

ATARI USER

Vol. 4 No. 2

June 1988

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How to conquer evil
monsters in the caves of
EIDOLON

GO
clay
pigeon
shootin'



CONVERT
HFM files
to Ascii

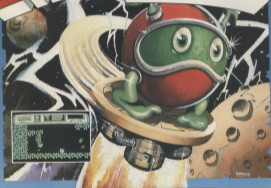
CREATE
autorun
discs

REVIEWED THIS MONTH

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Starquake



In this delightful game you control BUBB, the Biologically-Operated Being, navigating him through 800 action-packed screens to rebuff the unstable planet's cans.

'Bubble Bus' Starquake is one of the biggest-selling games for home micros, due to its incredibly-addictive gameplay and cleverly-animated graphics. It has received

such accolades as Game of the Month in Computer and Video Games, and was awarded a Crash Smash.

● What reviewer Bob Chappell said about the Atari version:

'Starquake is top-notch fun . . . quality dripping from every byte'

Don't miss out on this tremendous offer - \$3 in the coupon on Page 53 without delay

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Get it right! II

All major listings in this issue are accompanied by checkmarks to help overcome typing mistakes. For full details of how they work, see the article on page 23 of the November 1987 issue of Atari User.



Add TEN new commands to Atari Basic with this latest package from Atari User.

SEE PAGE 32

Link your Atari to the outside world with...

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Learn how to break the bank

THE odds on breaking the bank at Monte Carlo are looking up — games specialist CDG Software is on the verge of releasing Casino Roulette for the Atari.

The game caters for up to eight players, with the computer handling the chores of wheel spinning and table raking — all players have to do is place their bets.

CDG (0202 27194) has also added features to help would-be system testers.

A statistical analysis is maintained of the fall of the ball on each of the 37 wheel numbers over the last 300 spins, and the instructions include half a dozen established betting systems for players to experiment with.

Price £9.99 cassette, £14.99 disc.

Bond's back

THE classic 1973 James Bond film *Live and Let Die* has re-emerged on the Atari.

A spokesman for Dornak (01-842 9023) — whose earlier movie titles include *A View to a Kill* and *The Living Daylights* — promises that the game is a winner.

Price £3.95 on cassette, £12.95 on disc.



Show attracts record crowds

A RECORD turnout for the latest Atari User Show saw more than 17,000 visitors converge on Alexandra Palace over the three days.

This was by far the best attendance since the series started and was double that of the previous event held at the Royal Albert Hall.

Such was the demand from Atari users that organisers Database decided to extend the final day by an hour to avoid disappointing latecomers still queuing outside.

All 70 exhibitors reported business as being at an all time high, with many having to send back daily for additional stock.

Yet the real bonanza was for the visitors who were soon appalled for the delays experienced in getting in by the bargain

awaiting them. Scheffelder George Roberts saved the equivalent of his return fare to Glasgow within half an hour of entering the Great Hall.

"I must now be the best kitted out Atari 8 bit user in the country", he said. "My wife thought I was mad when I told her I was travelling all that way to a computer show. It will give me great pleasure to make her eat her words".

Even organisers Database Exhibitions admitted to being surprised by the overwhelming response.

"It could only be described as fantastic", said Michael Meakin of Database. "This has now firmly established the show as one of the premier exhibitions in the machine specific market."

Guide to top Atari gear

THE fans every Atari 8 bit owner has been waiting for has arrived on the scene. A definitive guide to all the best software and hardware available has been published — and it's free.

Atari specialist retailer Slice Shop is behind the 80-page catalogue which took six months to compile and covers every possible category — cassette, cartridge and disc, home, business and education.

Slice Shop spokesman Tony Deane said: "The publication grew out of widespread consumer opinion that the Atari 8 bit market was not being supported.

"The typical end user has been feeling unloved for a long time — this is our attempt to put matters right".

Issued free with this month's Atari User, the guide contains 30 pages of XL and XE products — plus a special 8-page section on XE rom cartridges.

Also included is a comprehensive 4-page list of peripherals and accessories such as modems, monitors, printers, joysticks and controllers as well as books and manuals. The accompanying 16-page price list contains 1,200 items.

Jackpot for Atari adventurers

ADVENTURE games fans are going to be the perfect as a result of a new joint agreement.

Mander's Software, the exclusive new entertainment software house, has joined forces with the renowned Level 9 programming team.

And the end product is the

release of the acclaimed *Time & Magic* trilogy for the Atari 8 bit market.

The text-only adventure encompasses three award-winning titles from Level 9 — *Lords of Time*, *Red Magic* and *Prince of Magic*. Price £14.95.

Also coming soon under the Mander's label from

Level 9 will be a game set in the Middle Ages, codenamed *Caracol*.

And in addition to enjoying the adventure for its own sake, players will be able to take part in a real time race for a silver "grog" worth £2,000 to the finish.

The news of both titles was announced at the offi-

cial launch of Mander's Software held recently in London.

"Lancelot is a new concept in adventures", said Chris Payne of Mander's.

We added: "And with Level 9 arguably the world's leading adventure games company, Atari users have a treat in store".

THE LATEST AND



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Can you shoot the Framboids through the moving goalposts while piloting your Rocketeer car and or two players.



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You have to rescue your friends from Fractalus - but the evil egg aren't going to make it easy.



TWILIGHT WORLD, CASSETTE \$4.99 1988
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Atari have always had the greatest arcade games in the galaxy, now they're adding even more winners to the collection. From the high speed skills of handling a WW1 biplane, to the brain-aching Archon battle of wits. Whether

you're landing the punches with Fight Night or using the awesome power of Thunderfox to blast the enemy, Atari give you the best combination of graphics speed and skill this side of Alpha Centauri.

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THUNDERFOX CASSETTE, £4.99 Atari 800XL
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COMPILATION CASSETTE, £4.99 Atari 800XL
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 Break on Powerline £14.99 Fight Night £14.99 Blue Max £14.99
 Twilight World £4.99 Thunderfox £4.99 Compilation £4.99

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Name (individuals only) _____

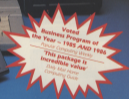
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It doesn't take long for a new disc drive owner to discover Dos 3.3's Autoran.SYS facility. As its name suggests, it is a disc file which automatically loads and runs when the computer is switched on.

Without going into the technicalities — they were covered in detail in Alan User by Len Colodig in April and May last year — an Autoran.SYS file can be any renamed machine code program which runs from the Dos 3.3 menu option L.

Unfortunately, if you are a Basic programmer like most of us, you can't take advantage of the facility because the Autoran file must consist of binary code, and simply renaming a Basic program will not work.

This is where Load'n'Run comes in. It allows you to create a machine code Autoran.SYS file which will run a specified Basic program. Before you can use Load'n'Run you must type in Program 1, making sure you correct any typing errors with Get it Right!

Apart from a few control characters — see the typing hints in the February 1988 issue of Alan User — the listing is quite straightforward, except for the horrendous machine code string in line 818.

If you feel brave you can try typing it straight from the listing, but we recommend you start by entering and running Program 2 to create the file as a disc file in Basic LIST format. To read it from disc, type NEW then ENTER "D:\BASIN\LIST". Type LIST to verify that the file is in memory and then type in the rest of Program 1.

When the program is first run you are prompted to enter the set of commands you want to be made into an AUTORAN.SYS file. Just enter the file exactly as you would in Basic — remembering to separate individual commands with a colon.

For instance, there is nothing to stop you displaying an eye-catching welcome message on the screen while

Getting Basic on the run



MICK RANDLE takes the toil out of auto-running your discs

your Basic program is loading. Just type in a command line at the prompt like this:

```
MAPPLE TO POSITION 1,0 PRINT "WELCOME TO THE WORLD OF PROGRAMS"
```

You can even use wildcards in the disc filename. The following will print a message, flash the screen and run the first Basic program on the disc:

```
MAPPLE TO POSITION 1,0 PRINT "WELCOME TO THE WORLD OF PROGRAMS"
PRINT "*****"
PRINT "*****"
```

The only restriction is that your command line is limited to 120 characters. The last example (just about) fits it, but you can squeeze more in by using standard Basic abbreviations like ? instead of PRINT and POS. Instead of POSITION, if you

make a mistake or change your mind as you type your command line, you can edit it using the Delete key to erase previous characters.

Load'n'Run operates by adding your commands to a machine code Autoran file which patches into the Basic editor so that Basic thinks it is waiting for you to type in your commands. Instead, the Autoran program sends your Load'n'Run command line, which Basic duly executes.

Finally, the editor is restored to return control to the keyboard, and the Basic program is loaded and executed.

There are two things to remember when you use Load'n'Run. The Autoran file loads into Page 8, but as its sole function is to execute your loading commands, you may do anything you like with that memory after your Basic program has loaded. Just remember not to alter it with your Load'n'Run command line.

The second point is much more important. There can only be one Autoran program on a disc, so any existing Autoran.SYS file will be erased and replaced by the new one. If you want to keep the old file, copy it to another disc before using Load'n'Run.

So that's how you can autoran a Basic program easily from your disc. A useful application for this is to write a disc menu routine that displays a disc directory and then allows you to load programs with a single key press.

PROGRAM VARIABLES

BINARY CODES	Contains the Autoran machine code file
	Contains Load'n'Run command line which is merged with BASIC
COL	Screen column position of cursor
COUNT	Number of characters in command line
DATA	Value read from data statement
?	Keyboard status
!!	Console key status — Start, Option and so on
KEY	ASCII value of keyboard input
Q	General purpose variable
ROW	Screen row of cursor



4 From Page 52

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Listing 8: Generator for Sep 86

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LINE	COACH	LINE	COACH	LINE	COACH
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6	200	200	200	200	200
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96	200	200	200	200	200
97	200	200	200	200	200
98	200	200	200	200	200
99	200	200	200	200	200
100	200	200	200	200	200

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Mind your language...

RUTH JAMES assesses four cassette-based Eurospeak courses for the Atari

WITH the holiday season upon us panic looms in houses up and down the land. The hotel is booked, so is the flight and Mrs Smith at number 28 is going to look after the goldfish for the fortnight you're away.

But you're just remembered something: You can just about manage to speak the foreign language, never mind any other.

Fear not, help is at hand in the shape of Langman's Conversational French, German, Italian and Spanish language tutorials. They're comprehensively written programs for any Atari home computer owner with a cassette deck. Recommended for use by people 14 years old or over – and it doesn't matter how much over you are – who want to learn a language from scratch.

Each course is split into 10 units spread over five cassettes. Each tape contains several basic programs as well as the necessary audio material to help you understand pronunciation and accents.

As well as the cassettes you are provided with a very informative course booklet which explains every detail of the individual units you are working on. Each one is split into two or three learning phases which can be categorised as study, practice and

activities. There is also a grammar and vocabulary summary after each.

The best way to describe the course is to explain each unit individually. I'll use French as an example, as this is the language I am most fluent with – although I have a working knowledge of them all. So, here we go:

About you

The first section deals with telling you how to greet people, introduce yourself, state your nationality and so on.

All sections are accompanied by a drawing of a man or woman who talks to you. Words or phrases are displayed on screen as they are played or spoken through the TV speaker.

This is a very useful feature as it enables you to see what a word looks like as well as what it sounds like. You can repeat the word and thus develop your accent.

There are a variety of exercises ranging from the straight repeating of words to think, choose and repeat where you have to select the correct answer from a choice of two. You can even listen to a conversation between two people then answer questions

about the subject they discussed. While all this is going on various graphics are displayed to add to the mood. For example, a TV set and sofa is drawn with two sticks people sitting down as different questions about the surroundings are asked.

The most demanding section is the reading up sentences exercise where you choose one word or phrase from each of four lists. The end sentence must make sense and be grammatically correct.

A correct answer is rewarded with a fanfare and sometimes, a trip plan. A wrong answer gains you what can only be called a computerised raspberry.

Don't worry if you don't grasp an exercise straight away because you're given the option to repeat it.

The accompanying course book complements the tape exercises, explaining what is happening at the time and teaching you the correct grammar to use – such as masculine and feminine endings, the use of de and forming the negative verb.

Yourself and others

Here you are shown how to ask how someone is, how to reply when someone asks you how you are and various other courtesies.

This section follows the style of unit one with the same kind of exercises. However, it does have my favourite illustration of the whole course: "Look, listen and take the man's part!"

Most of the tape time is used up on oral comprehension. You listen to a conversation and then answer a multitude of questions about it. As this style is repeated the exercises get more and more complex.

You have now reached the stage where you must learn to count up to nine in your new language, make requests, reply to requests and ask permission to do something or ask someone to do something for you.

Most examples used are to do with hotel situations and booking in and out of your room – an extremely useful feature for a program that will be predominantly used by holidaymakers.

A grammar section is included in the course book for this section and it takes a little look at verb endings, but nothing too frightening.

Polite replies also feature strongly. If you don't finish a sentence with thank you it's marked wrongly.

Finding the way

The thing that unnerves me the most is getting lost in an unfamiliar place, and worse than that is getting lost in

4 From Page 18

an unfamiliar foreign country. So I was very pleased to see a section showing you how to ask directions and giving an adequate number of examples in doing so.

It also compares and I wish could you so you can learn to recognize if someone is asking or offering things to you and the all-important and life-saving phrase please speak more slowly is mentioned.

The next unit is succinctly entitled Where and is designed to teach you how to ask where people are or where they have gone. On other sections of the course writing answers are simply ignored, but this unit points them out to you and asks you to remedy them.

It would have been nice to see this put to use consistently throughout all 10 units. How are you supposed to correct a mistake if you don't know what it is?

However, the section does fall prey to the dreaded answer syndrome - if you accidentally select the wrong answer there is no way to erase it and enter a new one. This can be frustrating at times.

Graphics are put to full use in this exercise and on-screen text is constantly erased in a new and neat look every way of the line.

Unfortunately, as the exercises get harder the grammar gets more involved - luckily it's well detailed in the course book.

When

Next we move on to deal with telling the time and how to refer to a particular time within a conversation. To help you with this you are required to revise numbers, spelling and pronunciation. As with the other sections it's incredibly thorough - you learn to say a'clock, quarter past, quarter to, half past and lots of permutations of different times using them.

To help you revise the math part a little game is brought into use - in it you have to add up some very simple figures. At least the authors don't doubt your mathematical literacy.

Some particularly useful vocabulary is now introduced. Open, close, arrive, leave, embrace and train are all comforting phrases to know.

After using the solution I was pleased to note you can now remove a wrong answer and insert the correct one by pressing the speaker. What I don't understand is that if this section can have it - why can't the others?

Describe it

When you have studied the next unit you should be able to say what things

are, describe them and say if things - eat people - are good, bad, cheap or expensive.

You are also shown how to ask what something is. For some reason mainly a food vocabulary is used - maybe they were getting hungry when they wrote it.

Again, good use of graphics accompanies the text and audio work, and in one of the exercises sound is brought into play. Most of the grammar deals with this and that - basic words used in constructing sentences.

I like

In this one you learn how to say what you do and don't like, why you like it, what other people like, what you prefer and inquire what other people prefer.

A new verb - to like - is introduced and is used in a variety of situations. Its common usage gets across what a useful word it is.

It's interesting to note that all the vocabulary used in this unit - and all the others - is of the everyday kind you would always hear in a bar or restaurant in a foreign country. For instance, why and because are introduced for you to use in the construction of sentences.

Within the realm of creating sentences a very original game is used - the fruit machine. A random selection of words is displayed on the reels and after they have finished spinning you can judge them to form a sentence.

Once you're happy it's grammatically correct you can press Return. If you're right you win and coins appear to drop out.

Grammar in this unit consists of agreements - s, an and zero - which are tagged on to the end of a word to indicate whether it's masculine/feminine or singular/plural.

It's all kept very simple and, as it is continually stressed, easy to employ.

I want

I want doesn't get, except in this program. You're shown how to ask if something is available, what you do or don't have and how to say what you do or don't want.

After using this section I felt I could buy or eat food anywhere in Europe - the example is very comprehensive and covers every little detail.

Using the same style as before to ask questions, the program goes on to test you to the limit and uses graphics and sound effects to give the whole thing a feel of reality.

One of the exercises of this unit totally surprised me as it deals with of and of the or I should say, de, de, de and etc. As usual, you are given the option to repeat the exercise, and I

did and I eventually got it right. However, this section isn't very well illustrated, and will be very difficult for a novice to grasp.

Lots of new verbs are introduced - such as want, have and prefer - and some really important vocabulary must be learned - chips, bread and beer.

After completing all the exercises you will be able to have a simple conversation in your chosen language with ease.

The party piece of the unit exercise is a rather difficult crossword - questions are in English and you have to answer them in your new foreign language.

Actions

This final section shows you how to ask someone what they are doing, and allows you to tell people what you are doing. For example, Je lis le journal means that you are reading the paper, and many other examples of actions are given.

As with some of the other units, this one gets a little excessive with its revision and I must admit to getting bored with it. The grammar section deals with verb endings and both present tense and past - as in a previous unit.

The last word

All the units contain a high spoken content - conversations and quick repeats make them very interesting and fun to use.

Supporting the tapes and the grammar exercises are several activities in the course book. Like the tapes themselves they have a heavy holiday bias and range from writing letters to get paid to filling in hotel registration forms.

They're all very useful and well worth spending plenty of time working on.

One major complaint I have is that your tape must be left with the play bar depressed all the time. This can lead to a frustrated pinch wheel and future trouble for you and your records.

All in all, the Langman tutorials are excellent value for money and a must for all prospective holidaymakers. GOSEA level students will find them very useful as a medium to revise from - they certainly taught me a thing or two.

Happy studying, and bon voyage!

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HERE I am again, harkent from the Lost World of Wazit, having just recovered the stolen Stone of Socrates and returned it to its rightful owner, the Nabob of Bobbay. And very appreciative he was too, gave me enough supplies to fill my coal bucket.

However, I had to politely refuse his offer of 1,000 goats, the lounge is already overcrowded with the herd of Chinese cows the Vicar of Change gave me last week for rescuing his pet porcupine from the slime pits of Petunia.

And so to your letters, Simon Brown of Kidderminster, like other readers, has been wrestling with Tarzan – not literally of course – in Mondor's Quest. He is stumped by Tarzan's riddle and also wants to know if there are any hint sheets available for this adventure.

The solution to the riddle and another problem is revealed below, but so far as I am aware there are no hint booklets for it.

My thanks to Darren Teather of Bradford and Mrs Jean Gifford of Rayleigh, Essex, for help with this part of Mondor's Quest. In return, Jean would like to know the password at the adamantium door. Similarly, James Twissman of Harrogate wishes to know how to pass the portal.

Darren has completed this adventure and has promised to send in a complete solution soon. However, in the meantime he has kindly offered to answer reader's queries on Mondor's Quest directly if they care to write to him at 21 Parkcliffe Drive, Thornton, Bradford, West Yorkshire, BD13 2EA. Please remember to enclose a stamped addressed envelope.

The next reader has omitted to sign his or her name – I'll call him Mr X – but scores from Harwell, Essex in Headington, Oxford, so will know who I mean. Mr X has stuck his neck out and nailed his colours to the mast – there's a mixed metaphor there somewhere – and sent in a list of his 16 favourite adventures, the top 18 of which appear in the panel.

Glad to see Hitchenker, Stationer

MR X's RAVES

- 1 Snowfall
- 2 Hitch Hiker's Guide To The Galaxy
- 3 Dragonfall
- 4 Colossal Adventure
- 5 The Pawn
- 6 Adventure Quest
- 7 Return To Eden
- 8 Worm In Paradise
- 9 Dungeon Adventure
- 10 Leather Goddesses of Phobos



Colourful confusion... by Rouloc

and Celestial Adventure next the top, together with a goodly dollop of other Level 8 adventures.

Must say that I didn't enjoy Legion Philosophorum (16) all that much, but Mindshadow (10) and Darius Quest (15) were quite enjoyable as I read.

Although the team included them in his top 18 as they are strategy games rather than true-blue adventures, Mr X rates the two Alternate Reality games highly. Now let's hear from some other readers on the subject of personal favourites.

I have been caught out by Mr S. D. Peakin of Worthing. He is the only one to have written in saying the statement I made concerning my name in the December issue of *Alan's Quest*

doesn't stand up. I said that Rouloc was simply the word colour written backwards but, as Mr Peakin astutely pointed, that would spell *Rouloc*.

The truth, as many of my regular readers will know, is that although I am pretty clever at clambering around dungeons and quite a dab hand with a broadsword, I am a bit of a moron when it comes to magic. Yes, you've guessed it, members of the jury – I am a rotten spelller! And there, your honour, I rest the rather pathetic case for the defence.

Many thanks to Paul Suttle of New Ebbars, London, Paul Murlough of Barnouth, Hants Hagenstein from

Turn to Page 58 ▶

4 From Page 17

Vesterfermak in Sweden – your command of the English language is superb! Here – and J.Sweeney of Nottingham for their stimulating letters and generous help with *Alternate Reality: The Dungeon*, a selection of *Dungeons* hints is published here.

Paul Shuttle says that if readers with *Dungeons* problems wish to ring him on Exmouth 362945 before 11am or after 8pm most days, he will try to help. Another reader in Sweden, Matsias Andersson from Forsman, would like a few hints for Scott Adams' *Mission Impossible*. Happy to oblige, Matsias.

Next month I hope to let you have a fair-sized portion of tips for *Ultima IV*, culled with the aid of expert assistance from C. Seymour of Liverpool, Hans Hagenström – again – and Brian Stanning of Port Talbot.

Until then, keep your sword sharp and your lamp trimmed.

HINTS AND TIPS

Alternate Reality: The Dungeon

● Do not exchange Morgana's tunic for the mirrored shield as it regularly restores your hit points while wearing it. Instead, find a pair of lake-side shoes or a leather jacket for the horse.

● To defeat the Deavour, don't worry too much. Learn the Terrestrial Pledge spell and use it with a weapon such as your ice.

● Version 2.0 is bug-ridden. If you find Death's Door right after meeting Animiril, that's one of them. So save your game after dealing with him, then power off. Restart and you will be safely returned to the Dungeon entrance. You must visit Animiril three times. The real Death's Door is down on the third level.

● To get past the three doors, go through the middle one, take the first door on the left (inside there take the middle one twice). You should now be in a large hall.

● It's crossing the River after midnight but before 1am and giving copper to the boatman.



Morden's Quest

● If you look at your map, you might see that a certain part of it resembles a Keweenaw-like creature – and there's your answer to Tarrant's riddle.

● Sacrifice the jack amphibian to the waterfall to pass through the cocoon.

Mission Impossible

- Search the calculator.
- Throw the resistor through the window.
- Return to the chair and press the white button.
- Kick the door of the central stairs.

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5 LINERS



PATTERNS from James Cox-Davies

AFTER working out how to draw circles on my Atari, I decided to write a program to draw interesting circular designs by rotating a line around the circumference of a circle.

As the program stands, a multitude of different patterns can be created by inputting four values for size (M), style (N), radius (R) and space between the next plotted point (P). Here are some interesting numbers for you to enter:

M	N	R	P
720	60	80	50
360	120	80	80
120	120	80	60

The first two inputs can be from 1 to 6000000 with the third from 0 to 80 and the final point can range from 20 to 200 — remember to press Return after each.

More shapes can be created by changing the formulae held in the brackets on line four, for example by changing it to read:

```
PLT: H=H+(30-N)*I:Y=Y+(20-I)*I
```

The program can be expanded to incorporate more complex drawing routines as you can make it random

for inputs and to create an on-going database of your favourite patterns.

PROGRAM BREAKDOWN

- 1 Prints a message to prompt an input for the four main variables and sets a Graphics mode 8 screen.
- 2-3 Set the background and character colours. Prints the values for M, N, R and P then sets the X, Y coordinates.
- 4 Start of the FOR...NEXT loop.
- 5 Ends the loop and then goes to line one to get new inputs.

```
10 PRINT "ENTER VALUES FOR I AND FOR...  
NEXT...  
20 INPUT M,N,R,P  
30 GOTO 40  
40 FOR I=0 TO 200 STEP 20  
50 PLT: H=H+(30-N)*I:Y=Y+(20-I)*I  
60 NEXT I  
70 GOTO 10  
80 PRINT "END OF PROGRAM"
```

✓ **Get it right!**

```
10 WMO (M)  
20 WNO (N)  
30 RO (R)  
40 WPO (P)  
50 WCO (C)
```

ROTATE from Frank Nais

ONE thing Atari home micros have that other computers don't is the GTM custom graphics chip. Its superb features allow you to create some very interesting visual effects, especially in the low resolution, high colour GTM modes — 8, 10 and 11.

While experimenting with these modes I found that it is easy to create the effect of rotation on screen by simply FORING to the colour registers very quickly. To enable the program to run fast enough a machine code routine is used to alter the registers and produce a stunning visual display.

PROGRAM BREAKDOWN

- 1 Sets the Graphics mode, holds the machine code string and sets the colour registers.
- 2-4 Draw the circles on the screen using SIN and COS curves.
- 5 Activates the machine code routine using theUSR command.

```
10 GRAPHICS MODE 10:FOR I=0 TO 100  
20 STEP 1:USR 255:FOR J=0 TO 100  
30 FOR K=0 TO 2:STEP 0.4:FOR L=0 TO  
40 STEP 0.1  
50 DRAW GOSUB 100:FOR M=0 TO 360  
60 FOR N=0 TO 360 STEP 10:FOR O=0 TO  
70 STEP 0.2:FOR P=0 TO 360  
80 NEXT O  
90 NEXT N  
100 NEXT M  
110 NEXT L  
120 NEXT K  
130 NEXT J  
140 NEXT I
```

✓ **Get it right!**

```
10 ATG (A)  
20 GBO (G)  
30 AWV (V)  
40 HGR (H)  
50 WLU (L)
```



THERE is only so much that can be done in five lines — and our clever Atari User readers have done it all.

For this reason, and in response to popular demand, we are extending the limit to 25 lines and increasing the space available for program descrip-

And now — 25 liners!

tion and line breakdowns. We'll still pay \$20 for any two published.

So, if you have any new games that you would have sent but for the line

restrictions — send them now.

Remember, they must be on disk or tape (together with the documentation, preferably in a word processed file — in Shorty, Atari User, Empire House, Arlington Park, Arlington, Massachusetts 02118 AXP.

We offer \$25 for each routine published

SHOW TIME from Jake Smith

HERE is a simple program that displays the time when you press the Start key. It works by setting up a machine code routine in page 0 that works during the VBI — vertical blank interval. In simple terms this means you can still program while the routine keeps track of the correct time.

Due to the restricted space of five lines, several control characters have been used in the listing to keep the size down. They can be obtained by hitting Control-P, Control-Q and Control-Y.

You will also need to enter POKE 822 to remove the left hand screen margin to give you extra line length.

Having typed in the program and checked it using Get it Right!, you can run it. After a few seconds the routine will have been installed and the familiar READM prompt will appear. You can now enter the time.

This is done using the USA command in this format:

```
TIME:USA,00,00
```

with HH, MM, SS being hours, minutes and seconds respectively. Remember to put a zero in front of

```
10 DIM A$(0),B$(0),C$(0),D$(0)
20 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
30 TIME:USA:POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
40 GO TO 60
50 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
60 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
70 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
80 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
90 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
100 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
110 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
120 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
130 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
140 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
150 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
160 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
170 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
180 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
190 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
200 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
210 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
220 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
230 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
240 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
250 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
```

any single digit. After setting the time, you press Start to display it on the top line of a Graphics 0 screen.

Changing graphics mode will erase the clock from the screen. Unfortunately, the clock can only be displayed in Mode 0. If you want to read the time from within your own programs, just POKE addresses 7760 to 7787 for hours, minutes and seconds respectively.



```
10 POKE 0,0
20 GET 0:0
30 GET 0:0
40 GET 0:0
50 GET 0:0
```

DERBY from Dave Shakespeare

WITH the racing season in full swing, here is a mini program that draws five horses racing across the screen. It then displays the number of the winning horse before running the race again.

Re-defined characters are used to represent the horses, with random numbers used to decide which one wins. To start the game hit any key.

PROGRAM BREAKDOWN

- 10 Sets up an array to hold the horses positions — set to zero at the beginning. Then sets up a safe area of memory for the new character set and reads the data in.
- 20 POKEs the data in, to create the new character set and completes the loop in line 30.
- 30 Holds the colupers for the horses and holds the second set of data.
- 40 Prints the horses at the horizontal position held in the array A. Loops back if it is the start of the game or waits for a keypress.
- 50 Assigns a random number to the variable X between one and five and increments A(X) by one. If a horse hasn't won it loops back to line 50. If a horse has won it prints the number of the winning horse and re-runs the program.

```
10 DIM A$(0),B$(0),C$(0),D$(0)
20 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
30 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
40 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
50 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
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160 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
170 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
180 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
190 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
200 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
210 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
220 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
230 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
240 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
250 POKE 53270,0:POKE 53271,0:POKE 53272,0:POKE 53273,0
```

VARIABLES

- A) Holds the horizontal position of each horse
- X Randomly updates the horses X position by one
- T, D, C and S Used in the FOR...NEXT loops and for number storage
- P Used to set Z a few lines passed



```
10 WDO 00
20 GND 141
30 JND 171
40 VNS 101
50 CSR 141
```

THE Atari story begins in California, USA in 1972 – the days when powerful computers filled entire rooms and the most sophisticated video games were test adventures on mainframes. Three friends – Ted Dabney, Larry Ryan and Nolan Bushnell – wanted to develop and market a computerised game that would be commercially viable.

Each decided to put \$100 towards the project and then spend some time trying to find a name for their new venture. During a search through a dictionary they came across the word Syzygy, meaning the straight line configuration between three celestial bodies. They decided on this.

Soon afterwards Larry Ryan pulled out of the project leaving Dabney and Bushnell to fight it alone. The two started in earnest by opening a shop in Santa Clara, California with capital of \$250 each. Shortly afterwards they invented the very first arcade machine called Pong – a tennis-type ball and bat game.

They installed it in local bars and pool halls, and after a while started receiving calls saying that their machines had broken down. On investigation the fault was found to be the machines becoming jammed to overflowing with coins because the game was so popular.

Dabney and Bushnell decided that Syzygy was too good a name to give up so they applied for the rights to incorporate a company with that name. Unfortunately, the name had already been taken and the holding company, although not operating, was not willing to lose it. So back to the drawing board.

Atari gets its name

Still looking for inspiration they sat down to play Go, a Japanese based game. They decided to make a list of suitable Go game words to choose one to adopt as a company name. The list went like this: Sente, meaning the upper hand, Atari, the Go equivalent of check in Chess, and Hanzo,



The early Atari logo

Micro empire that was born in the arcades

Atari's route to success mapped in detail by RICHARD HAWES

meaning an acknowledgment of an overtaking move.

The list was submitted to the Californian Secretary of State Office and only one was approved – Atari.

Having chosen a new name, they designed a new logo to include the S of Syzygy and the A of Atari. It was not until much later when Atari really started to take off that an advertising agency designed its current logo and trademark which they dubbed the Stripes A design. This design is now more commonly known among Atarians as the Fuji symbol.

All change

By 1974 Atari had released a home version of their arcade hit, Pong. This crude single-game machine was also a hit, and by 1975 Atari's sales had reached \$40 million. In 1976 Atari started to find problems with the competition, and Bushnell and Dabney sold the company to Warner Communications, the leisure industry giant, for a mere \$28 million. At this stage, Bushnell estimated a figure of major influence within the Atari management.

It wasn't until 1977 that Atari

produced its first programmable home machine, the 2600 VCS – Video Computer System. At that time the only other machines that could be used on home televisions would only play one or two different games, like Dabney and Bushnell's own Pong. The 2600 was one of the first to allow you to plug in a cartridge and have a totally different game. Sales for the year reached \$120 million.

Due to clever licensing deals and use of Atari's widespread coin-op titles, the VCS – which is now over 15 years old – has now sold between 25 and 40 million units worldwide, more than any other home machine. As a measure of its ahead-of-its-time design, it still maintained sales of a million units last year, 100,000 of them in the UK.

By 1979 through the sales of its computers and games cartridges, Atari became the single largest buyer of room chips in the world. The VCS also spawned an industry of add-ons and, almost for the first time, third party software houses – an estimated 150 million games cartridges have been sold for the 2600.

Nolan Bushnell left Atari in 1979 as it started losing money again and Ray Kassar was brought in by Warner to head the company. He managed to bring it back into the black.

It was late in 1979 that Atari first showed the 8000-based 400 and 600 home micros. They had a shaky start in the UK but did well in Europe and the States, taking sales to a new all-time high in 1980 of \$418 million.

The 8 bit Atari 800 came into the UK at £249 for a 128 model. Basic cost an extra £39 and a 128 memory expansion was £69. Adding 512k to an 87 now costs around £100. In 1981 Atari became the fastest growing company in the history of America and dominated the video game market with a massive 80 per cent share.

By 1982 17 per cent of American



The present Fuji Logo

households owned a video game machine. Atari's sales in the 1983-85 period reached a new peak of \$2,000 million. It had by this time sold 15 million 2600 games consoles. It was also at this time that it released the 1600XL in America and subsequently withdrew it again before the middle of 1985. The bubble was about to burst again.

1985 was a very bad year for the old Atari company. The holding company - Warner Communications - lost more than \$370 million as other games machine manufacturers such as ColecoVision reduced Atari's share of the market to 40 per cent. In March 1985 Atari laid 1,700 employees from its payroll and in June 1985 products such as the 1600XL, the 1600XLD and the CPM XL expansion were shown but never released.

The war between the home computer companies began to hot up after Commodore's huge success with the Vic 20 and then its release of the C64. In July 1985 Atari president Ray Kassar resigned and in September James J. Morgan came from America's tobacco industry to take over. At that stage, only the arcade coin-op machines division was profitable.

By November the home computer war reached a peak and Texas Instruments, among others, was gaining from the home computer field. Atari's staff levels now reached 3,000, and it announced its greatest ever losses of more than \$512 million for the 1985 fiscal year. It made desperate attempts to regain a market share by introducing a revamped range of 8 bit machines - the 800XL and the 8000, based on an and compatible with the 400 and 800 computers. But Atari continued to lose money.

The new Atari

By the end of January 1984 Jack Tramiel had quit Commodore Business Machines, the company he had started 25 years earlier by buying typewriters, repairing and then reselling them. Many said at the time that he had left over disagreements with Commodore's chairman, Irving Gould.

He disappeared for four months and most assumed he had retired, made rich with Commodore's billion dollar success in the calculator and home computer fields.

By June of 1984 only 1,200 of Atari's 8,000 staff remained and rumours were flying around about a sell-off of the Atari Corporation to Philips, another giant in consumer electronics trying to make an entry into the home

computer field. Jack Tramiel had meanwhile set up a company called Tramiel Technologies Incorporated.

It was this new company that in July of 1984 popped up and bought Atari Computers - the Atari consumer products division - for a cool \$340 million, leaving Warner Communications with the profitable division of Atari coin-op machines.

In November of 1984 Jack Tramiel held a press conference to announce the birth of the new Atari company - and it certainly was new as little of the original staff remained. Behind the slogan of Power without the price Jack Tramiel streamlined it to the core - Atari UK went from over 100 staff to less than 20. Even now, a much more successful company still employs around 30 staff in the UK.

Having cut expenditure to the absolute minimum, Jack Tramiel then set about building the new Atari image and product line. He had, in effect, bought a worldwide computer distribution system and was now gearing up to use it to its best effect.

Many of his followers at Commodore came across to help him, confident that Jack would make Atari a prosperous company once more. In addition, he employed two of his sons - already industry-renowned figures in their own fields - in key positions within the new Atari. Sam Tramiel became President of the Atari Corporation and Leonard Tramiel became Vice President in charge of software development.

The new company needed money, so it started life by reducing the prices of the stock it had obtained as the 800XL fell to \$119 in the US and £129 in the UK, giving a more competitive edge on the Christmas 1984 computer market.



Jack Tramiel... \$340 million takeover

The new product line

In January 1985 Atari launched the first of its new lines. At the CES show in Las Vegas it unveiled six new machines: Three 16 bit computers called STs and three 8 bit machines still based on the XL. All were ready for manufacture after only six months under Tramiel's rule.

Based on the 800XL, the 8000 and the 1300X were the 8 bit machines launched, and a portable XE was announced but never saw the light of day. It was around this time that the 800XL, already becoming much more popular in the US than the previous 400 and 800, was awarded the Home Micro of the Year award of the British Micro Awards.

In 1985 8 bit owners were treated to a new cassette deck, the XC11 which

Turn to Page 24



The Atari 1300X computer

4 From Page 23

colour-matched the XL series. This player replaced the by now aging 1010 recorder which matched the XL series. It was fairly quickly replaced by the 2012, as there seemed to be some problems with supply and reliability.

In March the Atari following was such that for the first time a dedicated user show could be held. Database Publishers staged the first Atari User Show at the Novotel in HammerSmith and it was an immediate success.

More high-level changes were taking place in Atari's management during the middle of 1986. Max Barnbridge, the then general manager moved to the Far East to cover manufacturing, and Bob Gleadow left Commerce to rejoin his old boss at Atari.

It was speculated that Max Barnbridge was being ousted as being unsuccessful at running Atari UK. However, Jack Tramiel said that he felt Max Barnbridge had done a lot of work in getting the ST off the ground, and it was now time for a marketing man, Bob Gleadow, to build on that base.

At the end of 1986 Atari tested the

waters for a dedicated games machine by introducing the 7800 pro-system. This was subsequently withdrawn and has since only been sold in the US.

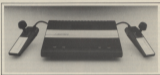
The 1084E - 128k micro - and the 800E - 64k micro - are still available. The 1000E is priced around £108 with a cassette deck and the 800E is priced at around £180 with a tape deck.

Atari has continued its policy of supporting the 8 bit range. The latest machine to be released is the XE Games Console, similar in idea to the 3800 but controlled by a 8000E CPU like the XL/XE home ranges. It comes

with 64k of memory and can be upgraded to 128k by adding a keyboard that has 64k built-in.

As such it is an advanced games machine rivaling those from Nintendo and Sega. However, it is much more than a mere games machine - as the in-depth review published in the December 1987 issue of Atari User reveals.

Software previously written for XL and XE micros is fully compatible with it, so a wide range of games, educational and business programs are already available.



The Atari 7800 video game machine

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The cost of this, the most powerful tape to disk utility for the Atari is just £24.95 inclusive of the disk delivery. Also comes complete with comprehensive instructions which were specially written with the cassette upgrade and first time disk user in mind.

Requires: Atari 800X or 1300X Computer with disk drive and cassette recorder.

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Software

SCENE

Keeping on the right track...

Product: *Grand Prix Simulator*
Price: £19.99 (suggested)
Distributor: Code Masters, PO
 Box 200, Bamber, Devon
 OX14 2JQ
 Tel: 0529 814122

AROUND this time of year, BBC 2 screens a sports program with a very catchy signature tune – written by Fleetwood Mac I believe.

It has to do with a bunch of formula one racing cars spinning around a track at tremendous speeds. And its commentary is by a person who gets over excited very easily. Yes, you guessed it, the Grand Prix season has started.

So it's no coincidence that Code Masters has released its latest offering for the 8-bit Atari – *Grand Prix Simulator* – at this time.

The game uses an overhead view with up to three cars driving around the 10 different, and very difficult, circuits – very similar in style to Super Sprint on the Atari ST.

Each circuit is cunningly designed to make life as dangerous as possible for

you as you drive under bridges and through all sorts in an attempt to beat the computer, your opponent, or both to the finish.

The digitised speech used throughout the game is of a low standard when you compare it to other games. There again this is a budget title.

You control your red car using a joystick plugged into port one. Pressing fire accelerates it and then all you have to do is steer round the hairpin bends and try to avoid smashing into everything.

Remember that a head-on steering technique is employed, so peek left to go right and vice versa.

The game supports simultaneous two player action with the second driver controlling the yellow car via a joystick plugged into port two. The purple car is the computer controlled one and drives a pretty mean race.

As with the TV series, the game employs a catchy signature tune but, this one isn't written by Fleetwood Mac. All the same, it's quite nice. There is a section on

the cassette inlay describing a racing driver called Johnny Dumfries who has played the game and endorsed it. He says it's an exciting and fun simulator to play. All I can say is Johnny what?

The graphics are very good, even though your car looks like a brick on wheels going around a track. The circuits are well depicted with splendid use of colour.

At times the sound effects leave a bit to be desired but you are restricted in what noises you make within a car game – the revving engine and screech of tyres are all that spring to mind.

Grand Prix Simulator is very enjoyable and tremendous fun to play, especially when in two player mode. It's a good laugh to watch your opponent crash into the barriers or get stuck under the bridges and not be able to find his way out.

The only thing I can criticise is the steering – it's just as well your car bounces instead of axlesides when it hits a wall or bridge, because that's what I spent most of my time doing. If



you like car games but are a little bored by the head-on perspective give this one a try.

Superb playability and excellent value for money far out weigh the criticisms I can level at it. At £19.99 you can't go wrong.

Keith Pattison

Sound	B
Graphics	F
Playability	F
Value for money	B
Overall	F



Be quick off the mark on track one



Share it all out

Software

SCENE

Boulderdash is back

Product: *Boulderdash: The Arcade Game*
Price: £2.99 (cassette)
Supplier: Mastertronic
IMAGO, 8-12 First Street,
London EC3A 4JF
Tel: 01 237 8880

OVER the years several games have created a cult following among Atari game players. However, none have had the same lasting effect as *Boulderdash*.

Is this because it has an addictive quality that every one loves, or could it be that the hero - Rockford - is the coolest little rockmite you have ever seen?

Now MAD Software has released *Rockford: The Arcade Game*. It's a conversion of *Arcade Systems'* classic coin-op game and the cassette intro tells you that you have just bought the greatest piece of game software ever released. Read on to find out.

The game is set on five worlds. Rockford has to explore. On each he takes a different identity in his bid to collect some of treasure. His guides are colorful,

funny, spacious, faster and chaf - I wonder if he takes rock cakes?

The various treasures are the Pharaoh's gold masks, spoils of eternal youth, Indian gemstones, suns and hearts. To collect one all he has to do is walk over it.

Each world has four levels and each level has four screens. According to my maths that makes 80 screens in all - plenty to keep you busy.

Wandering about collecting the treasures sounds very easy, but in *Rockford's* world life is rarely this simple. You must avoid falling rocks that tumble down as you eat the earth or move a treasure from beneath them.

Deadly monsters inhabit these strange subterranean labyrinthine. Some move in preset patterns, simply there to make your life difficult while others will chase you.

Yet another type explodes when killed, creating treasures as free loot. You may have to do this in order to finish some levels.

Once the required number of items have been retrieved from a set of caves, a door -



Explore level one with Rockford

which looks like a beehive - will appear for you to go through.

Some of the rooms have *Boulderdash* traps and puzzles to work out. For example, some are known as Torch Rooms but these only occur on the eight-time level. In them you carry a torch that only allows you to see segments of a room.

Some have a fire that you have to put out. To accomplish this you must find a tap and turn it on, then push the water to the fire.

Of all the puzzles and devious traps I encountered, the most annoying were the walls that grow. If you remove a boulder or treasure in the wrong order the wall will follow you, making it very easy to pin yourself in.

Although the graphics are not as good as the original game - and remember no other computer format has been able to emulate the quality of the old Atari version - it does have that certain classic touch to it.

Rockford is still animated in its old way - if you stand around too long doing nothing he starts to get a little

nervous and begins to twitch and shuffle around.

The sound effects are lacking when compared to the original but, they are superior to other games currently on the market and they do add atmosphere.

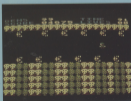
It's nice to see *Rockford* back on my TV screen again, even if it is in such unusual surroundings.

Compared with the original version, the on-screen action seemed a little slower and there was a tinge of a delay in joystick response - but I could be comparing it to the old version too much.

If you are a fanatic of the *Boulderdash* game and love to see that cute little rock territe fly around the screen, then invest in this game - at £2.99 it's an absolute bargain.

And if you get bored with it you will find a free copy of *Crystal Palace* on the B side.

Kate Parrison



Boulder the adults on level three

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

Software SCENE

Compilation bonanza...

Product: Atari Compilation
Price: £4.99 (approx)
Supplier: Atari Corp (UK),
Atari House, Berkeley
Terrace, Slough, Berkshire
SL7 6BZ
Tel: 0753 33344

In the early days Atari produced several great games and now it has re-released five of them on a compilation tape - *Atari Command*, *Centipede*, *RealSports Tennis* and *Star Raiders*.

In *Type Attack* you defend eight missile bases from attack by aliens, each marked with its own keyboard character. Every time you press the relevant key an energy bolt from the base will destroy the marauding alien hell-bent on your destruction.

Basically, the game is a simple keyboard tutor that has a graphical representation of each key so as to relieve the tedium of finding your way around a query keyboard.

Each successive wave gets faster and you need to be quick off the mark to hit the correct key before the alien gets you.

Admittedly this isn't the best game ever written for a home micro, but it is great fun for the kids and very useful if you just want to brush up on the old keyboard bashing.

Missile Command puts you in charge of a missile also as you defend seven cities against attack from incoming ICBMs (Intercontinental Ballistic Missiles) and MRVAs (Multiple Warhead ICBMs) which drop killer satellites and enemy bombers.

The attacks come in waves and last from 30 to 45 seconds each. As the enemy projectiles descend, just move your targeting sight and press the fire button. This will launch one of your

ICBMs - Anti-ballistic Missiles - that will hopefully destroy the enemy weapons forming in an orbit above.

When a wave is over, your remaining cities and missiles are used to calculate a bonus, and this is displayed with your current score.

When you are about to run out of missiles your target sight will change shape. At this point make your missiles count - don't waste them or you could end up with no cities at all.

The graphics are very simple as are the sound effects, but overall the game is a classic and great fun to play.

In *Centipede* you live in an enchanted mushroom patch also inhabited by bothersome bugs which possess magical powers. Your job as Bug Blaster is to destroy all the creepy crawlies before they get you.

The largest of the nasties in the garden is the centipede - hence the name - that marches down the screen in a military manner. If it bumps into a mushroom it changes direction and travels at an even greater speed. To destroy it you must blast each of its segments.

Other nasties to watch out

for are the jumping soldiers, the bearded flea that leaves a trail of mushrooms after it and the scurrying scorpion which is deadly if it touches you.

This is another conversion of an Atari arcade game that had a cult following years ago. I remember putting sounds into one of these machines in my younger days.

The first time I played the home micro version I had just bought it on coin cartridge and it was as much pleasure to play then as it is



Missile command

now and at about a third of the price.

Centipede is a state of the art game and very addictive - worth the compilation price on its own.

Your view of *RealSports Tennis* is from above at a shallow angle, giving an

illusion of depth to the game. Added to this, the ball's shadow makes everything seem very realistic.

I still class this as the best tennis simulation I have seen on an 8 bit machine. The graphics, animation and sound effects are well put together. As with *Centipede*, it's well worth the price of the package on its own.

The final game on the tape is *Star Raiders* a legend among Atari owners worldwide.

You are at war with the evil Zylon empire which is attempting to take over your Galaxy and as a Starfleet pilot you must do battle with it as you zoom around in your twin ion-engined star fighter.

As the game progresses you must stop your star bases being surrounded and eventually destroyed. When the warning buzzer sounds you bring the galactic chart on to your screen - press C - and hyperwarp to the relative sector and destroy the enemy vessels.

If you sustain a lot of damage, hyperwarp to a star base that isn't under attack and dock with it. A repair drone will leave the station, repair all damage, and refuel your fighter.

If you ever wanted to be Buck Rogers or Luke Skywalker this is your chance. Another game well worth the price of the compilation on its own.

Many years ago these games would have cost you more than £100. Now you can get them for just £4.99. What a bargain.

Chris Jones



Games, set and racket

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

Figures are an average value for all the games

THE FIDOLON

MONSTERS by *BRYAN STEVENS*

LAST month we gave you a map showing the levels to the superb graphical adventure game from Activision.

Now we introduce you to the strange and demonic creatures that inhabit this subterranean labyrinth.



MOFFELY

Level: 1, 2, 3, 4, 6, and 7
Disposition: Easy meat
How to kill it: One red fireball will dispatch this one.



BITER BIRD

Level: 1, 2, 3, 4, 6 and 7
Disposition: Easy
How to kill it: Three red fireballs do the trick.



TROLL

Level: 1, 3 and 6
Disposition: Easy
How to kill it: Three red fireballs will kill the first one but more are needed on higher levels.



GREP

Level: 3
Disposition: Easy
How to kill it: This creature will be pushing up the daisies if you hit it with three red fireballs.



BOTTLENOCK

Level: 3
Disposition: Moderate
How to kill it: Turn this one into a gift with three red fireballs.



PUFFER BIRD

Level: 4 and 6
Disposition: Moderate
How to kill it: This creature can deplete your energy rapidly. So dispatch it quickly with three red fireballs.



MUNCHER

Level: 4 and 6
Disposition: Dangerous
How to kill it: This monster will chase you, so move backwards as you are shooting it. Kill it with nine red fireballs.



SHRIMP MUSHROOMS

Level: 5
Disposition: Moderate
How to kill them: When you approach them, they will come to life and sting you a few. Hit each one of the group with a green fireball. The last one will then change into another creature. Kill it with a red fireball.



"T" (unavailable)

Level: 7
Disposition: Extremely dangerous
How to kill it: Ensure that your energy is at full before attempting to get this one. Awaken the beast with a blue fireball. This freezes it temporarily and gives you a chance to let off a volley of red fireballs. If your energy gets too low, run away! Collect more fireballs and go back for another go. It takes about 15 red fireballs to dispatch it.



LEVEL 1 DRAGON

Jewel: Red
Fireball: Red



LEVEL 4 DRAGON

Jewel: Red and green
Fireball: 6 Blue



LEVEL 3 DRAGON

Jewel: Blue
Fireball: 5 Green



LEVEL 6 DRAGON

Jewel: Red and blue
Fireball: 8 Blue



LEVEL 5 DRAGON

Jewel: Green and blue
Fireball: 7 Yellow



LEVEL 7 DRAGON

Jewel: Red, green and blue
Fireball: 9 Red



LEVEL 2 DRAGON

Jewel: Green
Fireball: 4 Yellow



LEVEL 8 DRAGON

To kill it you have to shoot it with the same colour and same number of fireballs as used in the previous seven levels - and in the same order. Start off with three red, four yellow, five green, six blue, seven yellow, eight blue and finally nine red.

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Your HINTS & TIPS

We welcome letters from readers giving their help with games on the Atari that they would like to pass on to other readers. The address to write to is:

Hints and Tips
Atari User
Europe House
Addington Park
Addington
Maidenhead SX10 4MP

Fort Apocalypse

THIS helicopter shoot-'em-up appeared on the market many years ago and is still the best of its kind. For those of you who are having trouble with it here are some very useful tips:

- Attack the missile carriers only when they are moving away from you - they're easy meat.
- When engaging enemy helicopters attack them from above. You can drop bombs on them but they can't fly upwards.

- If you shoot the moving blocks you will reverse their direction.
- Keep an eye on the Raytrax scanner at the top of the screen, it will indicate when a rogue helicopter is heading your way.
- Try not to shoot off the screen. You may kill one of the men you are attempting to rescue.
- If you get killed you start at the last landing pad. So, land on the pads - usually flat white surfaces - as often as possible. Especially in the lower levels where it gets a bit hairy.

Bryan Stevens, Andover, Hants.



Helicopter
operating in
Fort Apocalypse

Alternate Reality: The Dragon

IN the March 1988 issue of Atari Classics gave you some tips for this excellent adventure game. Also included was an incomplete list of quests. The following shows the ones you can undertake:

QUEST ONE

To free the prisoner under the palace you require a silver key. This can be obtained by defeating a Master Thief. Once freed, the prisoner will teleport you to the Bistle of the Three Doors. Relyed that, follow the passage to Acrimira's tomb and give him the staff piece that the prisoner will give you. This will complete the first quest.

QUEST TWO

To complete this one you must kill the goblins and troll kings. Then take the two ring halves to the dwarfen

smiths who will reforgo the ring. Next, simply take it back to the Oracle.

QUEST THREE

Take Morgana's hair to the clothes hane who will exchange it for a mirrored shield.

QUEST FOUR

To cross the river Stone wait until a few minutes after midnight, then enter the River Station and offer the basketman five copper pieces. He will take you across.

Once in the realm of the undead you must go to the palace of the undead king. Before you get there you must defeat six undead knights to improve your stats. The undead king will give you a staff piece for Acrimira.

QUEST FIVE

This is the Great Dragon's quest - he wants the bloodstone. First go to

the gargoyle and answer the three riddles. He will teleport you to the basilisk. You must fight it with your bare hands as weapons don't affect it. Once you have defeated it you can take the bloodstone and return to the dragon who will give you a staff piece.

QUEST SIX

When you have taken all the staff pieces back to Acrimira he will give you the Portal Access Card (PAC). Go to the Gauntlet and get through its death's door. Use the PAC and walk through. You will be teleported to level four.

Use the mirrored shield as a secondary weapon and follow the metallic corridor round. You will come to the alien control room. Go in and an alien will then shoot at you with a laser.

The laser will reflect off the mirrored shield and destroy the control rooms. You will then go out the other side of the room. Walk forwards and you will find two doors. One takes you back to the elevator and the other is the Gateway to Revelation.

Pell Leighton, Cleveland

Spy Hunter

If your car is forced into the water well until you pass either the bridge or the rest of the land and pull hand right away from the island and get as close to the bank as possible. You can then get back on to the land as fast as possible with no problems.

Once you have collected the SAM missile don't hit any of the civilian cars or your car will blow up.

The smoke screen is the only useful weapon to use: The oil slick is pretty useless as it leaves a straight broken trail that can be easily dodged.

The helicopter won't always attack so don't instantly shoot it and waste a missile.

Andrew Patterson, Basingstoke.

Two discs crammed
with the most popular
programs from your
favourite magazine!

These two exciting compilations bring together some of the very best listings from the pages of Atari User.

Whether you like games or prefer more serious pursuits there's something here for you - and you can also learn a great deal from examining and modifying the Basic listings.

Ten of the Best Games

- Chopper Boyce** - Take control of a helicopter to rescue lost soldiers.
- Das Bello** - Rescue Exotexica by negotiating the dangerous obstacles.
- Spacemaze** - Fly your spaceship through the deadly lasers below the lunar surface.
- Musicalmath** - Teach your munchie monster about the music, avoiding its deadly vibrations.
- Moneybags** - Collect up all the money but beware of the monster spider.
- Frank the Fruit Flanel** - Help Frank on his favourite food in this platform game.
- Back Death** - Clash, sound and clash up at the disco before the store falls the farm.
- Frogjump** - Direct the frog across the busy road in this classic arcade game.
- Doctor Bark** - Help the doctor build the new hospital, but watch out for mad Northerns.
- CHAS** the latest Get it Right program to help you correctly type in listings in Atari User.



Remember when the game you liked best of all, Nova, in BOUNDER PLUS, we made it more funner - with 320 exciting new screens to test your dexterity. Bounce up and down on the springy transporter to hit the many targets while avoiding the balloons, (L1 and X1 only.)

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- DirRecreator** - Simulate your Basic listings with this useful AutoLoad program.
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Ready... steady... PULL!

Test your marksmanship with
STEPHEN WILLIAMSON's
fast-action game

THIS game simulates the sport of clay pigeon shooting where you use a shotgun to try and shoot down clay discs, or pigeons as they are known.

After typing in the program save it to disc or tape before running it. A mistake in the data statements could result in your Atari crashing and you losing your work.

When the program has been initialised it will display a menu of options which affect the gameplay. The clay pigeons can be small or large and fired at a slow, medium or fast pace.

The number of pulls - 10, 20, 30 or 40 - affects how many sets of pigeons are launched. You can even choose the weather conditions - fine or cloudy.

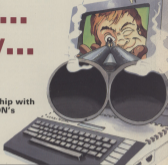
An arrow points to each option and a joystick is used to move it up or down. Pressing the fire button selects the particular option you require.

When Start is pressed the message PULL WHEN READY appears at the top of the screen. If you move the joystick backwards, two clays will be launched or pulled into the air.

Your shotgun only fires one barrel at a time with the second one firing when a pigeon has been hit or the bullet has left the screen.

Your score depends on how high the pigeon is when hit - the nearer the top of the screen, the lower the score. To hit one requires fast reactions and a good eye.

The figure at the top right of the screen shows the number of pulls remaining. When it reaches zero the game is over and you will be returned to the main menu.



```

100 REM CLAY PIGEON SHOOT
20 REM BY STEPHEN WILLIAMSON
30 REM COUNTRYSIDE GAMES
40 REMPILES 8
50 PAGE 100,1
60 FOR I=0 TO 10:READ S:PRINT TAB(10+I),S:
NEXT I
70 FOR I=0 TO 10:READ S:PRINT TAB(10+I),S:
NEXT I:PRINT:GOTO 1
80 READ PIGEON,CATCHER,CLAY,CLAYPAGES,
PULLS
90 REM CATCHER,SPRING,
100 REM WEATHER,START,STARTING,PULLS,
I
110 PRINT"SPRING"WEATHER"
120 SIZE=SIZE OF CLAY PIGEON 100
ON I GOTO
130 SPEED=1000 100
ON I GOTO
140 WEATHER=WEATHER
150 I=1:GOTO
160 SIZE=SIZE OF PULLS 1000
I:GOTO
170 POSITION 10,0: CLAY PIGEON SHOOT
180 POSITION 2,0: THIS IS GOING TO BE
A WHILE"
190 POSITION 2,0: BY STEPHEN WILLIAMSON"
200 POSITION 2,0: TACTICALSOUND... 40
40 50...
210 POSITION 100,0: I=0 TO 10:READ S
PRINT S:PRINT:GOTO 1
220 GOTO 100
230 POSITION 2,0:0: "00 PULLS REMAINING"
240 REM DISPLAY MENU & CHANGE PARAMETERS
40
250 GOTO 100:END
260 REM-
270 GOTO 100:GOTO 100
280 POSITION 2,0:1
290 REM-
300 REM-
310 POSITION 100,0:GOTO 100
320 REM-
330 REM-
340 REM-
350 REM-
360 REM-
370 REM-
380 REM-
390 REM-
400 REM-
410 REM-
420 REM-
430 REM-
440 REM-
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860 REM-
870 REM-
880 REM-
890 REM-
900 REM-
910 REM-
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930 REM-
940 REM-
950 REM-
960 REM-
970 REM-
980 REM-
990 REM-
1000 REM-

```

Turn to Page 28

Prime mover

It has happened! The old MicroLink computer, a Prime 886, has been honourably retired and a new Prime 9955 with brand new software eased in to its place. It is traditional that such undertakings never go entirely smoothly, and this one was no exception. On the morning of the Friday the old machine crashed (was it walking?), and only managed to work for about an hour before being turned off for good. It was a long weekend for many MicroLink subscribers.

The system got a severe test on the Monday evening, as everyone came on to find out how much better things were. Of course, with so many people on line the effects were somewhat diluted, but as things have settled down, things like directory searches are much faster, logons take less time and some of the really bad delays of old should just be memories. Not all commands show equal improvement, however.

It's early days yet for the new computer, but even the next month MUI will be comparing the performance

of the system with the old figures. As MicroLink expands, we'll need all the speed and space we can get...

The moving cursor writes...

...but on the bulletin board you can always DELETE one of your own messages. Some people have complained to MUI about blank messages, which look like someone has REPLY'd to an entry by mistake without meaning to say anything.

It's a good idea if you do this, to go back on to the bulletin board and read through until you find your message. After reading it, typing DELETE will remove it as if it had never been sent.

Not just a number

BEFORE the upgrade most people were known on the system by just their account numbers.

New MAILBOX isn't the most memorable way to address someone, as it was possible to have your name added to the system directory so that other users could send mail to you in a slightly more natural manner.

However, the way to get this done was never documented, and most people didn't avail themselves of the facility.

Since the upgrade, things are much better. Everyone now has a name, and by using the FIND command it takes a few seconds - again, a vast improvement over bygone days - to locate someone's ID by name.

And whereas even if you did have a name in the past it was backwards (as in GOKWINS,SLIPERT), now it's a more legible FRED-BLOOM. Which should go some way to making mail easier to address.

There's one even an opportunity for anonymity, as those who had their names before keep the original format.

So on any list of users the old hands stand out from the crowd, backwards but proud of it.

Online alternatives

THE last MUG newsletter mentioned the bulletin board. This is unique to MicroLink, but other Telnet-based systems have similar areas, one of which MicroLink shares. That's the

Nationboard, and it differs from the bulletin board by being much more basic - it's impossible to SCAN or REPLY to messages, for example.

But lots of different systems on Telnet Gold can use it, so it's a good way to converse with someone who isn't a MicroLink subscriber but does use Gold. Typing >NOTICEB will reveal both the good and the bad points of the area.

Also on MicroLink is the Messagepad. This is yet another shared message system, with different categories to the BB and fewer options. Once you've tried both it and the BB it becomes clear why the former isn't used very much!

Garbage...

...or, as we British say, rubbish. Between your modem and the MicroLink computer are many opportunities for strange characters to introduce themselves into your call. For many, the problem is no worse than the occasional unglugly bracket hanging up in a mail message. But sometimes the problem is persistent and debilitating. MUG has received some queries on how to solve this.

Firstly, if at all possible, try your equipment (especially the modem) on someone else's telephone line. Then try different telephone numbers for MicroLink. This all helps to assess proof to give to the BT engineer when he calls to check your line.

If the problem won't go away, then slower speeds can help. It's unlikely that a line which is unusable at 1200 baud will miraculously become crystal clear at 300, but for cases of intermittent corruption, dropping the baud rate can make a big difference.

Time, gentlemen, please

EVEN with the new computer, the speed at which commands are processed can vary considerably. Knowing what the factors are which govern this can lead to faster service and thus a reduced bill, something few MicroLinkers are aware of.

The biggest single Prime knobbing factor is the number of users on the system at the time. You can find this out by typing >USERS, and the more

people are about the slower things will be.

Peak time for MicroLink is from about 7 till 11 in the evening, as most small-business users take advantage of cheap telephone and MicroLink rates, but if you can hold out until midnight, then things ease up a lot.

From about two in the morning security backups are made - copies of all the data that's been added to the computer by users since yesterday. This is the other big

slowing factor, and many a small hours user has been surprised by a sluggish response when there's nobody else about.

The very best time to use MicroLink is between five and seven in the morning. More often than not you can be the only person using half a million pounds' worth of computer and network, and the speed of response is only matched by the feeling of power and the nagging need to sleep.

Connections in high places...

ANDRÉ WILLEY
takes a look at a
neat and compact
replacement for
the Atari 850
interface box



MOST Atari 8 bit owners start out with a simple, relatively low-cost, cassette-based system with the idea of upgrading to disc drives, printers and other add-ons once they've mastered the basics.

The open design of the special peripheral bus, which allows you to connect the various devices in a long chain, makes this approach both simple and fairly versatile.

The main disadvantage of this method is that it means you are limited to using Atari's own somewhat limited range of peripherals, or at least ones which use its connector system. To use anything else such as standard Centronics or RS232 protocols you must buy an often rather costly interface unit.

ED's P.R. Connection supplies both

a Centronics and two RS232 connections—for about two-thirds of the price and a fraction of the size of the old Atari module. This has been achieved by the use of a custom designed microprocessor known as the PRC8858-II—a computer in its own right.

If you compare the P.R.'s layout to the maze of circuitry in an 850 you'll see just how much work this single chip must handle.

The interface is attractively packaged in a small grey plastic box which perfectly matches the 1300E. It draws its power from the micro, thus eliminating the need for yet another power supply to clutter up the desk, and connection is made via a included standard 100 cable. A socket is thoughtfully provided to allow you to add further

items to the chain if you so desire.

The other three sockets follow the protocols laid down by the 850: The Centronics port is a 15-way D Connector and the two RS232 lines are wired via a pair of three D Connectors, the same type as those used for joysticks. Operationally the P.R. Connection is almost identical to an 850, except for the lack of two of the latter's four RS232 sockets.

Any cable designed for the 850 will work with this unit, but full pin diagrams are provided for those who want to make their own leads. Both modern and printer cables are available from Frontier at £14.95 each and discounts are available for buying the complete kit.

The printer is accessed by using the standard P1 device or via LPRINT from Basic, and it also functions correctly with every piece of commercial software that I tried. If you find that your particular type of printer requires an extra line feed character after each Return, a DIP switch inside the interface provides this facility.

Additionally, a second switch allows you to turn off the P1 section of the interface—very useful if you're already using a direct-connect Atari printer and only require the RS232 ports.

The RS232 ports are accessed via the R1 and R3 handle which autoconnect on power-up. If you are using a cassette system you will hear

Centronics refers to a common system often used to connect printers and other items which are likely to be fairly close to your micro. The RS232 allows data to be sent over longer distances, but requires more work by the computer to set it all out again.

These standards tend to be provided by Atari's own 850 module for between £700 and £130, but this is not now easily available.

Many companies have helped fill the gap by developing straightforward Centronics printer interfaces, most of which come in the form of a cable which plugs into

your 100 chain at one end and the printer at the other.

Unfortunately this leaves no option to add any further Atari-type peripherals to the end of the chain, since there is no provision for a second socket.

One company—Miracle Technology—released an RS232 interface cable designed only to work with its own software and systems. Atari Office II now provides a more sophisticated text communications package which will work with this lead, but most other commercial software still requires an 850—until now.

See us Page 88

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an additional high-pitched beep just before the READY prompt appears as the driver code is automatically loaded from the interface's internal ROM.

With a disc system you must specifically request the RS232 driver to load. With Dos 2.0 this means your boot disc must contain an Autoun.SYS file, as provided on your master disc. Other versions of Dos - such as Dos3.0 and SpartaDos - provide external commands to boot the driver - which may be used as Autoun files themselves.

The driver loads itself at the current LMMEM point and adjusts all memory pointers, accordingly taking up an entire 1,024 bytes of ram over and above your particular Dos's requirements. It is nice to note that an old 800 bug - which would easily crash the computer if the Reset key was pressed - has been rectified.

A Dos 2.0 double-sided disc is

supplied with the package and contains not only the Autoboost support files, but also three public domain communications packages - AModem version 1.4, R30acc and 850 Express - all of which seem to perform admirably.

The RS232 driver can be controlled from Basic via XIO commands, and you may select various baud rates, stop bits, parity, translation and all the other settings which seem to go hand-in-hand with RS232. But it's probably much easier to use the comma software provided.

Unfortunately, there is no facility for adjusting the bitwise word length or for using split baud rates such as 1200/75. However, monitoring and control of CRR, CTS, CRR, DTR and RTS is available in case full hand-shaking is required.

It's good to be sure that the CRR calls are identical to those used on the 850, so block output and concurrent input/output modes are available via the standard CRR calls.

Thoughtfully, the designers have

even taken care of those few programs which use non-documented calls to the 850 system. All you need to do is load a binary file called PRE.SYS from the master disc before working with such software, and the P-R Connection should completely emulate the 850.

This is a very useful device for anyone wishing to use modems or other RS232 devices, and certainly a bargain compared to the old Atari 850 interface. But do bear in mind the lack of a 1200/75 mode if you want to access a system that still insists on this speed.

Also, if all you want to do is plug in a Centronics-type printer you would probably be far better off getting a Centronics interface lead for around half the price.

Product: C.S.'s P-R Connection
Price: £59.95 (incl. VAT)
Supplier: Frontier Software, PO Box 713, Narragansett, North Yorkshire YO2 0AR
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SOFTWARE Solutions

Your programming problems solved by ANDRÉ WILLEY

As you would expect, I get quite a number of letters every month from Atari enthusiasts asking all manner of technical questions. But this month I received a most unusual letter from an Acorn computer user who is having trouble getting to grips with our somewhat non-standard serial I/O system. Bernard Beaton from Belfield in Middlesex writes:

I have an Alphason 80 printer which is fitted with an Atari interface and I want to adapt it to work with my Acorn computer. Studying the printer I noted that it has a serial interface, but looking inside I find six wires - none thin enough for RS232.

There is also the apparent absence of a clock in the interface, and I presume at least one of the extra lines carries a clock signal from the host computer - but apart from the obvious ground line I have no idea what any of the others do.

Could you help me with details of the signals this printer expects from an Atari computer, including the baud rate of the data and the frequency of a clock signal if such is required. Other details such as seven or eight bit data, and any parity bits and start and stop dashes/protocol would also be helpful.

In short - the details I will need to design and make an interface from my own computer's RS423 and/or its Centronics output to allow me to use this printer.

In case there is any misinterpretation, the layout and numbering of the Atari printer plug would be helpful.

Well there's an interesting question! I'm glad you feel that we might be able to help other computer users. In fact, the information will also be of interest to any Atari experts who also want to

experiment with the I/O. The interface standard is quite complex compared to normal RS232, but there is no reason why you couldn't write a software emulator for it.

The Atari serial line may be connected to any number of peripherals, so the system includes the ability to send device specific commands. Let's first take a look at the various pins on the 13-wire serial I/O connector as shown below.



Serial I/O jack

1. Clock input
2. Clock output
3. Data input
4. Ground
5. Data output
6. Ground
7. Command
8. Motor control
9. Proceed
10. +5 volts ready
11. Audio input
12. +12 volts
13. Interrupt

The 13-pin serial I/O connector. Please note the location of the clock from the outside.

Pin 2 is driven by the host computer and supplies a 19,200 baud clock signal used to synchronise all data communication between the micro and its peripherals. A data bit from the

computer commences when the clock becomes high - +5 volts. The clock will then return to zero half way through the data bit.

Any data sent from the peripheral back to the host computer is 180° out of phase and thus should commence when the clock line goes low - 0 volts.

Pin 3 is the host computer's data-in line - which could also be regarded as the peripheral's data-out since there is no pin reassignment within the I/O cable.

Pin 4 is the data ground line.

Pin 5 is the computer's data-out line - or equally the peripheral's data-in. A byte of information is always sent as eight data bits preceded by a logic zero start bit and followed by a logic one stop bit.

Pin 6 is a second data ground line - you may use this or pin 4.

Pin 7 is the line used to signify a command frame - more about this later.

Pin 10 might also be of use to you as it is held at +5 volts by an Atari computer - so dropping it low for a short time and then taking it high again should reset the printer if you get in a mess.

Now for the data packet format. There are two types of output - command frames and data frames. A command frame always comes first and indicates which peripheral the following data frame is destined for.

This command frame is signified by the lowering of the command line at pin 7 approximately 1,000 microseconds before the frame is sent. This will return high about 800 microseconds after the command frame is completed.

If the command frame has been received and is acceptable the periph-

4 From Page 41

eral will return an ACK signal (44V) – otherwise it will return a NAK (24E) and abort.

When an operation is to initiate data – for example, when being sent to a printer – the data frame will be sent out by the computer after a delay of approximately 1,000 microseconds.

The peripheral will once again respond with an ACK or a NAK. Finally it will send a COMPLETE signal (4D) to indicate satisfactory completion of the operation or an ERR (46) if it was unable to finish the task for any reason.

The command frame always consists of five bytes: The device ID, the command byte, two auxiliary data bytes and a checksum. The ID for a printer is 44D and the command for Write Data is 46F.

The two auxiliary bytes contain device-specific information – the first is not used by the printer but the second should be set to 46F. The checksum is calculated as the arithmetic sum of the preceding four bytes, with the carry added back into every addition.

The data frame format is very much simpler, consisting of just 48 bytes of printer data followed by a checksum of those bytes calculated in the same manner as that used for the command frame. If you only need to send a couple of bytes of data to the printer you should pad them out with non-printing characters such as nulls – ASCII zero.

Do you still want to design an interface? If so, I'd be most interested to hear how you get on. If you require any more information or the full interface specifications and timing diagrams I recommend Atari's own Technical Reference Notes for the Atari 400/800. Good luck!

Printer problems

Now a less technical letter from Mark Laag of Stamford, Lines who has a problem with AtariWriter Plus.

As I understand it from chapter four of the AtariWriter Plus Owner's Manual, I ought to be able to send myself all the facilities of my MSX printer/plotter simply by inserting the appropriate instructions in my text.

On page 44 of the manual it implies that the Escape symbol will be displayed by typing Shift+Escape, then Escape again. However, I find that this action only displays the downward

curly arrow usually given in the program by Option+Insert.

If I use Control+D followed by Shift+Escape and Escape and then the appropriate decimal codes, my printer merely prints the correct letter for that code rather than acting on the instruction.

Since the MSX is listed as a device supported by AtariWriter Plus I find it most frustrating not to be able to use the different colours and letter sizes which should be available. What am I doing wrong?

It looks to me as though the manual was a bit off target when it describes the method of entering the Escape symbol. The key sequence it describes does indeed generate an ASCII code 27, but the problem is that the authors of the program use code 27 to initiate an empty space which will be filled in by you at print time – normally selected using Option+Insert.

To get around the problem you should use the Control+O sequence, which does work correctly when you get the hang of it. First type the Control+O, followed by the number 027 – the ASCII code for Escape. Then type in either the character indicated in the manual if it is a normal keyboard key or another Control+O and the ASCII code if you can't enter it normally. Each ASCII code you require to send to the printer must be preceded by its own Control+O.

You will find that most of the 1000 characters read some first on a line of text, so you should set the left margin to zero. Now you can send each command on a fresh line then set your margin back to its original value.

SpartanOS and POINT

Next we have another online question from a modest user who likes to go under the name de plume de bruto – even though he also answers to Steve.

I am using SpartanOS 3.2 and am having a big problem with the extended length PATH and POINT commands. The manual says to POINT some numbers into memory and then use MD:CT:W008.00,"D1" instead of Atari's own POINT command.

This causes me problems if the file is already opened for update – using OPEN W008,02,"D1:FILE" – the MD command seems to alter the channel to a read-only status. As soon as I try to PRINT or PUT any data to the file I get an Error 138 indicating I am trying to write to a read-only file.

Also, even if I know that a channel was in fact closed before I use the

POINT command, I still get an error when trying to OPEN it. For example:

```
MD OPEN D1
D1:FILE:W008.00
MD MD:CT:W008.00,"D1:FILE"
MD OPEN D1,D1:FILE
```

gives me an Error 138 – channel already open.

As many of my files far exceed 32K this is proving to be a serious problem. Can you help me?

There seems to be a small bug in SpartanOS which relates to the extended POINT command – and not just to update mode files either. If you use the method described in the manual SpartanOS loses track of the data direction of the file. That is, while it still knows that the file is open, there is no record of whether it is an input or an output file.

This appears to be because the first auxiliary parameter of the MD command somehow ends up in the data direction register giving a resultant direction of zero.

All you need to do is store your data direction byte – 4 for input, 8 for output, 12 for update and so on – in a variable and use that instead of the first zero in the MD command. In your example this would result in MD 027,1,12,0,"D1".

Steve and other modest users might be interested to know that I'm currently preparing a feature for a future issue of Atari User about online communications – or more specifically Atari 8 bit bulletin boards. Apart from the obvious major systems such as MicroLink there are many small, independently run bulletin boards scattered around the country. I'd like to hear from anyone who regularly uses this type of BS and of course from the types who run them.

Ideally I would like to compile a definitive list, so if you run an Atari 8 bit BS – that's either a bulletin board specifically for Atari 8 bit users or one that is actually run on an 8 bit machine – I'd like you to send me all the relevant details as soon as possible.

These should include the name, phone number and baud rates of the board, plus any other details such as the hardware and software used and its location, facilities, number of current users and so on. You can either write to me here at Atari User or leave me a message on MicroLink/Telecom Gold box number 70 MAGGIO.

And, that wraps it up for this time. Keep those letters coming in – especially if you're struggling with your first few programs on your new Atari 8 bit computer.

QMI criticism commonly levelled at home computers is that they are antisocial. Certainly it's hard to imagine the whole family gathering around the latest mega-blaster from Banzai! Software, or eagerly sitting out together on a Quest for the Bejewelled Bandicut.

To redress this imbalance, here's an extremely simple gadget that will let your computer take a leading role in family entertainment.

Basically, it's a device to help you play quiz and panel games, and we've given you a couple to get you started.

Although such games are extremely popular, they can easily lead to argu-

ments about who answered first, and whether they took too long. The Quizbox relieves your computer's help to provide an accurate time limit, and to detect which of up to five contestants was the first to press his or her answer button.

It eliminates disputes, and introduces a level of fairness which no human quizmaster could match.

You can, if you wish, wire the five buttons into a single keypad which will respond only to the first key pressed - ideal as an answering system for multiple-choice questions.

You could also use it in alarm networks, sports timing systems or any

similar applications where you need to know which of several events happened first. It's one of the simplest gadgets ever published. There's no printed circuit board, so no need for any knowledge of electronics, and you can even get by without any soldering.

The hardware is little more than a set of five push-button switches, each of which is connected to an input line at the joystick port. All the scanning, latching and priority lockout functions are performed by a machine code routine which can easily be incorporated into your own Basic programs.

Operating the Quizbox is easy. The quizmaster first resets the system by pressing any key on the computer keyboard, then reads out the question.

The machine code routine scans the five switches and, if one is pressed during the time allowed, it locks out the other four and returns to Basic with the winning number held in address 1291.

If no contestant responds within the time limit, it puts 0 into that address and locks out all switches until the quizmaster resets everything.

Since the system responds in less than one-tenth of a millisecond, the chances of two players pressing at exactly the same moment are too small to bother about. However, if this unlikely event should occur, the machine code routine will give priority to players in the order 5,1,2,3,4.

The time limit is preset by a parameter in the USR call which sets the machine code running - see line 20 of Program 1. It can be any whole number from 0 to 65535, each unit corresponding to one-fiftieth of a second - 58 sets the time limit at one second, 508 makes it ten seconds and so on.

Timing starts as soon as the quizmaster presses a key, so allowance must be made for the number of seconds required to read out the question.

Now let's look at how to construct the device. A terminal block - see Figure 1 - is used to connect the various wires, though you could use a tagboard and solder them if you prefer.

The first job is to cut the joystick extension lead about 20cm from the end which plugs into the port, and strip back about 10cm of the outer black sheath.

This reveals five coloured wires, and the next job is to sort out which wire goes to which pin inside the moulded plug. Unfortunately the colour codes differ from one lead to another, even in batches bought from the same supplier, so you'll need some kind of continuity tester to identify the connections. A multimeter

Fingers on the button

LEN GOLDING enters the realms of family entertainment with his latest D-I-Y gadget, Quiz box

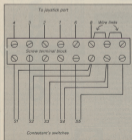


Figure 1
Connection of
switches to
joystick port

set to measure resistance is easiest, but you could use a cat-type continuity probe, or just a simple bulb and battery arrangement.

Slot an ordinary household pin into each of the joystick lead's sockets in turn and use the continuity tester to determine which colour is connected to that socket. Remember, if you're looking into the moulded plug, the top right hole corresponds to pin one and the bottom right hole to pin nine, as shown in Figure 8. Armed with this information, you can wire up the computer side of the terminal block.

The five contestants' switches can either be mounted on a long board or fixed to flying leads. The board system is easier, neater and a little cheaper, but flying leads permit more flexibility in seating arrangements.

The prototype used inexpensive panel-mounting switches and small plastic boxes, to keep costs down. Alternatively you can buy special pendant ball-push switches which can be fixed directly on to a flying lead without soldering, but these are relatively expensive.

Each box is connected to the terminal block by a flexible lead which must have at least two cores. The wires will take very little current, but there's likely to be a good deal of mechanical strain, so choose a good-quality, very flexible lead if you can.

We used lengths of joystick cable left over from previous projects, with several of the cores twisted together for extra strength. As you wire each switch to the terminal block, mark it in some way to show its number.

When everything is correctly wired, plug the gadget into joystick port one

```

10 REM Program 1: Joystick extension test
20
30 GO TO 50 TO NORMAL RUNOFF (1144), 6-
40 RT (1488) 70-REM Joystick extension test
50 I (1488)100,100-REM Start with 1000
60 GOTO 100,100-REM Go to line delay
70 I (1488)170-REM Find which player
80 GOTO 100
90 I (1488) 100 : REM set of 1000-200
0 10
100 I (1488) 100 : REM set of 1000-200
0 10
110 I (1488) 100 : REM set of 1000-200
0 10
120 I (1488) 100 : REM set of 1000-200
0 10
130 I (1488) 100 : REM set of 1000-200
0 10
140 I (1488) 100 : REM set of 1000-200
0 10
150 I (1488) 100 : REM set of 1000-200
0 10
160 I (1488) 100 : REM set of 1000-200
0 10
170 I (1488) 100 : REM set of 1000-200
0 10
180 I (1488) 100 : REM set of 1000-200
0 10
190 I (1488) 100 : REM set of 1000-200
0 10
200 I (1488) 100 : REM set of 1000-200
0 10
210 I (1488) 100 : REM set of 1000-200
0 10
220 I (1488) 100 : REM set of 1000-200
0 10
230 I (1488) 100 : REM set of 1000-200
0 10
240 I (1488) 100 : REM set of 1000-200
0 10
250 I (1488) 100 : REM set of 1000-200
0 10
260 I (1488) 100 : REM set of 1000-200
0 10
270 I (1488) 100 : REM set of 1000-200
0 10
280 I (1488) 100 : REM set of 1000-200
0 10
290 I (1488) 100 : REM set of 1000-200
0 10
300 I (1488) 100 : REM set of 1000-200
0 10
310 I (1488) 100 : REM set of 1000-200
0 10
320 I (1488) 100 : REM set of 1000-200
0 10
330 I (1488) 100 : REM set of 1000-200
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340 I (1488) 100 : REM set of 1000-200
0 10
350 I (1488) 100 : REM set of 1000-200
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360 I (1488) 100 : REM set of 1000-200
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370 I (1488) 100 : REM set of 1000-200
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380 I (1488) 100 : REM set of 1000-200
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390 I (1488) 100 : REM set of 1000-200
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400 I (1488) 100 : REM set of 1000-200
0 10
410 I (1488) 100 : REM set of 1000-200
0 10
420 I (1488) 100 : REM set of 1000-200
0 10
430 I (1488) 100 : REM set of 1000-200
0 10
440 I (1488) 100 : REM set of 1000-200
0 10
450 I (1488) 100 : REM set of 1000-200
0 10
460 I (1488) 100 : REM set of 1000-200
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470 I (1488) 100 : REM set of 1000-200
0 10
480 I (1488) 100 : REM set of 1000-200
0 10
490 I (1488) 100 : REM set of 1000-200
0 10
500 I (1488) 100 : REM set of 1000-200
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510 I (1488) 100 : REM set of 1000-200
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520 I (1488) 100 : REM set of 1000-200
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530 I (1488) 100 : REM set of 1000-200
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540 I (1488) 100 : REM set of 1000-200
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550 I (1488) 100 : REM set of 1000-200
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560 I (1488) 100 : REM set of 1000-200
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570 I (1488) 100 : REM set of 1000-200
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580 I (1488) 100 : REM set of 1000-200
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590 I (1488) 100 : REM set of 1000-200
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600 I (1488) 100 : REM set of 1000-200
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610 I (1488) 100 : REM set of 1000-200
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620 I (1488) 100 : REM set of 1000-200
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630 I (1488) 100 : REM set of 1000-200
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640 I (1488) 100 : REM set of 1000-200
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660 I (1488) 100 : REM set of 1000-200
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670 I (1488) 100 : REM set of 1000-200
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680 I (1488) 100 : REM set of 1000-200
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690 I (1488) 100 : REM set of 1000-200
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700 I (1488) 100 : REM set of 1000-200
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710 I (1488) 100 : REM set of 1000-200
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720 I (1488) 100 : REM set of 1000-200
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730 I (1488) 100 : REM set of 1000-200
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740 I (1488) 100 : REM set of 1000-200
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750 I (1488) 100 : REM set of 1000-200
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760 I (1488) 100 : REM set of 1000-200
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770 I (1488) 100 : REM set of 1000-200
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780 I (1488) 100 : REM set of 1000-200
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790 I (1488) 100 : REM set of 1000-200
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800 I (1488) 100 : REM set of 1000-200
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810 I (1488) 100 : REM set of 1000-200
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820 I (1488) 100 : REM set of 1000-200
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830 I (1488) 100 : REM set of 1000-200
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840 I (1488) 100 : REM set of 1000-200
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850 I (1488) 100 : REM set of 1000-200
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860 I (1488) 100 : REM set of 1000-200
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870 I (1488) 100 : REM set of 1000-200
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880 I (1488) 100 : REM set of 1000-200
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890 I (1488) 100 : REM set of 1000-200
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900 I (1488) 100 : REM set of 1000-200
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910 I (1488) 100 : REM set of 1000-200
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920 I (1488) 100 : REM set of 1000-200
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930 I (1488) 100 : REM set of 1000-200
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940 I (1488) 100 : REM set of 1000-200
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950 I (1488) 100 : REM set of 1000-200
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960 I (1488) 100 : REM set of 1000-200
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970 I (1488) 100 : REM set of 1000-200
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980 I (1488) 100 : REM set of 1000-200
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990 I (1488) 100 : REM set of 1000-200
0 10
1000 I (1488) 100 : REM set of 1000-200
0 10

```

Program 1: Joystick extension program



Figure 8:
Pin numbers of
Joystick extension
lead plug

and run Program 1. This is a skeleton routine which shows how everything works in its simplest form. You have about five seconds to press any button before the flash out of time message appears. Check that each button produces the correct number on screen. If not, check the wiring again.

When Program 1 works correctly then a go with Program 2. This is a more user-friendly version and can be used in its existing form for TV-style quiz games.

It provides a tidy display in Graphics 2, adds sound to indicate

button pressed on/off time, and lets you use names instead of numbers to identify the contestants. The time limit is set by variable FC in line 20.

When you run this program you will first be asked to type in the players' names. The first should be the name of the player controlling button one, the second button two and so on. If there are less than two buttons in use, just press Return when asked to name the missing players.

If during the course of play

Turn to Page 28 for

```

10 REM Program 2: User-friendly timer and priority indicator
20 I (1488) 100 : REM Time Limit (1000 = 100 sec)
30
40 GO TO 100 TO NORMAL RUNOFF (1144), 6-
50 RT (1488) 70-REM Joystick extension test
60 I (1488)100,100-REM Start with 1000
70 GOTO 100,100-REM Go to line delay
80 I (1488)170-REM Find which player
90 GOTO 100
100 I (1488) 100 : REM set of 1000-200
0 10
110 I (1488) 100 : REM set of 1000-200
0 10
120 I (1488) 100 : REM set of 1000-200
0 10
130 I (1488) 100 : REM set of 1000-200
0 10
140 I (1488) 100 : REM set of 1000-200
0 10
150 I (1488) 100 : REM set of 1000-200
0 10
160 I (1488) 100 : REM set of 1000-200
0 10
170 I (1488) 100 : REM set of 1000-200
0 10
180 I (1488) 100 : REM set of 1000-200
0 10
190 I (1488) 100 : REM set of 1000-200
0 10
200 I (1488) 100 : REM set of 1000-200
0 10
210 I (1488) 100 : REM set of 1000-200
0 10
220 I (1488) 100 : REM set of 1000-200
0 10
230 I (1488) 100 : REM set of 1000-200
0 10
240 I (1488) 100 : REM set of 1000-200
0 10
250 I (1488) 100 : REM set of 1000-200
0 10
260 I (1488) 100 : REM set of 1000-200
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270 I (1488) 100 : REM set of 1000-200
0 10
280 I (1488) 100 : REM set of 1000-200
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290 I (1488) 100 : REM set of 1000-200
0 10
300 I (1488) 100 : REM set of 1000-200
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310 I (1488) 100 : REM set of 1000-200
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320 I (1488) 100 : REM set of 1000-200
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330 I (1488) 100 : REM set of 1000-200
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340 I (1488) 100 : REM set of 1000-200
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350 I (1488) 100 : REM set of 1000-200
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360 I (1488) 100 : REM set of 1000-200
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370 I (1488) 100 : REM set of 1000-200
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380 I (1488) 100 : REM set of 1000-200
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390 I (1488) 100 : REM set of 1000-200
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400 I (1488) 100 : REM set of 1000-200
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410 I (1488) 100 : REM set of 1000-200
0 10
420 I (1488) 100 : REM set of 1000-200
0 10
430 I (1488) 100 : REM set of 1000-200
0 10
440 I (1488) 100 : REM set of 1000-200
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450 I (1488) 100 : REM set of 1000-200
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460 I (1488) 100 : REM set of 1000-200
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470 I (1488) 100 : REM set of 1000-200
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480 I (1488) 100 : REM set of 1000-200
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490 I (1488) 100 : REM set of 1000-200
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500 I (1488) 100 : REM set of 1000-200
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510 I (1488) 100 : REM set of 1000-200
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520 I (1488) 100 : REM set of 1000-200
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530 I (1488) 100 : REM set of 1000-200
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550 I (1488) 100 : REM set of 1000-200
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560 I (1488) 100 : REM set of 1000-200
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570 I (1488) 100 : REM set of 1000-200
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580 I (1488) 100 : REM set of 1000-200
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590 I (1488) 100 : REM set of 1000-200
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600 I (1488) 100 : REM set of 1000-200
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610 I (1488) 100 : REM set of 1000-200
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620 I (1488) 100 : REM set of 1000-200
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630 I (1488) 100 : REM set of 1000-200
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640 I (1488) 100 : REM set of 1000-200
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670 I (1488) 100 : REM set of 1000-200
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680 I (1488) 100 : REM set of 1000-200
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690 I (1488) 100 : REM set of 1000-200
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700 I (1488) 100 : REM set of 1000-200
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710 I (1488) 100 : REM set of 1000-200
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720 I (1488) 100 : REM set of 1000-200
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730 I (1488) 100 : REM set of 1000-200
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740 I (1488) 100 : REM set of 1000-200
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750 I (1488) 100 : REM set of 1000-200
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760 I (1488) 100 : REM set of 1000-200
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770 I (1488) 100 : REM set of 1000-200
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780 I (1488) 100 : REM set of 1000-200
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790 I (1488) 100 : REM set of 1000-200
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800 I (1488) 100 : REM set of 1000-200
0 10
810 I (1488) 100 : REM set of 1000-200
0 10
820 I (1488) 100 : REM set of 1000-200
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830 I (1488) 100 : REM set of 1000-200
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840 I (1488) 100 : REM set of 1000-200
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850 I (1488) 100 : REM set of 1000-200
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860 I (1488) 100 : REM set of 1000-200
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870 I (1488) 100 : REM set of 1000-200
0 10
880 I (1488) 100 : REM set of 1000-200
0 10
890 I (1488) 100 : REM set of 1000-200
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900 I (1488) 100 : REM set of 1000-200
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910 I (1488) 100 : REM set of 1000-200
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920 I (1488) 100 : REM set of 1000-200
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930 I (1488) 100 : REM set of 1000-200
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940 I (1488) 100 : REM set of 1000-200
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950 I (1488) 100 : REM set of 1000-200
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960 I (1488) 100 : REM set of 1000-200
0 10
970 I (1488) 100 : REM set of 1000-200
0 10
980 I (1488) 100 : REM set of 1000-200
0 10
990 I (1488) 100 : REM set of 1000-200
0 10
1000 I (1488) 100 : REM set of 1000-200
0 10

```

Program 2: User-friendly timer and priority indicator

```

100 GOTO 430
101 FOR P=1 TO 1
200 FOR I=1 TO 26:PRINT CHR$(I);:NEXT I:GOTO 1000
300 PRINT "Generate a random letter code"
400 FOR I=1 TO 26:PRINT CHR$(I);:NEXT I:GOTO 1000
500 PRINT "Enter the corresponding letter"
600 GOTO 1, 40, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430

```

Program 10: These lines convert Program 9 into a word-making game

4 From Page 40

someone presses an unassigned button, the computer will accept the input, but will print Can't identify in place of the player's name.

Program 11 can be modified to make a self-contained quiz game by inserting extra subroutines after the main code. For example, if you add the extra lines shown in Program 11, you will get a word-making game reminiscent of those used in *Catshower* and *Mazetarians*.

When you reset the timer, three random letters will be displayed on screen. Contestants have to think of a word beginning with the first letter, and containing the other two letters in their printed order. The quizmaster, aided by a dictionary, has the final say on any word's validity.

The extra lines in Program 11 will give you another simple word game—the quiz known as Spin Quiz at Tall-man-Gulf. The computer randomly picks a category, such as a boy's name, an animal or a country, then displays it on screen, followed by the words beginning with and a random

```

175 GOTO 420
180 FOR I=1 TO 26:PRINT CHR$(I);:NEXT I:GOTO 1000
190 PRINT "Generate a random letter code"
200 FOR I=1 TO 26:PRINT CHR$(I);:NEXT I:GOTO 1000
210 PRINT "Enter the corresponding letter"
220 GOTO 1, 40, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430

```

Program 11: These lines convert Program 10 into a letter-quiz game

letter. The first player to come up with an acceptable answer—as judged by the quizmaster—wins the point.

You can easily change the categories used, or add extra ones of your own. Each new line must start with `AND`—and end with `RETURN`, and can contain up to 26 characters.

Make sure that all the extra line numbers form an unbroken sequence, rising from 550 in increments of ten, then change the random number generator at line 290 to suit.

The first number after `RND(0)` should be the total number of items to choose from. For example, if you add 10 more categories, making a total of 40, line 680 should be changed to:

```
680 FOR I=1 TO 40:GOTO 690
```

This will now generate a random line number within the range 550 to 640.

For the more daring, Program 12 is a short machine code listing that emulates the Basic routine to drive the Outbox. It shows how the joystick ports can be used for five bit input.

Other subroutines can easily be devised for the Basic programs to suit your own requirements. How about a program which produces a random arithmetic sum on screen? Or one which displays letters, simple words, colours or shapes for pre-school children to identify?

An element of competition often provides extra incentive for learning, and quiz games can hold a youngster's attention for quite long periods. Used sensibly, the Outbox could introduce a new dimension to classroom or youth group activities, as well as providing hours of family entertainment.

```

450 GOTO 100:PRINT "010000"
460 GOTO 100:PRINT "10010000"
470 GOTO 100:PRINT "10010000"
480 GOTO 100:PRINT "10010000"
490 GOTO 100:PRINT "10010000"
500 GOTO 100:PRINT "10010000"
510 GOTO 100:PRINT "10010000"
520 GOTO 100:PRINT "10010000"
530 GOTO 100:PRINT "10010000"
540 GOTO 100:PRINT "10010000"
550 GOTO 100:PRINT "10010000"
560 GOTO 100:PRINT "10010000"
570 GOTO 100:PRINT "10010000"
580 GOTO 100:PRINT "10010000"
590 GOTO 100:PRINT "10010000"
600 GOTO 100:PRINT "10010000"
610 GOTO 100:PRINT "10010000"
620 GOTO 100:PRINT "10010000"
630 GOTO 100:PRINT "10010000"
640 GOTO 100:PRINT "10010000"
650 GOTO 100:PRINT "10010000"
660 GOTO 100:PRINT "10010000"
670 GOTO 100:PRINT "10010000"
680 GOTO 100:PRINT "10010000"
690 GOTO 100:PRINT "10010000"
700 GOTO 100:PRINT "10010000"
710 GOTO 100:PRINT "10010000"
720 GOTO 100:PRINT "10010000"
730 GOTO 100:PRINT "10010000"
740 GOTO 100:PRINT "10010000"
750 GOTO 100:PRINT "10010000"
760 GOTO 100:PRINT "10010000"
770 GOTO 100:PRINT "10010000"
780 GOTO 100:PRINT "10010000"
790 GOTO 100:PRINT "10010000"
800 GOTO 100:PRINT "10010000"
810 GOTO 100:PRINT "10010000"
820 GOTO 100:PRINT "10010000"
830 GOTO 100:PRINT "10010000"
840 GOTO 100:PRINT "10010000"
850 GOTO 100:PRINT "10010000"
860 GOTO 100:PRINT "10010000"
870 GOTO 100:PRINT "10010000"
880 GOTO 100:PRINT "10010000"
890 GOTO 100:PRINT "10010000"
900 GOTO 100:PRINT "10010000"
910 GOTO 100:PRINT "10010000"
920 GOTO 100:PRINT "10010000"
930 GOTO 100:PRINT "10010000"
940 GOTO 100:PRINT "10010000"
950 GOTO 100:PRINT "10010000"
960 GOTO 100:PRINT "10010000"
970 GOTO 100:PRINT "10010000"
980 GOTO 100:PRINT "10010000"
990 GOTO 100:PRINT "10010000"

```

THE PARTS REQUIRED

The parts used are out of a printer main, and suitable versions can usually be found in local electrical electronic and computer stores.

5 push-button switches—must be push-to-release

8 small plastic boxes

Approximately eight metres of two-core cable

7 24-pin terminal block

1 joystick extension lead

```

10 Program 12: Source code for 128 row
110 10:01 010000 010000
120 00010001
130 00010001
140 00010001
150 00010001
160 00010001
170 00010001
180 00010001
190 00010001
200 00010001
210 00010001
220 00010001
230 00010001
240 00010001
250 00010001
260 00010001
270 00010001
280 00010001
290 00010001
300 00010001
310 00010001
320 00010001
330 00010001
340 00010001
350 00010001
360 00010001
370 00010001
380 00010001
390 00010001
400 00010001
410 00010001
420 00010001
430 00010001
440 00010001
450 00010001
460 00010001
470 00010001
480 00010001
490 00010001
500 00010001
510 00010001
520 00010001
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670 00010001
680 00010001
690 00010001
700 00010001
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760 00010001
770 00010001
780 00010001
790 00010001
800 00010001
810 00010001
820 00010001
830 00010001
840 00010001
850 00010001
860 00010001
870 00010001
880 00010001
890 00010001
900 00010001
910 00010001
920 00010001
930 00010001
940 00010001
950 00010001
960 00010001
970 00010001
980 00010001
990 00010001

```

Program 12: Source code for 128 row in all Outbox programs

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SAVED FOR POSTERITY

£10 LETTER

I TYPED in the excellent 3D Drawing routine from the March 1988 issue of Atari User and made some quite splendid drawings with it. Unfortunately, they were erased never to return when the computer was switched off.

Because of this I started to look for a way of keeping the magnificent drawings I had made. Looking through some back issues of Atari User I came across the Graphics II screen dump routine for the 1024 printer in the September 1985 issue.

After entering it — and a couple of extra lines — to the original program, I had the perfect way of making hard copies on my lovely 1024.

The extra lines that you will need to add are:

```

L10 R 19850 R 124 1987
L11 R 19850 A1 121 124 246
L2
L30 CLRG 41:014 P,A,L,C:
L31 M1,1,11 148 149 152
L 1988
L48 M17 L:070 114
  
```

— Philip Thorpe-Willett,
Redon, Cleveland.

Helpful Zybox review

I WOULD like to thank you for the article in the March 1988 issue of Atari User about Zappan's Games. I was very interested to read about its new super game for the Atari — Zybox. The article pleased it rather a lot so I decided to buy it.

After playing it really for a while I came to the conclusion that the article was

perfectly correct in its appraisal. It is absolutely wonderful and really addictive in its game play with the sound and graphics being outstandingly good.

I have bought Zappan's other game, Speed Ace and it's also a pleasure to play. Thanks for the article that introduced me to the game.
— Mark Gishmet, Ware, Herts.

Point well taken

In your March 1988 issue there was an excellent 3D drawing program by Kevin Edwards. However, there are a couple of little discrepancies in the listing. The first modification that the program needs a fix to stop it plotting an overworn point on screen.
Just add:

```

P1 0 0250014 148 11
  
```

The program also produces an error message if you set a point off the screen. This can be avoided by adding two more lines:

```

M1 M1P 11
M1 M1P 58
  
```

Once these are added the program will run and function perfectly. — Thomas M. Hill, Ayles, Oxford.

Fooled by Buster

AFTER reading the April 1988 issue of Atari User I came across the Checksum Buster program.

What a wonderful and revolutionary idea for

entering programs — just type in the checksums and away the routine goes, generating the listing for you. So I typed it in, checked it with Get It Right! and followed the instructions perfectly.

And what did I find? What a crafty devil Andre Milley is and what an April Fool I am.
— Stephen Mitchell, London.

America calling

I AM writing to tell you of an experience I had when phoning around to find out about a small problem I had with Dungeons & Dragons: The Dungeon. The bug I encountered involved making a back-up of my character file. It always ended up with a bad sector, which meant I couldn't re-access the file, thus losing my characters.

I phoned my retailer who told me he'd also had a lot of problems, but only with this drive. He advised me to contact 201 Data. I did this and spoke to Paul Sutton, but he hadn't heard of this problem, so he told me to give Detecto a ring.

I phoned the company

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and spoke to Mrs Carol Dixon who told me that she would try and find out what the problem was. The very next day I received a phone call from America.

It was from Karl Trumbly of Intel's Operations Inc. of California — the person who wrote the Dungeons & Dragons Guide. She explained that

Turn to Page 80 >

CHECK THAT PLUG

HERE is a warning for readers who like me, enjoy building Lee Gilling's gadgets. Having decided to build the Kassin Interface — featured in the April 1987 issue of Atari User — I bought two joystick extension leads from the local Tandy store.

While connecting them to the circuit board I checked them with a meter. To my horror I found that even though they had the same coloured wires as the leads I had bought for the last gadget they terminated at different pins in the plug.

So if you are attempting

to build this gadget and have bought a Tandy joystick lead, the check will not work and could even damage the board. The new connections are as follows:

Connector	Cable colour
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Grey
8	White
9	Black

I hope that this will be of some use to other readers. — T. Gigg, Kingswood, Bristol.

4 From Page 48

you have to re-format your backup disc to clear all the errors before copying to it — now that is either a real customer service.

Other readers may also be interested to know that three versions of the game are available and all have bugs. Version 1.0 is no good at all, 2.0 has bugs on the line and won't let you cross the river Slang and 2.1 has bugs on that three.

A new version 2.2 is expected to be coming out shortly that has no bugs in it. — **David Parrish, New Milton, Hampshire**

A stitch in time . . .

I HOPE you can help me to solve a nasty problem. My wife has inherited one of our computer programs and is available to help machine printers create patterns using various types of yarn and stitches.

I thought about writing such a program myself but after reading through the knitting machine manual I gave up the idea. So please advise my wife and tell me if there are any programs available that will work on my 12000. — **S. Kinnaird, Gorbals**

Unfortunately, to our knowledge there are no programs written specifically for the Atari to create knitting machine patterns. Do any of our readers know of such a program? If so, please write in and tell us.

Better class of programs

I'M a new reader to Atari User and I would like to congratulate you on producing a superb magazine.

I have recently swapped my old BBC Micro for an Atari 1300X and 7000 disc drive and I am over the moon with it. After many

years as a primary school teacher I often found myself in the situation of writing educational programs for the children and I must admit I was getting a little stale on the BBC Micro.

But now my Atari has given me a whole new outlet to programming. Text modes are and two offer large sized multi-coloured text and the DTM graphics modes are wonderful for drawing rainbows and other colourful displays.

Thanks to your excellent programming series, I have quickly grasped how to produce simple animation. I am now working on a

simple game for the children in my class to play.

So once again, many thanks for a superb magazine, and keep on the good work. — **Bottle Soiling, Reddish, Stockport**

Why not send your programs to us for possible publication in Atari User?

Gauntlet II?

PLEASE could you tell me if US Gold are planning to release Gauntlet II for the Atari? I enjoyed playing the Deeper Dungeons and would like to see Part II

released. — **S. Puppis, Market Rasen, Lincolnshire**

At present US Gold has no plans to release the game.

American scene

JUST before Christmas my parents took me on holiday to America. We were there for nearly a month and I wanted out to be an ideal opportunity for me to take a look at the Atari scene over there.

I was very impressed by the support the Atari gets.

GOING ROUND IN CIRCLES AND GETTING SOMEWHERE

BEING very new to computing I am having problems with certain fundamental elements of Atari Basic. I was trying to write a simple program to draw circles, but I couldn't seem to get it right. Also, can you explain to me what an array is? — **Michelle Simpson, Slough, London**

Sometimes drawing circles in Basic can involve more work than it's worth. Here is a simple program to draw one in Graphics B:

```
10 DIM C(1) (0,1)0.01, 0.01
20 FOR I=1 TO 100
30 GOTO 40
40 GOTO 50
50 GOTO 60, 70, 80, 90, 100
60 GOTO 100
70 GOTO 100
80 GOTO 100
90 GOTO 100
100 GOTO 100
```

An array can be thought of as a pile of boxes stacked on top of each other in which you can store numbers.

In Atari Basic these boxes are numeric variables to which you can assign various values and then do mathematical calculations with them. Each area must

have a name — it can be the same as you would give an ordinary variable, but following this there must be one or more numbers inside brackets. These indicate which boxes — or elements — in the pile are being referred to.

Before you attempt to use an array you must DIMension it. But there is a difference between DIMensioning an array and a string variable.

When you DIMension an array you are telling the micro how many boxes or elements you require, and the name you are assigning to them as a group. But when you DIMension a string you are telling it the maximum number of characters it can contain.

Arrays can be very useful when you want to assign values to variables very quickly. For example, imagine attempting to write lines like this in your program all the way up to 100:

```
10 DIM Y(1)
20 DIM Y(1)
30 DIM Y(1)
```

Instead, you can use an

array to assign these values for you with the following routine:

```
10 DIM ARRAY(100)
20 FOR I=1 TO 100
30 LET ARRAY(I)=
40 NEXT I
```

If you run this program and then tell the computer to print ARRAY(50) it will print 50 and this value will remain the same unless you change it or switch the micro off.

If you type PRINT ARRAY(125)+ARRAY(50) you will get 75 because the computer has remembered what numbers were assigned to the array. This technique is very useful and can speed up program execution.

If you define an array at the beginning of a program and then plot your points relative to the results, instead of waiting for the micro to calculate them each time it needs the information, it will save lots of time.

Arrays, and their counterparts matrices, will be covered in detail in our programming tutorial series in the near future.

Most of the computer shops I visited stocked all of the Atari hardware and shelf after shelf of software greeted my greedy eye — it's a shame that companies over here don't follow their policy.

There appears to be lots of companies over there still writing new games and business software all the time. It just goes to show how popular the Atari 8 bit still is in America. I also bought some of the magazines written specifically for the Atari range, but I must say that Atari User is better than all of them.

They all seem to be moving more and more towards the ST, leaving around 20 pages for the XL/XE range — whereas you have 82 pages devoted to the Atari 8 bit in the magazine — Robert Maltby, Maitland, Kent.

LET SOFTWARE HOUSES KNOW HOW YOU FEEL. . .

I HAVE been reading Atari User for over two years now and it is a brilliant magazine. I always read the mailing section as I find it very interesting, especially in the February issue.

In it there was a letter from Martin Osborne of Wimbledon complaining about the lack of software for the 8 bit Atari. In the April issue I read some letters from people who were in total agreement with him.

Why is it that software houses like USI Gold, Ocean, Imagine, Grendon Graphics,

Hudson, Elite, Activision, Duxmark and many more always claim that they are releasing a game across all formats when they don't?

They always ignore the Atari, a machine that can match and surpass in terms of quality any other 8 bit machine on the market. I can also do some tests that certain 16 bit systems can't.

Why is it that some companies produce games for the Atari and only ever release them on the Commodore? The time has come for the thousands of Atari

owners in this country to let the software houses know how we all feel.

We must all write to them and let them know there is still a market for this superb machine. If we don't we may never see another game produced again. — Stephen Baxter, Norwichey, Middlesex.

• The ball is in your court, software houses. We would like to hear your reactions to this and many other letters on the same subject which are sitting in our in-tray.

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