? I certainly never saw any.

Anyways, the aim is to run up the screen with the background scrolling vertically downwards, fending off your attackers.

Various objects can be used as cover from enemy fire, such as trees, fences, rocks and buildings.

Due to some programming laziness, grass, ponds and small obstacles will also stop spending bullets.

Once you reach the end of the zone (a easy feat) you must negotiate a flashing electric fence and then go through the same exercise in the next zone. Naturally your enemies are better armed and there are more hazards to contend with. So it goes on until you reach the fifth and final level.

The graphics in *Gun Law* are adequate, though they

do have some oddities.

For example, an alien walking in front of your Rambo character is masked out as if it had gone behind.

The animation of the figures is minimal and movement is limited to up, down, left and right. The game would have been improved by the inclusion of diagonal movement.

With the high standards attained by many of the budget games around these days, I had expected a little

more from this game.

It has nothing to particularly recommend it, but neither does it have any serious faults.

Gun Law is a so-so title budget shoot 'em up and as such still represents fair value at under £2.

Paul Mills

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



Bandits ahead

Program: *Spitfire 40*
Price: £9.99 (suggested)
Supplier: Microcraft, Maxwell House, 78 Monmouth Street, London EC2A 3TH,
 Tel: 01-377 6882

"SCRAMBLE! Scrambled! Bandits coming out of the sun at one o'clock."

"He's all yours, Ginger, and try not to ping it in the busy time."

Now that's the sort of gung-ho atmosphere I was hoping would be generated by this Spitfire flight and combat simulation program. Alas, it was not to be.

While Spitfire 40 is quite a good little simulation it didn't quite have the zip and excitement I had anticipated. Perhaps it was because I felt that much better use could have been made of the sound potential of the Atari.

The main screen is, as you would expect, a view straight ahead from your seat in the cockpit.

Not much to see, really, except acres of green grass and miles of the wild blue yonder.

Pressing the speaker toggles you to and from the instrument screen. This shows fuel gauge, airspeed indicator, artificial horizon, VSI, engine rev indicator, slip and turn indicators, compass, altimeter, rudder and pitch indicator.

A further screen provides a map of South-East England showing your position and three areas which can be examined in more detail by a zoom feature.

You control the Spitfire using either a combination of joystick and keyboard or keyboard only.

Spitfire 40 lets you choose a practice flying session or to go straight into combat.

Unlike many simulations, getting the plane off the ground and keeping it up there is pretty easy.

In combat mode a number of enemy craft will appear, sometimes ahead, sometimes in your rear view mirror.

You give chase and manoeuvre your Spitfire to line the enemy up in your sights.

When you fire you hear the rat-a-tat-tat of your eight Browning machine guns and see the bullets spraying out from below both sides of your cockpit.

If the enemy craft is hit it

immediately but silently disintegrates and disappears.

Response to joystick and keyboard is a fraction slow but not so much that it spoils the gameplay.

Not quite the spitting show I'd hoped for, old bean, but jolly fair nonetheless. Cheers! (away)

Bob Chappell



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

Fight to survive

Program: Red Max
Price: £1.99
Distributor: Code Masters, 1
 Beaumont Business Cen-
 tre, Beaumont Chase,
 Banbury, Oxon OX15 3BT.
 Tel: 0298 886020

THE screen shots on the inlay card looked promising and I had high hopes for Red Max. After 32 minutes loading my enthusiasm was beginning to wane slightly, but thankfully it loaded first time.

The storyline revolves around the survivors of Earth's Global War who have colonised the moon.

They become a little concerned on discovering that the sun is about to explode, so they fit the moon with a few anti-gravity jets, catapult it from the solar system, and kip down for 1,200 years – planning on waking up long after the sun has gone nova.

Things start off well enough for the fugitives, but unfortunately a band of renegade Death-Lords hijack a ride in order to sabotage the power plants.

It is your job to get on your lunar motorbikes, find the mines they have planted and de-activate them.

Having disabled the mines you progress to the engineering level, turn on the back-up nuclear-cooling systems and shut down the main power plants.

Lastly you must descend to the hibernation complex and wake up nine crew members. You have an aerial view of the whole operation.

Controlling the bike with the joystick is simple. The only controls, apart from left and right, are acceleration and deceleration, achieved by pressing and releasing the fire button.

You must avoid collisions with buildings and walls

while negotiating flashing laser fences and gates.

To neutralise the mines, collect fuel, temporarily disable laser fences and switch off reactors, you'll have to ride over certain key objects.

I found the game very pleasing visually, with smooth movement and detailed graphics.

There are complaints, however. In particular the bottom two thirds of the screen is taken up by the motorbike controls which shows speed, revs, fuel level and the state of your shields.

There is also a small prompt screen that tells you what to do next and warns of low fuel levels.

The console looks very pretty, but actually contributes little to the game.

Despite this, Red Max is one of the best budget games I've seen.

Paul Mills

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

Trickier Willie

Program: Jet Set Willy
Price: £7.95 (successor) £12.95 (trial)
Distributor: Tyndale, Unit 3,
 Ashton Industrial Estate,
 Blithley, Tynes and Wear
 NE31 4JY.
 Tel: 091-416617

JET Set Willy was originally written for the Spectrum and remains one of the all-time greats of computer gaming.

Tyndale have now produced it under licence for the Atari, nearly three years after it was originally published by Software Projects.

The story to Jet Set Willy has returned home from his adventures and throws a party to celebrate.

However Maria his housekeeper won't allow him into bed until he has gone around the mansion and collected all the glasses.

You move Willy through

the house and grounds, down stairways, up trees, swinging over obstacles on ropes, making jumps that require great precision and avoiding the many and various creatures that are out to get him.

The game remains faithful to the layout of the original, but unfortunately loses in the translation.

The graphics on the Spectrum are bright, lively and have a great deal of humour and charm.

Tyndale seems to have made the conversion literally. With the Atari's superior graphics capabilities I had expected a riot of colour and fast moving action.

I got neither, the graphics being lacklustre, controls sluggish and the movement too slow.

Tyndale has very def-

initely improved one part of the game – the music is superb. It can be switched off if necessary, but I really enjoyed it and kept it on.

If the music is switched off you are left in total silence, with none of the trills, bleeps and burlings that denote jumping, falling or whatever.

No great loss perhaps, but I do feel they would have added to the atmosphere. In its own right, the game is playable and more Willy to

get through than the original.

The coordination and accuracy required to clear the perimeters and obstacles is considerable and the game will still appeal to those who like this sort of pixel-scraping challenge.

Nick Reynolds

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



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MicroLink application form: Page 8

By Brillig

JUDGING by the number of letters received on the subject, one of the most frequently played adventures seems to be *The Payoff*, so it's not surprising that I should get more requests for assistance with this than with most others.

Conrad Wilson of Uxbridge knows that you have to change the bit in the drill but cannot find the exact combination of words to do it.

He is also having some difficulty getting the hoist and wonders who has the key to the car.

On the same adventure, Domhnall Gode from West Lothian has almost finished but cannot help triggering the alarm when he drills through the door of the vault.

GLITCH OF THE MONTH

Stewart Parsons from the Isle of Wight has spotted a curious glitch in, of all things, Infocom's *Spellbreaker*. To get the cube from the wizard's hut, you're supposed to collapse the hut by using the Gasky spell.

However, if instead you CAST FROZ AT CUBE then EXTINGUISH CUBE, the response begins "taking the cube first" . . . which leaves you nicely in possession of the cube. Well done, Stewart, that's a smasher.

The Payoff goes something like this

Perhaps you're trying to get in the wrong way, Domhnall — have a look at the hoist links.

Staying with *The Payoff*, Stewart Parsons from Gower would like to know the exact words for getting through the window.

Stewart would also like some advice on how to get the cube from the Red's nest in Infocom's *Spellbreaker* and how to get the alloy wheel in Level 9's *The Price of Magic*.

Finally, P. Chassell of Brighton is anxious to know how to solve a couple of problems with *Lords of Time* from Level 9.

He wants to know how to overcome the troublesome Pirate Pete and what to do in the colossal Habidrome.

That's all the help for this month. Be sure the YTS groans are busy by keeping those letters rolling in. After all, they are being paid two boxes of Todi's gold a week and must have something to do besides plagiarize all my test spells. Facing adventuring!



CLUES CORNER

Read these clues backwards if you're really stuck

THE PAYOFF

Want to use a new bit in the drill?
TROT P

Is the hoist causing you to despair?

TLUA AWEY TROT NROT TROT U
TSD HGOO EHMT SIGH OM

How do you get the key to the car?

QWAP RACE HTW TWE HTSA HEWN EWEY T

ROBT KSOI EOEY AWEY TNAO PMAO EHTM WEY M

Window smashing causing you pain?

PMUJ NEMT REPA FOWE NMOI TDEL CAEW TQAE WPS

SPELLBREAKER

Cube in the red's nest immovable?

TWED BASI CONR ENTO BAWH WYSE NEMT CTOAG

TSBW BASI TETU DRWE NARD FMOO BWA EHTN WAA
JAME HTOT OO

PRICE OF MAGIC

Need the alloy wheel?

WPL EOEY TNAO TQAE ENTO EOWU OT
SSOR ENMT QWIS LITE SITO NPMH

LORDS OF TIME

Pirate Pete a pest?

WUL T EGOT GWR HTOT TQAC RUTE WIG
SOM ANW DNMAU SOTR UENO LB

Unlappo in the Habidrome?

LEAH GWC NEMT INAM REOT CTAG IF
KEW ADWE ACSEH TNAO TQMO BNEP O

SNPL YELR HTWY STOR OREN IMAXE

CIO devices:

Easier file handling

In the first two parts of this series we looked at the theory behind data input and output on the 8 bit Atari, and at the operation of the Central Input/Output system. We've also tried out a simple program which used CIO from machine code. Now it's time to look at the other facilities that CIO has to offer.

We have so far seen three CIO commands in use - Open, Put Text and Close - but we didn't go into any real depth on how they worked, or look at the other options available.

There are actually seven general commands available to CIO, plus a whole host of other device-specific instructions. The main commands are: Open, Get Text Record, Get Binary Record, Put Text Record, Put Binary Record, Status and Close.

They all have different uses with different types of device, and not all are applicable for all devices. For example, it is nonsensical to try to Get data from a printer or Put data to a keyboard.

Some commands, most notably Open and Status, may need to operate very differently each time you call them.

With Open, for example, you may wish to create a new disc file, open a long-gone mode cassette file for reading or even set up a channel to a

particular graphics screen.

If you remember from last time, we said that each channel has its own control block of data - known as an ICCB - which you must set up before calling the CIO system (See Figures 1 and 2).

Thus each time you use the Open command you need to set the relevant ICCOM byte to 3 and the buffer address ICBA4, and ICBAH to point to the string containing the device name (such as "D:PRINTER" or "C:").

Part 3 of André Willey's series on the Atari's input/ output facilities

The buffer length pointer ICBL4 and ICBLH is rarely used with Open, but in order to handle such a wide variety of functions the command does make full use of the first two auxiliary data bytes.

ICAX1 is used to specify the mode you want the device to adopt. If you

require input, for example, you would use 4 and output would be 8.

Some devices are capable of doing both at the same time, so the two are added together to give a value of 12 for use with an input/output file.

Sometimes a device is capable of much more - such as the screen handler, which must know what graphics mode you want, and the disc and RS232 handlers which both allow various special options. These facilities are selected by using both ICAX1 and ICAX2. A full list of the options is given in Figure 3.

If you examine the screen handler entries very carefully you will spot the answer to last month's puzzle - remember, the two numbers after the channel number in an OPEN statement are stored as ICAX1 and ICAX2 - up all the time did you to simulate the GRAPHICS 7 command using CIO.

After Open, the next two CIO operations control the actual transfer of data to and from the channel, with two commands for input and two for output. Obviously, if you try to output to a channel you've only set up for reading you will get an error.

The two modes of input and output are Line (or Text) and Binary; both of which actually operate in a very similar manner.

A binary record is a block of characters or data of fixed length, while a text record is a set of characters terminated by a Carriage Return byte (ASCII code 13). Text is normally dealt with in line mode - as Basic does with its strings, for example - whereas raw data is often processed as a binary record.

Command 8 will output a text string

Address	Label	Bytes	Description
ICCB + 0	ICBRO	1	Index into NAMES
ICCB + 1	ICBWO	1	Device number (eg: 011, 02)
ICCB + 2	ICCOM	1	Command type (eg: OPEN, CLOSE)
ICCB + 3	ICSTA	1	Current Status of Device
ICCB + 4, 5	ICBA4/H	2	Buffer or file space address
ICCB + 6, 7	ICPT4/H	2	Address of Put-Byte routine (4-6)
ICCB + 8, 9	ICBL4/H	2	Buffer data length sent/returned
ICCB + 10	ICAX1	1	Auxiliary byte 1
ICCB + 11	ICAX2	1	Auxiliary byte 2
ICCB + 12	ICAX3	1	Auxiliary byte 3
ICCB + 13	ICAX4	1	Auxiliary byte 4
ICCB + 14	ICAX5	1	Auxiliary byte 5
ICCB + 15	ICAX6	1	Auxiliary byte 6

Figure 1: ICCB structure

ICCB Zero	\$040	(000)
ICCB One	\$050	(040)
ICCB Two	\$060	(080)
ICCB Three	\$070	(0C0)
ICCB Four	\$080	(0F0)
ICCB Five	\$090	(112)
ICCB Six	\$0A0	(03E)
ICCB Seven	\$0B0	(044)

Figure 2: ICCB start addresses

ICCOM	Command	Notes	ICCOM	Command	Notes
1	Open	ICBAL/H = Pointer to file spec. See Figure 18. ICBAL/H = Buffer address; ICBL/H = max. length	36	Lock (L)	ICBAL/H = Pointer to flopped ICBL/H = Pointer to flopped
5	Get Text	ICBAL/H = Buffer address; ICBL/H = length If ICBL/H = 0, use single-byte A-register mode	37	Unlock (U)	ICBAL/H = Pointer to flopped ICBL/H = Pointer to flopped
7	Get Binary	ICBAL/H = Buffer address; ICBL/H = max. length	38	Point (P)	ICBAL/H = Pointer to flopped ICBL/H = max. length
9	Put Text	ICBAL/H = Buffer address; ICBL/H = max. length	39	Note (N)	ICBAL/H = Pointer to flopped ICBL/H = max. length
11	Put Binary	ICBAL/H = Buffer address; ICBL/H = max. length If ICBL/H = 0, use single-byte A-register mode	254	Format (F)	ICBAL/H = Pointer to drive spec (eg "D1:")
12	Close	No parameters needed	17	Draws (D)	Draws line in ROWCRS (ROW), COLCRS (COL)
13	Status	ICBAL/H = Pointer to flopped (if not open) Results in ICSTA, plus optional OYSTAT (OYST)	18	Fill (F)	Fills from ROWCRS, COLCRS with FLOAT (FLO)
32	Rename (R)	ICBAL/H = Pointer to flopped (eg: "OLD/NEW")	32	Special (S)	Output partial block: See Atari 850 manual
33	Delete (D)	ICBAL/H = Pointer to flopped	34	Special (S)	Control RTS, KMT, DTR: See Atari 850 manual
			35	Special (S)	Set baud, stop bits & word size: See Atari 850 manual
			36	Special (S)	See Atari 850 manual
			40	Special (S)	Enable concurrent IO mode: See Atari 850 manual

Figure 17: CIO command options

reason why you shouldn't place it into a string just as easily. The row address is 16385 and the parameters are as follows:

1. Address of machine code (16385)
2. The channel number (which you should have already OPENed for input or output)
3. The command number (1 for input, 11 for output - used by ICCOM)
4. The buffer address in memory (ICBAL/H)
5. The number of bytes to transfer (ICBL/H)

The USB routine will also return the actual number of bytes transferred. This might be different to the number you actually asked for if the file ended early or the disk was full.

There are just two more major commands to cover now, the first of these being the Status routine. When called, this will return a value to ICSTA for the device in question.

Most devices do little with this facility, but it is especially useful for the printer and the RS232 driver.

The cassette, keyboard, screen handler and editor simply return a taken value of 1 to the ICSTA register. The disc system returns a simple set of codes - 1 for normal file, 181 for locked file and 179 for file not found.

Both the printer and the RS232 driver return a block of four bytes of status data and store it in a special location called DRSTAT (Device Status) which is located at \$26A (\$46

decimal). For more information on its contents, consult your RS232 manual.

Finally we have the Close command, the simplest of them all. All you need do is place the value 12 into the ICCOM register and call CIO. No other parameters or data are needed.

Some devices - such as the disc, screen and RS232 handler - also have their own unique commands. These are not normal CIO commands but are designed to handle the extra functions supported by that particular piece of hardware or software.

For disc files, command 32 does a Rename, 33 is Delete file, 36 and 38 Lock and Unlock files, 37 and 38 are Note and Point and 254 will format the disc.

Some of these do not need the channel to be previously OPENed as they contain the full flopped themselves, pointed to by ICBAL and ICBL/H. The Doc manual gives more information on these commands.

For the screen handler (L) you can use command 17 to draw a line and 18 to fill part of the screen - again, more information is available in the manuals.

The RS232 driver supports command 32 for sending an incomplete block of data, 34 to control the hand-shake lines, 35 to alter the baud rate, word size and number of stop bits, 36 to change the Ascii translation mode and finally 40 to start the concurrent IO mode.

Those of you who have used the CIO command from Basic will by now have realised that CIO is in fact a simple way of calling the CIO system.

The normal format of the CIO command is:

```
CIO cmd, ichannel, max1, max2,
flipped
```

The first parameter is the command number (scored in ICCOM). Next comes the channel number (which is converted to the ICDB number).

The two auxiliary data bytes are stored in ICAR1 and ICAR2 and the flopped is accessed by setting ICBAL and ICBL/H to point to it.

All the CIO commands we have been discussing are listed in full in Figure 16, but if you want to read up some more on the subject take a look at the Operating System User's Manual, which is part of Atari's Technical User Notes.

This month's IO question is: Why can't we use the very useful CIO command to access the Binary Put and Get functions from Basic, rather than using a special machine code routine to do the job?

■ If I let you know the answer to that one next time, when we start looking at how to make up your own machine code device driver programs, how to patch them into the CIO system and what rules to follow to make them Basic-proof.

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0.3
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2.8

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WVH! you ever sat at your keyboard, gazing at a blank screen, and cursed the snail-like pace with which Basic runs your programs? I doubt if you're alone in this activity — most of us go through it from time to time.

The obvious solution is to write your programs in machine code instead, as this runs hundreds of times faster than Basic and is very much more flexible.

However, machine code is not as easily mastered as Basic and it requires considerable time and effort to create quite small sections of code — you only need to look at the 88 line machine code equivalent to the Basic LIST statement last issue to see the problem.

Let's take a look at the reason for the speed differences, and at one possible solution.

Firstly, you must understand that the computer always does its internal work in machine code, no matter what language you decide to write your programs in. So if you use machine code for the computer is given the job in an easily digestible form and can thus function that much faster.

Basic is itself a very sophisticated machine code program which takes your input in simple English-like words and converts them into machine code that the computer can understand.

However, because you will often be adding and deleting parts of your program, Basic only does this conversion when you finally RUN your new masterpiece.

Each line the computer comes to is translated into a machine code form and then executed, then the process starts all over again for the next line.

While the machine code itself is a very fast, the conversion process takes time — and this is where the speed problem lies.

The ideal situation would be to write your program in a straight forward English-like language and then have the computer convert the whole lot into machine code in one go.

The result would execute almost as

A compiler's the if you want fast

quickly as it would if you had written it in machine code in the first place, because no more complex conversions need be carried out at run time.

Is there an answer to this pipe-dream? Luckily, there are quite a number of these type of languages — known as Compilers because they compile your program into its machine code equivalent.

These include C, which is also very popular on the ST range, Pascal, Fortran, Lisp and many others.

These are all languages which were designed with much larger machines

one of the simplest, but nonetheless most powerful alternatives to Basic.

The language comes as a special type of cartridge known as a Super-Cartridge, which is a way of packing 768 of information into an 8k slot in memory using a technique called bank switching.

It consists of four main segments — the Editor, Monitor, Compiler and Library.

The Editor is rather like a word processor and is in itself very flexible. It is here that you create your Action! programs in the same way as you

ANDRÉ WILLEY considers Action! a fine second Basic language for the advanced Basic programmer

in mind and can thus be quite amenable to use on an 8 bit micro such as the Atari. They also tend to produce much larger files than a pure machine code author would generate.

A few years ago, a Californian firm called Optimised Systems Software decided to produce a compiler written especially for the 8 bit Atari.

Unlike Fortran, Lisp and the others this would have the advantage of being similar in style to Atari Basic but should also be able to create very fast, compact machine code.

Thus Action! was born.

Written by Clinton Parker, Action! is the result of many months of hard work and is now widely regarded as

would type a letter into AtariWriter.

There are no line numbers, and no LIST command — you simply use the cursor keys to move about your whole program at will.

Full search and replace options are available, and any line may be up to 128 characters long — and each line for the whole screen can be scrolled across the normal 40 column screen.

Two windows containing completely separate programs are available and you may cut and paste between them with ease.

Once your program is complete you can return to the Monitor, which allows you to control the system. From here you can select the various options and compile and/or run programs.

The Compiler itself is extremely fast — often completing programs many hundreds of lines long in less than a second.

This is the business end of the language and it turns your program text into very compact machine code ready for the 6802 to execute. This code may then be run or saved to disc for later use.

The final module, the Library,

Benchmark	Basic	Basic XL	Action
1	3.07	1.00	0.02
2	6.98	3.02	0.026
3	18.08	7.62	0.02
4	22.14	7.84	0.06
5	26.24	8.62	0.08
6	38.24	10.62	1.00
7	60.36	20.00	1.00
Average	25.07	9.48	0.06

Note: Benchmark 8 is not applicable since Action does not support floating point.

e answer t action

certain pre-written routines to take the hard work out of programming.

It provides all the features you are used to having at your disposal from Basic, such as input/output operations, graphics and sound, string handling and so on.

This is one way in which Action! manages to create such tiny machine code files (otherwise known as object files) — all these space-consuming functions are contained within the cartridge instead of cluttering up your final program.

This does have the drawback that your programs may only be run with the Action! cartridge present, although it is possible to buy a Run-Time Library, which effectively adds this set of routines on to your final object file.

Once this has been done, your program is completely free-standing and may be run on any Atari with or without the cartridge.

Since there are no line numbers, structuring your work carefully is most important. You write your programs as a set of small modules — called Procedures — which may call each other at will.

Each time you call up a procedure you may pass information and variables to it in the form of parameters, which are illustrated in Program 1.

There are limits to the ways in which you may use procedures, however — the most important being that you can't forward-reference them, meaning that a given procedure must be defined before you try to access it.

Variables must also be defined before you use them, either at the start of the whole program (global variables) or at the start of a procedure (local variables).

Globals may be used anywhere in the program but a local variable may only be called from within its own procedure.

To speed up the computer's job, variables are stored only as whole numbers since fractions take a lot of

Program 1

```
; Demonstration of Action! Procedures
; Subroutines after a ';' are
; ignored by Action!
```

```
*****
GET1 TYPE (a;Number)

```

```
GET1 TEMP ; define TEMP as a byte value
```

```
PRINT>Please enter a number: 1
```

```
TEMP=(INPUT)
```

```
; INPUT simply takes in a BYTE value
; from the keyboard
```

```
; Now return the value to the GET
; of the program which called this
; routine, with ...
```

```
RETURN(TEMP)
```

```
*****
```

```
PROC PrintNumber(BYTE Number)
; Routine to print a byte number and
; some text
```

```
PRINT(The number you typed was 1
PRINT(Number)
```

```
; The 01 after the PRINT statement
; tells Action! to print a byte 01
; followed by a carriage return - a
; (newline line)

```

```
PRINT
```

```
*****
```

```
PROC COUNT
;Ain routine which will be run first
```

```
BYTE VALUE,
COUNT=10
```

```
LOOPCOUNT
```

```
COUNT=0 ;Ain a first background...
```

```
PRINT(Enter Number)
; Enter like a GET1 to GET1Number
```

```
PRINT(Number+1)
; Prints the number we typed in
```

```
RETURN ; end of prog
```

Program 2

```
; Demonstration of Action! program
```

```
; flow control
```

```
PROC MAIN
```

```
BYTE VALUE,
COUNT
```

```
PRINT(Take a number: 1
VALUE=(INPUT)
```

```
; VALUE=100 TEMP
PRINT(Here's a small number)
LOOP1 VALUE=100 TEMP
PRINT(Here's a small 100)
TEMP
PRINT(Here's a big number)
10
```

```
; Now to tell Action that the 10
; statement is ended
```

```
; Now three ways to print all numbers
; up to the one typed...
; Now that all listed loops are
; completed with 00, 01 lines,
; which makes a loop very easy to
; identify
```

```
; *** | ***
```

```
PRINT ; Print a blank line
PRINT(Printing 100 ... NEXT loop)
```

```
FOR COUNT = 1 TO VALUE
00
PRINT(COUNT)
00
```

```
; *** | ***
```

```
PRINT(Now using WHILE loop)
```

```
COUNT=1
WHILE COUNT<=VALUE
00
PRINT(COUNT)
COUNT=COUNT+1
00
```

```
; *** | ***
```

```
PRINT(Now using DO ... UNTIL loop)
```

```
COUNT=1
00
PRINT(COUNT)
COUNT=COUNT+1
UNTIL COUNT=VALUE
00
```

```
RETURN ;end of program
```

time to calculate – and besides, most programs simply don't use them.

If you do need to use real numbers then a floating point package is available as a set of procedures to include within your programs.

Variables may be defined as BYTE (a value between 0 and 255), WORD (two bytes, a value between 0 and 65535) and INT (two bytes again, but also allowing for negative numbers, -32768 to +32767).

It is also possible to set up arrays of any of these types, or indeed arrays of arrays. A string is defined as an array of characters – or an array of BYTES to be more accurate.

One of the most powerful features of the Action! language is that variables may be set to point to any location in memory.

You could, for example, define the variable BACKGROUND to be stored at memory location 714, the background colour register. This would be achieved very simply with:

BYTE BACKGROUND = 710

Programs are mainly made up of loops and conditional statements. These are the equivalent of Basic's

FOR ... NEXT and IF ... THEN commands, but you have a lot more flexibility in Action!

Loops may be controlled by the FOR ... NEXT, WHILE and UNTIL statements. Conditional operations are likewise improved with the fundamental IF ... THEN being supplemented by ELSE and ELSEIF. All of these control operations are demonstrated by Program 11.

It is interesting to note that there is no direct equivalent to the GOTO statement since all flow control is handled by loops and procedures. This encourages you to write good, readable software.

If you compare the listing in Program 11 with a normal Basic program you will probably find the former much easier to read and understand, even though you have probably never seen the language before.

The real power of Action! comes in everyday usage. Things which were complex and unwieldy in Basic can be accomplished with ease and speed in an environment which also encourages you to explore the system's potential in ways that Basic's PDOS and FORGE prevent.

So powerful is the language that many commercial programs have been written in it – the obvious example being Home Pat, the integrated word processor, database and communications package.

The Action! editor is so flexible and simple to use that it has been used as the core of a number of word processors.

In short, Action! is probably the nearest thing to a perfect programming environment that you are likely to find on the 8 bit Atari, though it is perhaps a little pricey for the pocket money programmer.

It is extremely fast, yet simple to learn and use for everyday applications – though complete mastery will obviously take a little time.

In fact, it is probably a better second language for the advanced Basic programmer than machine code.

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KYAN Pascal from Kyan Software gives you a full Pascal compiler and programming environment which could easily replace Basic as the main language on the 8-bit Atari.

This implementation of the famous language opens a wide new world to the Atari programmer. Complex data structures, recursion and a host of powerful commands provide you with capabilities Basic could never hope to match.

Pascal was written by Kathleen Jensen and Niklaus Wirth of the Institut für Informatik in Zurich and was named after the 17th century mathematician Blaise Pascal.

It was first published in 1971 and then ran only on the Control Data 6000 series of computers, the most powerful of their day.

Jensen and Wirth had as their goal the creation of a new structured general purpose language that would be ideal to teach the concepts of programming as well as suitable for use in commercial software houses.

A structured language, Pascal allows the programmer to write his code in separate building blocks that can be linked together to accomplish a set task. Because of this approach, Pascal programs are also self-documenting.

Anyone knowledgeable in the lan-

A language that offers far more than bare Basic

JOHN ALSBROOKS reviews **Kyan Pascal**, a package that enables Atari users to greatly broaden their scope

considerably more powerful in that they allow the use of local variables and recursion.

Local variables have meaning only within a procedure or function, unlike Basic where all variables are global and so can be used anywhere in the code.

Recursion is the ability for a subroutine to call itself repeatedly — a valuable ability in many mathematical problems. Pascal excels at this as its

IF-THEN-ELSE-WHILE, CASE, REPEAT and FOR-TO and the option to define variables and records beyond the character string options of Atari Basic, poor old Basic seems hopelessly limited.

As an example of Kyan Pascal, Program 1 is a solution to the famous Towers of Hanoi puzzle:

What exactly do you get when you buy a copy of Kyan Pascal? First of all, you get a standard Pascal, not some unique dialect.

This means that any programs you write, with the exception of those that make use of sound or graphics, should run on any other Pascal system: from micro to mainframe.

Perhaps more importantly, the fact that Kyan has produced a package that conforms to the International Standards Organization (ISO) standard for Pascal means that the vast amount of Pascal code already in existence can be used on your Atari with little or no modification.

You also get a complete Pascal environment, including compiler, editor and macro assembler.

The editor is a very capable part of the package. All the standard cursor controls used in Basic will apply, along with the addition of control codes to allow search and replace, cut and paste and full file manipulation.

If, however, you prefer AtariWriter or some other word processor, you may wish your code on that system for compilation later.

At the heart of Kyan Pascal are the Pascal compiler and the 8800 assembler. The former takes the Pascal source code you write and produces assembly language source

```

program Hanoi (input, output);
  {Algorithmically solves the towers of Hanoi problem. Moves disks
   from A to C.}

  var Height: integer; {Hanoi variables will be defined}

  procedure Move (Height: integer; FromPeg, ToPeg, UsingPeg: char); {More
    variable definitions}
    {Recursive procedure for determining moves.}
    begin
      if Height = 1
      then write('Move a disk from ', FromPeg, ' to ', ToPeg)
        with height
        else Move (Height-1, FromPeg, UsingPeg, ToPeg);
        write(' Move a disk from ', FromPeg, ' to ', ToPeg);
        Move (Height-1, UsingPeg, ToPeg, FromPeg);
        end {Move}
    end; {Hanoi}

  begin {Main Program}
    write('How many disks are you going to start with?');
    readln (Height);
    Move (Height, 'A', 'C', 'B')
  end; {Hanoi}
  
```

Program 1: Kyan Pascal listing

guage should be able to pick up a piece of code and understand what is going on relatively quickly. And the compartmentalisation of tasks reduces the likelihood of changes to one section of code adversely affecting another.

The two keys to Pascal's building block approach are procedures and functions. Both are roughly analogous to the subroutine in Atari Basic but are

use of local variables allows it to keep track of how deeply it is layered on itself.

By defining your own procedures and functions, you can tailor the language to your specific applications and at the same time build a library of functions and procedures for use in other projects.

When you have Pascal's powerful program control statements such as

Keywords: child sexual abuse; disclosure; social support; coping strategies

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Figure 1



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2.1.1. *Pharmaceuticals*

[illegible]

FRUITS!

By
DAVID WHITE



FRUIT machine programs will never be the same again once you've seen Fruits. With graphics which would put many an arcade fruit machine to shame, this month's type-in game will let you gamble your time away, but still leave the contents of your wallet intact.

Using an impressively redesigned character set, Fruits turns your 8 bit Atari into a one armed bandit complete with sound effects, wedge

control, smooth scrolling windows and a separate score screen.

Type in Listing 1. If you use a cassette for storage, then make the changes given in Listing 2 making sure to delete line 2000. Be sure to save the program in disc or tape before you run it.

Now place a newly formatted disc in the drive or blank cassette in cassette deck and RUN Fruits. An auto-run version will be placed on the

disc or cassette. It will take about 10 minutes to complete, then the normal Ready message will appear on the screen.

If you get an error message, check the offending line. An error message in line 32750 means that you will have to check the DATA statements carefully.

You can now run Fruits by placing the disc in the drive or tape in the cassette deck and booting your computer without Basic.

If you have any problems typing in Fruits, you can check it using our checksum program Get it Right! which was last published in the August 1986 issue of Atari User. Alternatively you can download Fruits from Mosaic.

Happy gambling!



Listing 1

```

10 DIM S(20)
20 DIM B(20)
30 DIM C(20)
40 DIM D(20)
50 DIM E(20)
60 DIM F(20)
70 DIM G(20)
80 DIM H(20)
90 DIM I(20)
100 DIM J(20)
110 DIM K(20)
120 DIM L(20)
130 DIM M(20)
140 DIM N(20)
150 DIM O(20)
160 DIM P(20)
170 DIM Q(20)
180 DIM R(20)
190 DIM S(20)
200 DIM T(20)
210 DIM U(20)
220 DIM V(20)
230 DIM W(20)
240 DIM X(20)
250 DIM Y(20)
260 DIM Z(20)
270 DIM AA(20)
280 DIM AB(20)
290 DIM AC(20)
300 DIM AD(20)
310 DIM AE(20)
320 DIM AF(20)
330 DIM AG(20)
340 DIM AH(20)
350 DIM AI(20)
360 DIM AJ(20)
370 DIM AK(20)
380 DIM AL(20)
390 DIM AM(20)
400 DIM AN(20)
410 DIM AO(20)
420 DIM AP(20)
430 DIM AQ(20)
440 DIM AR(20)
450 DIM AS(20)
460 DIM AT(20)
470 DIM AU(20)
480 DIM AV(20)
490 DIM AW(20)
500 DIM AX(20)
510 DIM AY(20)
520 DIM AZ(20)
530 DIM BA(20)
540 DIM BB(20)
550 DIM BC(20)
560 DIM BD(20)
570 DIM BE(20)
580 DIM BF(20)
590 DIM BG(20)
600 DIM BH(20)
610 DIM BI(20)
620 DIM BJ(20)
630 DIM BK(20)
640 DIM BL(20)
650 DIM BM(20)
660 DIM BN(20)
670 DIM BO(20)
680 DIM BP(20)
690 DIM BQ(20)
700 DIM BR(20)
710 DIM BS(20)
720 DIM BT(20)
730 DIM BU(20)
740 DIM BV(20)
750 DIM BW(20)
760 DIM BX(20)
770 DIM BY(20)
780 DIM BZ(20)
790 DIM CA(20)
800 DIM CB(20)
810 DIM CC(20)
820 DIM CD(20)
830 DIM CE(20)
840 DIM CF(20)
850 DIM CG(20)
860 DIM CH(20)
870 DIM CI(20)
880 DIM CJ(20)
890 DIM CK(20)
900 DIM CL(20)
910 DIM CM(20)
920 DIM CN(20)
930 DIM CO(20)
940 DIM CP(20)
950 DIM CQ(20)
960 DIM CR(20)
970 DIM CS(20)
980 DIM CT(20)
990 DIM CU(20)
1000 DIM CV(20)
1010 DIM CW(20)
1020 DIM CX(20)
1030 DIM CY(20)
1040 DIM CZ(20)
1050 DIM DA(20)
1060 DIM DB(20)
1070 DIM DC(20)
1080 DIM DD(20)
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1100 DIM DF(20)
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1120 DIM DH(20)
1130 DIM DI(20)
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1160 DIM DL(20)
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1180 DIM DN(20)
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1200 DIM DP(20)
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1220 DIM DR(20)
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1250 DIM DU(20)
1260 DIM DV(20)
1270 DIM DW(20)
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5250 DIM TE(20)
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5760 DIM VE(20)
5770 DIM VF(20)
5780 DIM VG(20)
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	100	250	500	1000
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	100	250	500	1000
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A WINNER ALL THE WAY...

I AM writing to let you and other Atari users know about my experience recently when I bought a new Atari setup as a result of a nice little win on the pools (nothing dramatic, but enough to go to an Atari supplier and say "one of them, two of them, two of them, one of them" and so on). A very nice feeling indeed.

I decided to stick with 8 bits for a variety of reasons, so the order was for a 1200X, two disc drives, 1027 printer, 1020 plotter, a touch tablet and various other bits and bobs.

According to the advertisements in your magazine, this amounted to around £800 worth.

Acting on advice from a colleague who got a discount (discount for cash on a BBC printer, I think) around the four Atari suppliers within a reasonable range of Sheffield asking for a quote for the lot paid for with cash.

Two suppliers made terrible offers and one actually jacked up the price by £70 and offered me a discount which brought the price back to the original. I don't know who they were kidding?

However, there was a firm which made me an offer which I could not refuse.

So it came to pass that I got the setup. The day after I collected it I sat down and started to use it. After about two hours one of the disc drives and the 1027 broke

down.

Naturally I got in touch with the suppliers at once, with the result that they swapped them straight away, no problems. They were friendly people to deal with and even apologised for my inconvenience - I was impressed.

I therefore nominate Component of Loughborough for a Por On The Head award. - J.E. Colley, Sheffield.

Technical queries

COULD you help me in trying to interface a non-Atari printer to an 800XL?

The printer has a serial interface, but during my investigations it appears that the computer is sending out some data and expects a reply from the printer. When it doesn't get one it aborts with a timeout error. What am I doing wrong?

Also, could you tell me the prices and a source of supply for the Atari technical manuals and plugs to fit the serial port. I have a fairly good knowledge of

computer systems and electronics generally. - J. Connolly, Redcar.

■ You need to use an RS232 interface to run your printer, the best being the Atari 850 module, though you might find others that work. The Atari serial port is an internal standard running at 19,200 baud with its own protocol and command frame system.

You would need to be an expert machine code programmer to alter this and it would be far easier to use an 850 anyway.

Don't forget that you would also need to check your software is capable of sending to RS232 rather than the P. printer port. SuperScript does this, but not AtariWriter for example.

Your own home grown software could be easily made to use either port, of course.

Manual dexterity

I HAVE recently purchased an 800XL, but have found the manuals to be far from helpful. I was searching *AtariTech*, *Pinball* and *Green's Atari Basic* book from my local library, when I discovered Atari User.

It is a very good magazine, but I am having problems with the Santa's Ghosts game in the December 1989 issue. I keep getting an error 3 at line 20710, but line 20710 seems to be correctly typed in. Can you help? - T.B. Pottle, Gosport.

■ Error 3 simply means that a number the computer has come across is outside the range it expects. In this case it is most likely that the variable CHBASE is the

guilty party, being either too large or too small.

After the error has occurred, try typing PRINT CHBASE, which should give a positive number no greater than 65535. In actual fact, it will be within a much smaller range.

Since CHBASE is calculated from another variable, RAMTOP, the problem might lie in line 20050 which sets up RAMTOP in the first place. Don't forget to use *Get It Right!* to check the lines before you run the program.

Loading errors

I HAVE been unsuccessful in loading *Pandora Manager*. I keep getting errors M0 and M1. I would be grateful if you could explain these errors and advise me on the correct way to solve them. - P.E. Maloney, Preston.

■ These are known as checksum errors and occur because data from the tape has been corrupted before it reaches the machine. This may be caused by a bad tape, or a fault in the recorder or the computer.

When a tape is recorded, each block of 128 characters is followed by a special extra digit which is basically a total of all the character numbers preceding it.

When loading the tape back in again, the computer does the same additions on the data bytes as they come in and checks the new value off against the one from the tape.

In much the same way as our *Get It Right!* checksum, the computer can then tell if the data it has loaded was

8 bit interfacing

I WOULD like to congratulate you on your articles on interfacing the 8 bit Atari computers.

I am interested in interfacing such machines and require information on the bus connections on the XL machines. Unfortunately I have been unable to find such data anywhere.

Do you know of any books which contain this information and where could I

obtain them? - Steven Thomas, Nottingham.

■ The connections you require are listed in the revised edition of *Mapping the Atari*, from Computer Books, but from then on you will need a good technical knowledge of electronics to proceed.

Perhaps Atari will soon see fit to update its excellent Technical User notes to cover the XL and XE.

the same as that originally used. If any discrepancies occur, the computer will signal an error — normally a 140 or a 141 — and stop the load.

Exploring possibilities

FOR the past 12 months my son has had an Atari 800XL. He has only used the machine for games up until now, only occasionally trying other features.

I now think it is time to explore the possibilities of the computer, the graphics and writing simple programs and so on.

If you could pass on any advice on this we would be very grateful. And if you have the name of any book we could buy which defines all the computer jargon this too would be very helpful.

Do you advise us to get a disc drive or stay with cassette tape? — David and Michael Rame, Mowley.

■ For now a tape will suffice, though a disc is much faster and more reliable. If he takes to programming, he will very quickly find that waiting for a tape to load or save is very frustrating indeed.

We often run articles in *Atari User* helping new users to find their way around the machine and you will certainly find many of the features and series in our first few issues of benefit. Why not order some from our back issue department?

Increasing word power

I RECENTLY visited the Christmas Atari User show and whilst there I purchased an Atari 1320 dot matrix printer and a copy of AtariWriter Plus for my 800XL.

I had not used a word processing program before, but I found it really quite

ATARI USER Mailbag

We welcome letters from readers — about your experiences using the Atari series, 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:

Mailbag Editor
Atari User
Europe House
88 Chester Road
Hazel Grove
Stokeport SK7 5NY

easy to use. This letter is my first full length attempt at using the program and I have found it and the manual to be excellent. My only complaint is that there are only two print modes available — normal and double width.

Would it be possible to review some of the other word processing packages for the 8 bit range? — Mark Smith, Rochard, Kent.

■ We have covered some other word processor packages in previous issues — notably the SuperScript program in the March 1988 issue.

80 column cartridges

I MUCH appreciate it if you could tell me of a way I could have 80 column text with my AtariWriter cartridge word processor. I use my 800XL for translations for the Ministry of Foreign Affairs of Greece.

I own an LX-80 Epson printer, 1050 disc drive and a HiStarline Boxer monitor. Although I also have Letter Perfect I find the cartridge based word processor is extremely easy to use and a perfect partner for my work.

The only problem is that with 40 columns I have to produce my documents and make corrections at the cost of valuable time. — J.M.D. Menthakis, Athens, Greece.

■ The answer is simple — you will soon be able to purchase an update of AtariWriter, called AtariWriter 80, which will work with the new XEP-80 80 column module. Until then you're stuck with 40 columns I'm afraid.

Getting It Right!

I HAVE just purchased my first copy of Atari User. I have been looking for such a magazine for over a year and find it very informative.

Please could you tell me how I can operate Get It Right! as it is an obvious boon when typing in programs. At the moment the list of numbers don't mean a thing to me. — G.E. Becker, Sacramento, Texas.

■ The instructions for our diskview program (Get It Right!) can be found in the August 1986 issue of Atari User which can be ordered using the form on Page 52.

Software compatibility

FIRST I would like to compliment you on such a great magazine which I have been reading even though I got rid of my 800XL some time ago.

I am now considering a 1320XL. Could you please tell me if there are any compatibility problems with games for the 800XL? — L.P. Arnold, Littlehampton, Sussex.

■ The 1320XL is really just an 800XL with an extra 64k of memory available. This means that you should have no problems at all with software compatibility between the XL and the 800, although you will still have the same problems as you had with the XL in running some of the older software written for the 400 and 800 machines.

Keyboard inputting

I OWN an Atari 800XL and wondered if cartridges for the earlier 400 and 800 are compatible with it. Also could you tell me how to get input without the user having to press Return? — Neil Evans, Avon.

■ You can use most 400/800 cartridges with the XL and 800 machines, but some badly written code will not work properly. This applies as much to tape and disc software as it does to cartridge, so it's always best to check first. That said, the vast majority of software works fine with the XL.

You can get input from the keyboard without requiring the user to press Return by side-stepping the normal INPUT routine.

Use instead the GET command which gets a single character, and build up from there. Don't forget to OPEN a channel to the keyboard first, with:

OPEN #1,0,"R".

For example, to get five characters from the keyboard and place them directly into a string, use:

```
10 OPEN #1,0,"R"  
20 DIM TEXT(5);TEXT=""  
30 FOR CHAR=1 TO 5  
40 GET #1,TYPE  
50 TEXT(CHAR)=CHR$(TYPE)  
60 NEXT CHAR
```

You could always test **BYTE** each time in case it was 155 — the code for Return — after which you could drop out of the loop since the user did not want to enter all five characters.

If you wanted the user to enter a number follow the same procedure and take the **VAL** of the string at the end — for example:

TO NUMBER = VAL(TEXT)

Silicon Dream & Jewels of Darkness

I BOUGHT Rainbird's *Silicon Dreams* and *Jewels of Darkness* microg at the recent Atari User show, but can't get them working.

I have a 486 Atari 400, **PS&G/286** returns 160 and I have no trouble running other disk software.

I am get to the menu and loading message on both disks, but after the disk is finished I get a black screen full of colourful garbage. I have removed the basic cartridge and all unnecessary peripherals.

In desperation I visited Rainbird and they were most helpful. They managed to run the discs on a 1300C and told me that they had been successfully tested on an expanded 400. Might my expansion board be at fault? — **RUSL Gilman, Tipton, Essex.**

■ According to Rainbird's technical department, your problem lies with the fact that the program needs at least 64k to run.

Recorder diagnostics

RECENTLY my 1810 data recorder has not been loading my original computer games. I was wondering if a

YOUR HINTS AND TIPS

MEDMATOR

PLEASE could anyone tell me how to get past the first screen of English Software's *Mediator*?

I have tried bombing the city and landing in various places, but I always get killed. I am on the verge of throwing the disc out of the window! — **Brian, Belgium.**

■ Help is at hand from Ben Park of London 5827, who has written in to tell us that you have to land your craft on the pad between the two columns at Kyles and Pholes.

BOUNTY BOB

OVERLOAD the cannon in level 22. When the last corner down, press F then move your man over a platform and press F again. An action screen will appear which will allow you to move to the level of your choice. — **Adam Marshall, Penrith.**

MERCENARY — THE SECOND CITY

If you realised that the Cheese in *Mercenary* was a fast spaceship, then you might be wondering what

has happened to it in *The Second City*.

Fear not, it hasn't gone at all, it's simply changed into a table, which can be found in the Polybar briefing room. You can then use the ship to get the reaction fuel, which is above the victory crib. — **Mark Wilson, Angelsey.**

SPELLBOUND

I HAVE been playing *Spellbound* for days and days and I am absolutely stuck. Can anyone help me get past the tower, the wall and the gas room. — **Andy Roberts, Little Sutton, South Wirral.**

Our thanks to Ben Halligan for this banger bundle of tips.

MERCENARY

FIND the aerial and take it to the broken communications room in the underground complex near the hangar at 09-06.

You will be offered an intergalactic craft and if you buy it a rendezvous will be arranged. There is a tank in the warehouse at location 87-26 which may prove helpful.

gradually wear off the backing material after hundreds of passes through the recorder.

Check there out on a known good tape recorder before parting with your hard earned cash for a new unit.

Keeping in touch

On reading *Atari User* I am surprised in that a large number of advertisers do not have Email, MicroLink, Telexnet (dial) or telex numbers.

To me, a fairly new user, I feel a software and hardware supplier who does not

RESCUE ON FRACULUS

If an alien boards your ship, put the boosters on immediately, try to shoot the alien but turn all systems on.

Put back on your joystick. The ship's instruments will go haywire, but if you have enough power you might make it into space where the alien will die.

DROPZONE

PICK up all the men and deposit them at the base. Keep the last one and go and kill the enemy. If you are killed, collect the man immediately because he prevents you from being killed by the valences.

ZORRO

DO you keep parting low in the caves? Always take the nearest exit after collecting the bags of money. When you get to the screen with three flashing icons, go through the top left one and push the barrels in the wine cellar. Then go back, past the lions and up.

use or is not linked to this new exciting way to communicate is doing a disservice to the micro computer business.

After all, the more users of the system, the more they will use. But if they do not use the technology themselves how can they convince people like me to use it?

I would often like to send for literature via Email rather than by phone. The micro shops are also badly set up to market this product.

In Edinburgh I went round all the shops to see a demonstration of MicroLink, Faxnet or Telexnet Gold, but it was on my third visit to

one shop before they had the system up and running, I would be interested to know if others feel as I do. — Tom Stark, Edinburgh.

● Tom sent this message via MicroLink. Don't forget that as well as the usual Atari User postal address, we can be contacted on MicroLink and Telecom Gold at 72/MAG0001 and on Prestel at 80488000.

And don't forget to mark your email "For the attention of Atari User".

You can even send us your articles by email, as do most of our regular contributors. The whole editorial team of Atari User use MicroLink to send complete features straight from our word processors at home into the office computers — which are linked direct to the typesetting machines.

We write everything on the ST and can thus send our material straight in for typesetting without a single mistake occurring — well, that's the theory, anyway.

Ribbon recycling

OUR apologies to anyone who wishes to contact *AtariLink* about their printer ribbon recycling service. The address which we gave for them in the January 1987 issue of Atari User was incorrect: it is in fact 4 Harker Crescent, Eymouth, Berkshire TD14 6AR.

Trak-ball or joystick?

I HAVE been a joystick addict for about four years but on a Christmas present I was given a trak-ball which I prefer for most games.

The only problem is I do not know which games will run in trak-ball mode. Could you give me a list of games which will.

Also, could you give me a short routine which would allow me to read the trak-

ball from Basic? — Richard Taylor, Peasewick.

● The only game which has a specific trak-ball mode — as opposed to those which can use the trak-ball in the joystick simulator mode — is Missile Command. This is a shame, as such games as Centipede would be great in the trak-ball mode.

You can read the trak-ball in the same way as a joystick — by using the STICK and STICK0 commands. For the first joystick, STICK0 will return the direction value, and STICK1 will tell you if either of the buttons have been pressed.

If STICK0 returns a zero then the button has been pressed and a one indicates no action.

You can work out the direction from the following table:

Value returned	Direction
14	UP
13	DOWN
11	LEFT
7	RIGHT
10	UP/LEFT
8	UP/RIGHT
9	DOWN/LEFT
5	DOWN/RIGHT
15	NO MOVEMENT

Revised opinion

I HAVE a 80800, with revision B Basic and the guarantee has expired. I have been trying to buy a revision C cartridge for some time without success. Could you please tell me where I might purchase one and the cost of it?

I have typed in Data from the January 1986 issue of Atari User and have used Get It Right! to check it. Everything seems OK and a friend has also checked it for me, but I keep getting an error 8 at line 8. Is this something to do with revision B Basic?

Also, is there any way I can stop Get It Right! from changing colours other than by using Control? The last line of checksum also disappears too quickly for

me to check it. — S-B, Ranges, Hastings.

● For a Rev. C cartridge, try Billie Shop or Software Express — they cost about £9.95.

The error 8 could well be caused by the Rev. B problem, as 8080 is one of the commands that shows up the bugs.

If you want to stop Get It Right! from cycling through the colours, simply add line 101 as:

101 POKE 71,0

The last line will not disappear if you haven't pressed any keys since the current checksum was started — assuming you are using the updated August 1986 version, of course.

Loading cassettes

I HAVE recently bought a 1080 disc drive and an Atari 800XL. Is it possible to use a normal cassette recorder to load cassette games, or must I buy the special Atari disc recorder?

Also, could you tell me how to use the COLOR command in different graphics modes? I have tried using this command in various modes, but it doesn't seem to display the number of colour mentioned in the manual.

For example, the manual says that mode 8 should have only one colour, but the COLOR command displays 16! How does the 8000000 command work, as it is not very well explained in the manual?

Lastly, is it possible to have more than one graphics mode on the screen at the same time? — Francis Smeves, Alcester.

● Firstly, you will indeed need an Atari recorder for use with your computer, or a special adapter which is nearly the same price anyway.

The COLOR and SET-COLOR commands in Atari Basic are quite powerful. In mode 8 you have only one

PEN PALS

Jim, Thompsons, Direct, Inc, Peristerous S, Kato Alamos 12877, Athens. Direct would like to hear from English pen pals. And Fred Swannell, 109 Alton Drive, Scarborough PD, Canada M9W 2T1 is especially interested in hearing from Dutch Atari owners.

colour available, but 18 brightness levels. Thus, COLOR specifies the various brightness scales in this particular case.

For more information on mixing graphics modes see our series on Display Lists in the July to December 1986 issues.

Mercenary compendium

I AM interested in your special reader offer in the February 1987 Atari User for the complete Mercenary compendium, but the "trialable for" box states Atari 800XL.

The question is will Mercenary run on my old Atari 800 — something I would like to know before I order a compendium from you. — Peter Souther.

● There are two versions of Mercenary which come on the disc or tape. One is for 486 machines, and will therefore work fine on your 800, and one is an enlarged version which has extra features and operates in 64k.

MicroLink

ALL program listings in Atari User are now available for free downloading on MicroLink, the UK's fastest growing electronic mail service. They join hundreds of programs already available on Britain's national on-line database.

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