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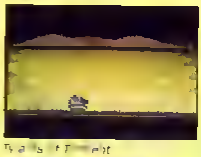
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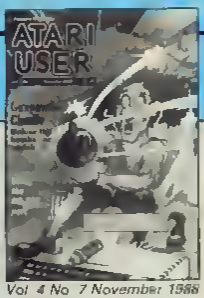
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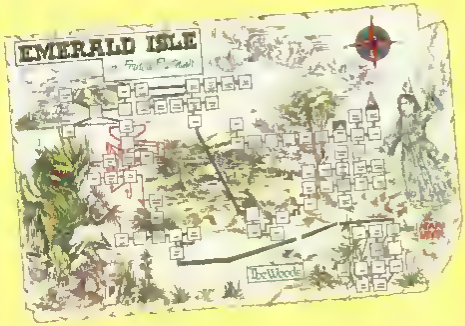
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ATARI USER + PAGE 6 ATARI USERS MAGAZINE

This is the last issue of *Atari User* in its present form Our January issue will appear in the new year as Page 6 ATARI USER a new bi monthly publication providing outstanding coverage of your Atari from the resources of the two longest established Atari magazines Any correspondence for *ATARI USER*, including advertising and articles for publication should be addressed to Page 6 Atari User PO Box 54 Stafford ST16 1DR

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Big promotion for 8 bit machines

THE Atari UK drive for dominence in the home computer entertainment marketplace shifts up another gear this winter.

A nationwide £2 million TV campaign will include a new commercial for the XE in order to promote the machine and its latest leisure software offerings.

Atari UK boss Bob Gleadow told *Atari User*: "We consider this to be money well spent – there's a lot of life left in the XE yet.

"We're promoting the 8 bit machines as much as we can. In particular we have the Atari Games Centres scheme which is becoming most successful with its attractive presentation of machines and software.

At the moment we have 67 Atari Games Centres established all over the UK and we expect this number will reach 110 by the end of the year."

The great Christmas fun show

THE theme for this year's Atari Christmas Show is entertainment – and that means games galore for 8 bit owners.

The show, set for London's Alexandra Palace on November 25-27, will play host to more than 70 exhibitors, all offering brand new products or bargains in hardware, software and add-ons.

Heading the all-star line up will be Atari itself, with a range of products demonstrating that it's still solidly behind the 8 bit range despite massive ST sales.

That dual commitment is evident from the leading software houses too – Tynesoft will be on hand with its complete range of software, including some titles on show for the first time.

One of the biggest attractions for gamers will be the Big Game High Score Contest, which will be open to all visitors.

Featuring Double Dragon, the ST version of the arcade game of the year from Melbourne House, the free competition will offer a major prize from Virgin-Mastertronic for the eventual winner.

There'll be any number of utilities on display for both the 8 bit machines, and visitors looking for that extra add-on, or just a fresh batch of discs to fill up, will be spoilt for choice, with bargain prices for peripherals being the order of the day.

And for anyone who gets tired of Christmas shopping, there'll be a games arcade – the ultimate try before you buy experience.

Atari interest in the PC Show

EVEN in the rarified MSdos-dominated atmosphere of the PC Show there were products to interest Atari 8 bit users who were prepared to trawl the recesses of Earls Court.

Mandarin Software (0626 878888) made its debut in the XL/XE marketplace with Lancelot, a triple adventure based on the Arthurian legend which offers a chance to win a £5,000 replica of the Holy Grail. Price £14.95.

Grandslam (01 247 6434) launched its Atari XL version of the Alternative Reality The Dungeon, price £14.95.

There was the first public showing by Level 9 (0344 467597) of Ingrid's Back the satirical animated sequel to Gnome Ranger, price £14.95.

A new joystick for the Atari from Konix (0495 350101) made its debut. The £14.99 ergonomic Navigator was described by Konix director Sandra Holloway as "the best joystick we've produced – it's also the best looking joystick ever."

Cheetah (0222 555525) provided competition with the Starfighter described as "the ultimate in joystick technology", price £14.95, and the "straightforward no nonsense" Challenger price £4.95. The Mach 1 has been reduced in price to £10.95.

Little Office (051 666 1130) was showing its new Copi Clip document holder which attaches to a monitor in the same way as the firm's best-selling Thingi but has a rotating arm. Price £6.99.



Cheetah's Starfighter



Pat's busy at Xmas

ONE of this year's most impressive performers in the budget entertainment market, Alternative (0926 814132) will be launching a game based on book and TV character Postman Pat.

"Postman Pat is being programmed by a top team and we expect a Christmas number one for this game", said a spokesman.

LINK WITH THE SHADES

Latest additions to the facilities available on MicroLink include multiple fax and the opportunity to play the popular cult game Shades.

Subscribers can now send fax messages to up to 50 addresses simultaneously.

And up to 128 users at one time can play Europe's most popular online adventure game Shades – which involves a massive and mysterious universe populated by magical characters in search of treasure and status.

Better Basic Boolean

LEN GOLDING continues his Basic serias by looking at quasi-mathematical short cuts

FASTEN your seat belts, because this month we're going to take off into the world of Boolean algebra. No, don't panic – it's nothing like schoolwork and bears only a slight passing resemblance to conventional maths. It's a lot easier to master for one thing, and allows you to perform all sorts of computing tasks which would be very cumbersome in conventional Basic. So it's worth a bit of effort to understand the principles.

The first thing to get clear is that Boolean Algebra is not a mathematical system – or at least, not the kind you're used to. Boolean expressions look rather odd at first glance, since they resemble statements of fact, rather than algebraic equations or conventional Basic instructions. Here are a few examples:

```
(N=42) (A>B) (N=5 OR X<1)
(HITS>1 AND LIVES>0)
(A$="ELEPHANT")
```

A Boolean expression must be contained in brackets, and has to be phrased in such a way that it can be either *true* or *false*. If it's true, then the whole expression will behave just like the number 1. If it's false, the expression will behave like 0. For example, look at this statement:

```
X=(Y>50)
```

If the expression in brackets is true – that is, if Y is genuinely greater than 50 – then X will take the value 1. If, on the other hand, Y is less than or equal to 50, then X will become equal to 0. The equivalent in conventional Basic requires two statements:

```
IF Y>50 THEN X=0
IF Y<=50 THEN X=1
```

or, more compactly

```
X=0: IF Y>50 THEN X=1
```

Even in a simple example like this, the Boolean version is considerably shorter, and fits into a single statement, so there's no need for a new line or a colon. Here's one that's a little more complex:

```
N=(S=5 AND X<Y)
```

In this case N will become equal to 1 if both the conditions in the brackets are true – that is, if S is equal to 5 and X is less than Y. In all other circumstances, N will take the value 0. Conventional Basic would put it in one of two ways:

```
N=0: IF S=5 THEN IF X<Y THEN N=1
```

or

```
N=0: IF S=5 AND X<Y THEN N=1
```

You can also use OR in just the same way:

```
N=(X>1 OR Y<10)
```

This is the same as saying:

```
N=0: IF X>1 OR Y<10 THEN N=1
```

So far there's no major advantage over the familiar IF...THEN statements, but lets take a look at what happens if we go one stage further:

```
X=X+(S=7)-(S=11)
```

Only one of the expressions in brackets can be true, since S cannot have two different values at the same time. If S=7 the statement evaluates to X=X+1–0; if S=11 the statement becomes X=X+0–1. Any other value for S will give X=X+0–0. In other words, X is incremented if S=7, decremented if S=11 or left unchanged if S is any other number. Just the sort of thing we need for a joystick routine.

Conventional Basic using IF...THEN statements, would require at least two program lines to achieve the above result. And Boolean statements can

carry on introducing more and more expressions, without constantly needing new lines, and without packing up at the first un-met condition

Two or more sub-expressions can be linked together into a single larger expression, like this

```
N=((A>0 OR B>0) AND (C-10))
```

Each sub-expression is first evaluated independently in terms of true or false, then the whole statement is examined to determine its overall truth value In this case if both sub-expressions are true, then N will take the value 1, but if either is false, N becomes 0

We saw an example of this *nesting* technique in last month's arcade game, which used a Boolean routine to move the gun right or left under joystick control This was the line that did most of the work

```
X1=X+((S=7 OR S=6 OR S=5) A
ND (X<19))-((S=11 OR S=10 O
R S=9) AND (X>0))
```

It looks complicated but, if you work it out, you'll see it boils down to a simple X1=X+Y–Z format, where Y represents the true/false value of the entire Boolean expression in front of the minus sign and Z the value of everything after it

In this example X1 is the new position, X is the old position and S is the number returned by the joystick The left and right screen boundaries are set at 0 and 19 respectively to suit Graphics mode 1

Because the joystick cannot be in two positions at once, only one of the two main expressions can be true at any given time – though they may both be false of course

This means that the entire statement can produce only three possible outcomes

X1=X+1–0 equivalent to X1=X+1

or

X1=X–1+0 equivalent to X1=X–1

or

X1=X+0–0 equivalent to X1=X

just like our simpler example earlier

Here's an approximate translation of the whole Boolean statement into English

"If the joystick is pointing right or up-right or down-right, and if there is room to move right, then add 1 to the current value of X Conversely, if the stick is pointing left or up-left, or down left then, provided there is room to move left, subtract 1 from the current value of X If the stick is pointing elsewhere, or if there is no room to move in the specified direction, then leave X unchanged Whatever the outcome, set X1 equal to the recalculated value of X'

It's a lot to squeeze into one line and Basic has to work hard to evaluate it – so it's a little slower than a properly designed set of IF...THEN statements But in many cases the reduction in program length and complexity is worth a small sacrifice in speed

Here's another example of Boolean versatility

```
N=N+(N=0)-(N<>0)
```

If N is 0 at the time of checking, it changes to 1, and vice versa I've used this technique in the Gadgets series to flash lights on and off, but it could work equally well in a game loop For example to toggle a character between two colours, or two shapes, as it moves

If you want a Boolean statement to generate numbers other than 1 or 0, simple arithmetic will do the trick For example

```
N=5*(X=100)+10*(X<>100)
```

The value of N will be 5 if X=100, or 10 if X is any other number Here's a novel application of this technique

```
10 SOUND 0,60,10,8+(STICK(0
)<>15) *8RTO 10
```

This plays middle C whenever the joystick is moved in any direction and falls silent when it is centralised Can you see why? The last number in a SOUND statement controls volume 8 is normal listening level and 0 is off

If the joystick is centralised, it returns the number 15, so the Boolean expression evaluates to 0 The volume parameter therefore becomes 8*0 and the sound turns off Any other stick position will return a number other than 15, so the volume parameter becomes 8*1, and you hear the tone

Remember the musical joystick we described in February? It took 12 lines of Basic, with nine IF...THEN statements Boolean algebra can do the

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◀ From Page 7

```
10 S=STICK(0):P=T21*(S=14)+
10*(S=6)+9*(S=7)+9*(S=5)
+81*(S=13)+72*(S=9)+54*(S=1
1)+48*(S=10)
20 V=8*(S<>15):SOUND 0,P,10
,V:GOTO 10
```

Eight different pitch values are linked via Boolean expressions to the eight *active* stick positions. Only one of these can be true at any given time so only one pitch value gets selected – the rest all become 0 and are ignored. Volume is controlled as in our previous example, turning on if the stick is moved, or off if it's centralised.

Boolean techniques can often come to the rescue when Basic is floundering. For example

```
10 GOTO 100*(X-0)+200*(X >0)
```

This becomes GOTO 100 if X=0, or GOTO 200 if it's any other number, simulating the ELSE command, which is missing from Atari Basic. Or how about this

```
10 GOTO 10*(STRIG(0)<1)+100*
(STRIG(0)=0)
```

This locks the program until the joystick trigger is pressed, then jumps to line 100.

Another interesting effect can be seen here

```
10 N=((A>0)+(B>0)=1)
```

If you work it all out, you'll see that N becomes 0 if the sub expressions are both true or both false, but 1 if the two truth values are unequal. This simulates the *Exclusive OR* function, which Atari Basic doesn't possess.

● *If you've stayed with us so far, you're now out of the Beginner league and ready to tackle Intermediate level programming. We'll make a start next month by looking at the multi colour map modes – Graphics 3 to 7 – which among other things let you draw free hand shapes on screen. See you then.*

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Software SCENE

STEPHEN FAWCETT reviews the new games software released for your 8 bit Atari

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IN an ambitious raid a group of dangerous terrorists led by the infamous Crax Bloodfinger has kidnapped six of the world's leaders. A 30 billion dollars ransom is being asked for their safe release – and if it isn't paid they will all be killed.

The governments of the world have refused to pay and, as the deadline draws closer they have decided to take the only course of action left open to them – send in Joe Blade.

You play the part of Joe and armed only with a light, semi automatic machine gun you must infiltrate Bloodfinger's massive fortified HQ in a central American country.

The base is heavily guarded by Bloodfinger's private army and underground henchmen. As you traverse the corridors any contact with them will drain your strength until you eventually die.

Also located within the stronghold, in random locations, are six booby-trapped explosives all of which must be armed. When this has been done you will have 20 minutes before they detonate to find all the hostages and reach the exit.

To arm the explosives you must rearrange the access codes into alphabetical order using left, right and fire on your joystick to swap the letters. If you don't do this correctly they will detonate and kill you.

You will also find uniforms, ammunition and food scattered around the garrison.

When you eat the food you will find your strength rating will go back up to full. A uniform allows you to walk among the enemy troops without being drained of strength and the ammunition will replenish your limited arsenal.

The main action takes place within a scrolling window in the centre of the screen. At the bottom, reading from left to right are indicators for men remaining, keys collected, bombs armed and the amount of ammunition you have left.

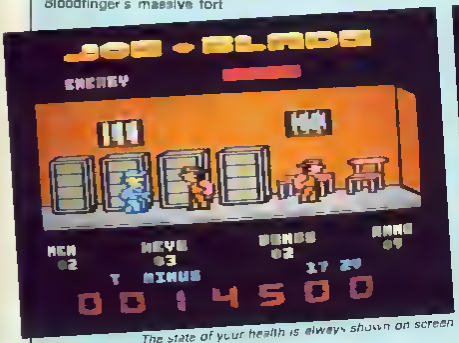
In addition is the time remaining indicator – which registers when all bombs are armed – and your overall score. At the top of the screen a bar indicates how much strength you have left – when it reaches zero you are dead.

The graphics are brilliant and the sound effects – what there are of them – are excellent.

I particularly liked the ricochet of bullets you hear when you return to the main menu screen.

I first saw Joe Blade on the ST and thoroughly enjoyed playing it. Now it has been released for the 8 bit Atari and is just as playable – and an absolute bargain at £1.99. Go out and buy it straight away, you won't regret it.

Sound	*7*
Graphics	*8*
Playability	*9*
Value for money	*10*
Overall	*8·5*



The state of your health is always shown on screen



You must infiltrate Bloodfinger's fortified HQ

Learn with Mickey



Product Mickey in the Great Outdoors (Walt Disney)
Price £9.95 (disc)
Supplier Atari World 11 Fennel Street Manchester M4 3DU
Tel 061-834 4941

IT has been a long time since a piece of educational software has been reviewed in *Atari User*, but Mickey in the Great Outdoors was well worth the wait.

Designed for children aged 7 to 10, the idea is to move Disney's Mickey Mouse along on his adventure as quickly as possible learning as he goes.

It's always a challenge because the further Mickey advances the harder are the obstacles he must try to overcome.

The game is split into two major activities. Mickey Goes Hiking and Mickey Goes Exploring and each is split into a further two, thus making four educational topics for the player to master.

The first of the two major activities is designed to develop and reinforce essential grammar and spelling skills. This is accomplished by helping Mickey finish incomplete sentences and by creating words out of scrambled letters.

The second is designed to develop and improve two basic mathematical skills – equation solving and number sequencing. You must guide Mickey through this second adventure by finishing incomplete equations and completing numerical sequences in their proper order.

To load the game you must remove all cartridges from older machines and hold down the Option key on newer models while switching on. The program will load and you will be presented with the title screen.

Next comes the main menu from where you choose between the two major activities – pressing the Select key toggles between them. At any stage during an activity you can opt out and skip to the next section. Pressing Option moves you to a sub-menu where you can make your choice.

All Micky's actions are controlled by a joystick plugged into port one, and the fire button will make his selection. Each action is always accompanied by an animated sequence so you know exactly what has happened throughout the games.

In Micky Goes Hiking you select a word from a group of four in order to complete a five word sentence. The missing word can be a noun, verb, adjective or adverb. By emphasising complete grammatical sentences this helps develop effective writing and speaking skills.

The second activity involves rearranging a random pattern of four letters until they form a word. While doing this you become familiar with the correct placement of consonants and vowels, which will help build a firm foundation for good spelling skills.

In the first activity of Micky Goes Exploring you have to select the correct numeral or arithmetic symbol to complete an equation. This activity exercises the ability to solve problems involving addition, subtraction, multiplication and division.

The second exercise – and to my mind the most difficult – challenges you to complete a logical pattern of numbers. By recognising the correct series of digits and then identifying those numbers which complete

Also ran...

Product California Run
Price £1.99 (tape)
Supplier Alternative Software Ltd Units 3 & 4 Bailgate Industrial Estate, Pontefract West Yorkshire WF8 2LN
Tel 0977 797777

YOU play the part of the local hotshot and street racer from the town of Charlotsville and have been chosen as the local representative in the California Run. It's the biggest race in America – and the most dangerous.

Your little town has clubbed together and raised enough money to give you the choice of a Porsche, Ferrari or Corvette.

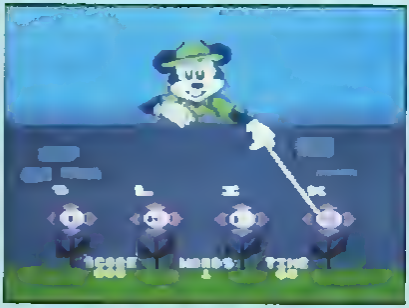
As with nearly all car racing games this one uses a front on perspective for all the action. You control your car using a joystick plugged into port one. Pushing forward will accelerate your vehicle and pulling back decelerates it. Left and right move the vehicle in that direction.

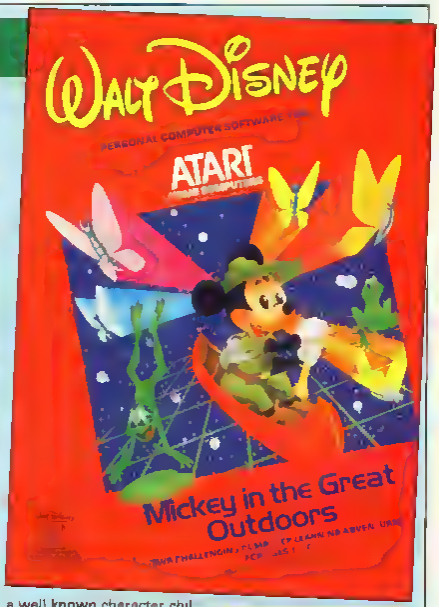
The main screen is split into three major sections. At the top is your time left to complete a course and your speed in mph. At the bottom is the scrolling road you drive along and sandwiched between them is the landscape.

The actual race is split into three stages, each of which must be completed within the time limit in order to



qualify for the next stage. Take care to avoid oncoming traffic, puddles





the pattern – for exemple, 2, 4, 6, 8, ? – you build a firm foundation for moving on to more sophisticated mathematical principles

In the detailed manual there is a section detailing several non-computer based activities you can do with your child to further enhance their language and math skills. I found them particularly interesting and great fun when I tried them with my children.

Their favourite game is *I'm Back* in which I drew numbers and multiplication signs on their backs with my index finger. They had to work the answer out and write the answer on my back – great fun for the kids.

Mickey In the Great Outdoors is an excellent package. Well presented, superbly documented and, most importantly, very educational. Some of the questions asked are quite difficult but you can get around them with a bit of parental contribution.

Because Mickey Mouse is a well known character children of all ages will be able to relate to him and enjoy the activities all the more.

The only minor problem is a few American spellings.

Sound	6
Graphics	7
Learnability	6
Value for money	7
Overall	7



and trees by the roadside if you want to complete the run. Your car doesn't explode when you hit these obstacles, you just decelerate and loes veluable time.

On completion of the race your score is calculated by the amount of time left after each stage. Should you fail to complete stage one, your score will be zero.

Screen scrolling is quite smooth, but I have seen better. Sound effects are unimaginitive and rather dull. The car looks like a flat tened dustbin on wheels – it eccelerates like one, too.

All in all I found California Run an average car game. Not very spectecular and old hat. The only thing it has going for it is its low price.

Sound	4
Graphics	4
Playability	5
Value for money	5
Overall	4

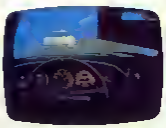
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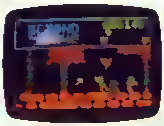
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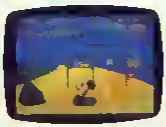
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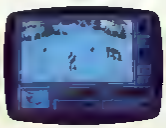
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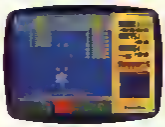
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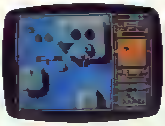
IKARI WARR



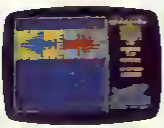
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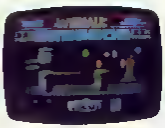
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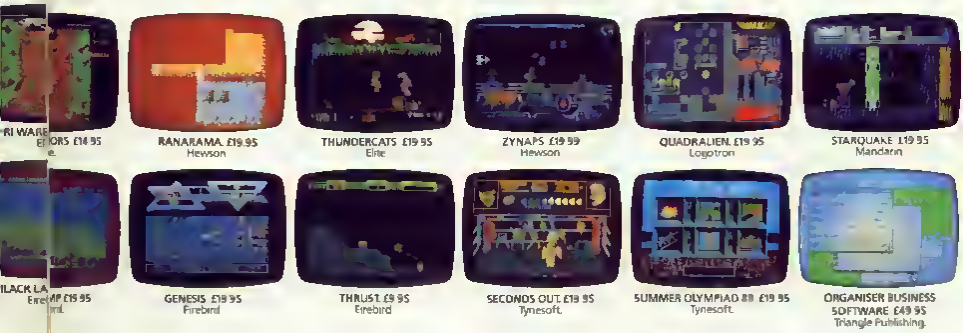
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ATARI
SUPER PACK

GOING TO THE DOGS

Now experience the thrill of greyhound racing with DAVE SHAKESPEARE's game

MAN has always had the urge to gamble. To satisfy this addiction he has bet on everything from the outcome of two small white cubes with dots on rolling across a table to watching man's best friend running round a race track.

Unfortunately, you need money to gamble and in this day and age that's getting scarcer all the time. So I have devised this game to satisfy addicts' needs – without emptying their wallets.

Type in the listing and check it with GIR II before saving it to tape or disc. Once this is done you can run it. After a short initialisation period you will be presented with the title screen and a prompt to enter the number of players participating – this will be asked for only when first run.

On pressing Start the game passes to the Form screen which displays six dogs and their individual trap numbers along with recent form. The next screen is the Betting and Odds page. Each player is asked to enter his or her name – up to a maximum of nine letters – and they are assigned £100 pounds each with which to play.

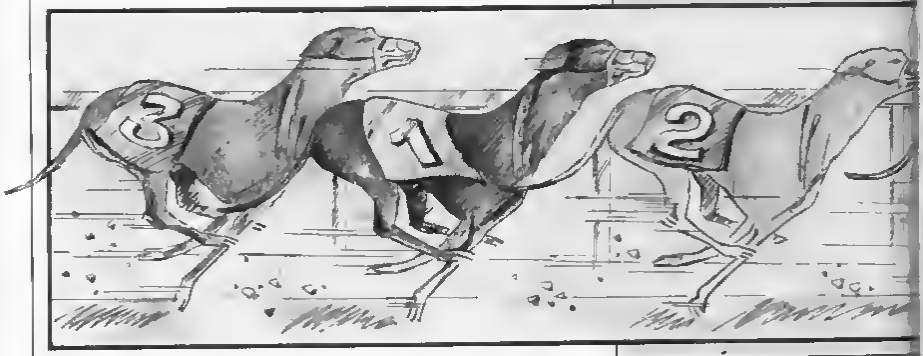
Then each player is prompted to enter the trap number of the dog he thinks will win and his bet – which must be in multiples of £10 up to a maximum of £90.

All bets placed will be displayed and the race will begin. Each race lasts a random number of laps – from one to four. However if you want every race to last for only one lap, change line 505 to read:

```
505 LAP=1
```

At the end of the race the winners and their winnings are shown and the program will loop back to the Forms screen.

```
1 REM GONE TO THE DOGS
2 REM BY DAVE SHAKESPEARE
3 REM (C)ATARI USER
10 POKE 710,0:? "Please wait a few se
conds . . .";:FOR DEL=1 TO 1000:NEXT D
EL:POKE 559,0
20 POKE 106,PEEK(106)-9:CHBASE=PEEK(10
6)+1:CHSTORE=PEEK(106)*6 REM SET UP SP
ACE ONEA FOR NEW CHARSET & DATA STORE
30 DIM JOGEET$(11),FS(30),FM(6),NAMES(
90),BANS(10),BET(9),ODDS(8),DOG(9),WAR
IZ(6),L(6),IRC(6),OA(5),CASH(9)
40 DIM TRACK$(35),FENCE$(20),WALL1$(20
),WALL2$(20),BLADE$(20),TRACK$(1)="":
TRACK$(35)="":TRACE$(2)=TRACK$
50 FENCE$(1)="":FENCE$(20)="":FENCE$(
2)=FENCE$:WALL1$(1)="":WALL1$(20)="
":WALL1$(2)=WALL1$
60 WALL2$(1)="":WALL2$(20)="":WALL2$(
2)=WALL2$:BLADE$(1)="":BLADE$(20)="
":BLADE$(2)=BLADE$
70 NAME$(1)="":NAME$(9,9)="":NAME$(2)
=NAME$:FOR A=1 TO 9:BET(A)=0:NEXT A:FO
R A=0 TO 6:MOVIZ(A)=2:NEXT A
75 W=0:IF A=1 THEN 200
80 S1=CHBASE*256:CHSTORE=CHSTORE*256
90 POKE 731,1
100 REM DEFINE NEW CHARSET DATA
105 FOR A=1 TO 8*L(6):A=A:NEXT A
150 FOR A=0 TO 8*L(6):READ A:POKE 1536+A,A
:NEXT A
160 FOR A=0 TO 9*L(6):READ A:POKE 1539+A,A
:NEXT A:REM ALL EQUIVS INTO POKE A
170 FOR A=896 TO 959:READ A:POKE ST+A,A
:NEXT A:REM READ DATA FOR NOSES NOSE
ES INTO NEW CHARSET
180 FOR A=0 TO 247:READ A:POKE CHSTORE
+A,A:NEXT A:REM STORE LEG MOVEMENTS TO
BE DATA STORAGE AREA
190 FOR A=776 TO 847:READ A:POKE ST+A,
A:NEXT A:REM NUMBERS AND LETTERS
195 REM TITLE SCREEN
200 GRAPHICS 17:POKE 712,82:POKE 710,1
50
210 BL=PEEK(560)+PEEK(561)*256:POKE BL
+3,71:POKE BL+19,7:REM 2 GRAPHICS 2 LI
```



```
ES
220 POSITION 2,0:? #6;"EDEC TO SEE DUG
S":POSITION 9,2:? #6;"by"
230 POSITION 2,4:? #6;"Have shakespear
e" POSITION 2,6:? #6;"for  Atari user |
"
235 POSITION 2 7:? #6,"CASH ";CASH"IC
K" POSITION 6,9:? #6 "HEALTH"
240 POSITION 5 10:? #6 "   pounds" PO
SITION 5 11:" #6 "AS A STORE" REM y=CO
NTROL+0 4-CONTROL+P
245 IF A>0 THEN 275
250 POSITION 1 14:? #6; "PLEASE enter N
UMBER  POSITION 2,15:? #6 "OF PURTEOS
(1-5)?"
260 CLOSE #1: OPEN #1,4,0,"K:":GET #1,N
:N N-48
270 IF N(2 OR N)5 THEN SOUND 0 100 2 4
0 FOR DEL 1 TO 100 NEXT DEL:SOUND 0,0,
0,0 GOTO 268
272 POSITION 0 14 ? #6;BLOOKS POSITION
 0,15:? #6 BLOOKS
275 POSITION 0,15 ? #6;"number of punt
ers= ",N POSITION 2,20:? #6,"PRESS -ES
CAPE- FOR"
280 POSITION I,21:? #6;"RUNNERS & FOOM
"
285 FOR A=1 TO N:CASKIA)=CASH NEXT A
290 RESTORE 23000
295 READ A A=IF A<-1 THEN POKE 711,144
(PEEK(711)=81:GOTO 295
295 ON N=1 GOTO 290:SOUND 0,A 10,10:F
OR DEL=1 TO 0:ON PEEK(53279)=6 GOTO 30
0 NEXT DEL
297 GOTO 297
300 SOUND 0,0,0,0 GRAPHICS 20:POKE 559
,0
841 DE=PEEK(560)+PEEK(561)*256:FOR A=7
 TO 27 STEP 4:POKE DL+A,2:POKE DL+A1,
7:NEXT A:POKE 764,255
342 POKE DL+22,PEEK(DL+33) POKE DL+33,-
PEEK(DL+23) POKE DL+30,PEEK(DL+29):POK
E DL+29,6 REM NEW DLIST
305 POKE 709,14 POKE 710 116 POKE 711,
52 POKE 712,178:POKE 708,24:? #6 "#"
310 A=USR(1636,CASTORE 51*560,24):A=05
01036,67344464,51*64 4081 POKE 756 CH
```

```
005E REM SHAPES INTO CHARSET
320 POKE 512,100 POKE 513,6 POKE 54286
,192 POKE DL+16 PEEK(DL+1D1+2)0 REM SE
T IMM DLI
325 REM SET UP SCREEN
330 FOR A=0 TO 20 STEP 4:POSITION 19,A
:? #6;"#";POKE(ZE+130+A-8)+2 #6 A 00 A
 165+113)*(A 20)3;"#"
340 POSITION 19,04:? #6 "/\" NEXT A
345 RESTORE 20310 REM READ DETAILS OF
RUNNERS
350 FOR A 2 TO 22 STEP 4 READ A JOCKET
$:POSITION 1,A ? #6;"TRAP ";A;" ";JOC
KETS ' JACKET)$" NEXT A
355 REM CHARSET FORM OF 0065
380 FOR A=3 TO 23 STEP 4 F=3A(CHAR(A)*
10) RESTORE 20200+F READ FS POSITION 1
 A ? #6 FS FM(CA+1)=F+1 NEXT A
364 REM MOVE OUT 0005 TO 1
385 FOR A=1 TO 0:IMC(A)=IMC(A)-(FM(A
)-1)*8 64*(FM(A) 2)+8 8*(FM(A)=3)+8 65
*(FM(A)=6)
386 IF IMC(A)>8 THEN IMC(A)=(RND(0)+2)
/2-8 10
387 NEXT A
389 REM MOVE SCREEN POINTER FOR EXTRA
LINE
370 POKE 88,PEEK(88)-64 POKE 89 PEEK(8
9)+4 POSITION 1,0 ? #6 "first to cont
ROL"
380 POKE 689,14
390 RESTORE 30000
395 READ A 0:IF A=-1 THEN 300
398 SOUND 0,A,10 10:FOR DEL=1 TO 0:IF
PEEK(53279)=6 THEN POP :GOTO 600
400 NEXT DEL:GOTO 395
499 REM RESTING AND DOGS
600 SOUND 0,0,0,0 GRAPHICS 17 POKE 712
,82:POSITION 7,8:? #6;"Getting dog rad
y"
602 LAP INT(RND(0)*4)+1 REM CHOOSE NUM
BER OF LAPS IN A1
610 POSITION 4 2:? #6,"THIS RACE IS ";
LAP " LAPS"
619 REM DETAILS OF DOGS AND DOGS
620 FOR N=0 4 20 5:POSITION 0,N ? #6;"TR
AP ' 0-3,"  odds  " 0095(A-3)-8
630 IF FM(A-3) 1 THEN 0095(A-3)=CLAP(3
1+3*CLAP 15+100(LAP 4)
635 IF FM(A-3)-2 THEN 0095(A-3)=50*CLO
P(A1 5*CLOP=21+3*(LOP 41
640 IF FM(A-3) 3 THEN 0005(A-3)=3*CLAP
(41-28*CLAP-21+5*CLOP=41
645 IF FM(A-3) 6 THEN 0005(A-3)=100*CL
A(A1+CLOP 41
    650 IF 0005(A-3)=0 THEN 0005(A-3)
      =INT( 00(01*)*5 IF 0005(A-3)10
IREM 0N05(A-3 20
660 IF 0005(A 3)(10 THEN ? #6;" ";
670 ? #6 0005(A-3);" TO 1" NEXT A
699 REM IF NEW GAME, ENTER PLOYERS' NA
MES
600 IF A=0 THEN FOR A=1 TO N GOSUB 500
0 NEXT A POSITION 0 12:? #6 BLANKS A 1
605 REM PRINT NAME OF PLOYER
610 FOR A 1 TO N NAMS ""
615 IF CASKIA) 0 THEN A A+1 ON A1N GOT
O 860 GOTO 615
620 FOR A 1 TO 9 IF #6NES((A-1)*10+01(
"0" THEN POP  GOTO 650
830 NAMS(0,8)=NAMES((A-1)*10+01:NEXT A
```

```
650 POSITION (19-(LEN(NAMS(1+1))/2 51:?
 #6 "0 K " #6NAS POSITION 1 12 ' #6 "pl
ace your bet"
660 POSITION 3 13 ? #6;"YOUR KITTY IS"
 POSITION 7-(CASH(A1)>99991 (CASH(0)>99
9) (CASH(0))991 (CASH(0))91 14
666 ? #6 CASH(A1 " POUNDS"
670 POSITION 1 16 ? #6 "choose trap nu
mber"
680 CLOSE #4 OPEN #1 4 0  K:" GET #1 B
 0 0 40 IF B<1 OR B>6 THEN 680
685 SOUND 0 0#10 10,0
690 B=B(01-0 POSITION 0 16 ? #6 BLANKS
 POSITION 0 21 ? #6 "TRAP ";B
695 REM GET BET
700 POSITION 1 16:? #6 "e_k_  now enter
 your bet in #6ITaples":SOUND 0 0 0 0
REM _ CONTROL+H
710 POSITION 4 18 ? #6 "AT #" pounds"
REM CONTROL+H & CONTROL+P
720 POKE 764 255 IF PEEK(764)()255 THE
N 720
730 POSITION 10 21:? #6 "BET-";BET(A)
740 CLOSE #1 OPEN #1,4 0 "K:" GET #1 0
 0 0-48 BET(A) 0#10
750 IF BET(A)>CASH(A) OR B<0 OR B>9 TH
EN SOUND 0,100 2 10:FOR DEL=1 TO 6 NEX
T DEL SOUND 0 0 0 0 0 GOTO 740
760 SOUND 0 0#25 10,0
770 POSITION 14 21:? #6 BET(A)
800 POSITION 0 16 ? #6;BLANKS:POSITION
 0 18:? #6 BLANKS CASH(B)=CASH(A)-BET(
B):SOUND 0 0,0,0
810 POSITION 0-(CASH(A))59991-(CASH(01
)999)-(CASH(A))99)-(CASH(0))91,14:? #6
 " ";CASH(A)
820 POSITION 0 17:? #6,BLANKS POSITION
 0,17:? #6 BLANKS
830 FOR DEL 1 TO 300 NEXT DEL
840 POSITION (19 (LEN(NAMS(1+1))/2 15 ?
 #6,'          " POSITION # 13 ? #6
BLANKS
850 POSITION # 14:? #6 BLANKS POSITION
 0 21 ? #6 BLANKS
855 REM PRINT DOG NAMES AND BETS
860 NEXT B:? #6 "#"
870 POSITION 2 0:? #6,"All bets are no
w          place"
880 B 4 FOR B 5 TO B:POSITION B,0:IF B
(1(B1=0 THEN 900
890 ? #6 NAMES((A+10)-5 B+10) POSITION
 5 B+1 ? #6;"dog ",B;(A)  bet " BET(
B1 B=B+2
900 NEXT B POSITION 1 24:RN21 * 00+"IN
E DOGS ARE READY":POSITION 7 24:RN21:?
 #6 "TO RUN
910 RESTORE 30100
920 READ B C D IF B  5 THEN GOTO 3000
930 SOUND B A A 10 10 SOUND 1 C C 10 10:FO
R DEL=1 TO 0 NEXT DEL GOTO 920
2999 REM RACE SCREEN SETUP
3000 GRAPHICS 23 POKE 559 0 POKE 756 C
HBASE
3010 POKE 704 24 POKE 712 170 POKE 709
 52 POKE 710 148 POKE 711 24
3020 DL=PEEK(560)+PEEK(561)*256:POKE 5
52,104 POKE 512,6:POKE 54286,192 POKE
DL+10,PEEK(DL+11)+128:REM SET UP DLI
```

Turn to Page 43 ▶



GUNPOWDER CHARLIE

Bonfire night has an explosive ending when you play STEPHEN BROUMLEY's fun game



THE party was a huge success Bonfire Night has never been such fun Then the morning after arrives and you have to tidy everything up into the bags with the rubbish and then down into your cellar to the rubbish bins As you near the bottom you hear something going tick tick tick

Somebody has activated your collection of experimental bombs and scattered them all around the cellar Now you have to defuse them all without blowing yourself up Luckily you know a little about explosives – they don t call you Gunpowder Charlie for nothing – so it shouldn t be too difficult

Using your incredible jumping skills you bounce around the various levels of the cellar defusing the bombs This may sound easy but the tricky little devil who planted the bombs has also laid a number of booby traps

They come in the shape of huge rockets which fly randomly around the screen If they hit you there will be a large bang There is also a timer counting down the precious seconds you have left to complete a level

You control Charlie through the four main screens and four puzzle screens using a joystick plugged into port one You press fire to control the duration of Charlie s leap You can also pause the game at any time by pressing the spacebar

Save and Run

You get 10 points every time you defuse a bomb and after completing a screen you are awarded a bonus depending upon the amount of time remaining

After typing in the listing make sure you save a copy before running it and remember to check it with Get it Right! When all is well you can run the program

You are presented with two options – disc or tape save If you choose the former you must insert a blank formatted disc with Dos on it into drive one Press D and an AUTORUN SYS file will be written to it Now all you have to do to load the game is turn the computer off and then on and the game will automatically load and run

If you choose to create an autoboot cassette you must insert a blank, fully rewound tape into your recorder and press Play and Record Press C and your autoboot version will be created To load it you hold down Start and Option while switching your micro on Rewind the tape and press Play followed by Return to load and run Gunpowder Charlie automatically

```
1 REM ************************
2 REM * GUN POWDER CHARLIE *
3 REM * BY STEPHEN  BROUMLEY *
4 REM * COPYRIGHT ATARI USER *
5 REM *     NOVEMBER 1988    *
6 REM ************************
10 GRAPHICS 0:POKE 710,0:POKE 752,1
20 DIM A$(11),FS(20):CK=0
30 POSITION 15,5:? "PRESS
40 POSITION 6,8:? "[C] TO CREATE A CAS
SETTE BOOT
50 POSITION 5,10:? "[D] TO CREATE A DI
SK AUTORUN SYS
60 OPEN #1,4,0,K$
70 GET #1,KEY
80 IF KEY<67 OR KEY>68 THEN 70
90 IF KEY=67 THEN FS="CASSETTE BOOT":R
ESTORE 500:POKE 764,12:GOTO 110
100 FS="DISK AUTORUN.SYS":RESTORE 410
110 CLOSE #1
120 ? CHR$(125)
130 POSITION 10,6:? "CREATING- ";FS
140 OPEN #1,8,128,FS
150 READ D:IF D<>-1 THEN PUT #1,D:GOTO
150
160 RESTORE 500
170 READ D:CK=CK+D:IF D<>-1 THEN PUT #
1,D:GOTO 170
180 CLOSE #1
190 POSITION 15,16:? "DATA SAVED
200 IF CK<>323381 THEN POSITION 4,18:?
 "SORRY - ERROR - PLEASE CHECK DATA
210 END
300 REM CASSETTE HEADER
310 DATA 0,27,234,127,247,127,180,60,1
41,2,211,24,96,169,0,133,10,169,128,13
3,11,96,-1
400 REM DISK HEADER
410 DATA 255,255,0,128,103,141,-1
490 REM THE GAME DATA
500 DATA 76,208,136,112,112,240,166,0,
114,132,132,152,132,132,132,132,132,13
2,132,132,132,132,132,132
510 DATA 132,132,132,132,132,132,132,1
32,134,134,65,3,128,7,39,53,46,13,48,4
7,55,56,37,50
520 DATA 13,35,40,53,50,44,41,37,7,34,
57,0,51,32,37,48,40,37,45,0,34,50,47,5
3
530 DATA 45,44,37,57,0,35,47,48,57,50,
41,39,48,52,0,33,52,35,50,41,0,53,51,3
7
540 DATA 50,0,0,0,46,47,54,37,45,34,37
,50,0,17,25,24,24,0,0,0,0,0,48,50
550 DATA 37,51,51,0,38,41,50,37,0,52,4
7,0,48,44,33,57,0,0,0,0,40,41,51,55
560 DATA 47,50,37,0,16,16,16,16,16,16,
0,0,0,169,255,133,219,169,139,133,220,
32,150,135
570 DATA 173,10,210,160,0,153,0,113,20
0,192,4,208,240,165,0,224,155,0,120,16
5,0,225,153,0
580 DATA 121,185,0,226,153,0,122,185,0
,227,153,0,123,200,208,229,160,0,185,2
42,120,153,0,122
590 DATA 200,192,60,208,245,169,120,14
1,244,2,160,0,185,236,137,153,128,111,
200,192,48,208,245,76
600 DATA 66,129,2,2,2,11,47,44,188,187
,192,192,192,208,244,244,253,253,191,1
91,191,191,175,47
610 DATA 63,10,255,253,253,253,243,244
,212,80,0,0,0,0,48,150,130,0,160,240,2
40,85,154,159
620 DATA 150,85,0,0,0,0,85,222,247,85,
109,93,101,105,83,21,5,1,0,0,0,0,85,84
630 DATA 103,105,0,0,0,0,44,144,220,45
,160,0,147,47,2,173,10,210,41,240,141,
24,0,141
640 DATA 1,8,32,239,131,169,84,141,16,
212,169,3,141,48,2,169,128,141,49,2,16
0,142,141,0
650 DATA 2,169,129,141,1,2,32,239,131,
169,0,141,0,6,141,9,6,169,2,141,10,6,1
62,192
660 DATA 173,11,212,208,251,142,14,212
,32,46,130,76,104,131,120,72,152,72,73
0,72,141,10,212,17A
670 DATA 9,6,109,6,113,141,2,208,24,10
5,32,186,132,113,240,5,56,233,64,141,3,
208,189,6
680 DATA 113,24,105,12,141,4,208,105,2
,141,5,208,105,2,141,6,208,105,2,141,7
,208,189,20
690 DATA 113,141,20,208,169,36,113,141
,21,208,174,0,6,24,173,1,0,208,5,160,1
6,141,1,6
700 DATA 105,4,141,10,212,141,22,208,1
05,4,141,24,208,105,6,141,23,208,105,2
,141,1,6,173
710 DATA 10,210,41,15,9,48,141,25,208,
206,10,6,208,8,189,3,141,10,6,238,9,6,
252,224
720 DATA 27,208,10,162,0,134,77,142,0,
6,169,2,141,10,6,173,24,6,141,1,6,142,
0,6
730 DATA 104,170,104,168,104,64,169,0,
168,153,0,114,153,0,115,153,0,116,153,
0,117,153,120,117
740 DATA 208,208,230,177,219,201,128,2
00,11,189,235,153,219,189,139,133,220,
238,23,0,169,0,133,205
750 DATA 169,114,133,204,160,0,177,219
,141,18,6,32,67,131,177,219,141,10,6,3
2,47,131,177,219
760 DATA 141,2,6,173,10,6,240,18,145,2
03,24,105,48,133,203,144,2,230,204,205
,19,0,208,240
770 DATA 165,203,24,109,10,6,133,203,1
44,2,230,204,169,0,133,71,165,203,160,
48,169,72,145,203
780 DATA 230,205,208,2,230,204,160,0,1
69,71,145,203,160,48,169,70,145,203,20
6,2,0,208,233,160
790 DATA 0,169,74,145,203,32,47,131,17
7,219,201,255,240,3,76,84,130,32,47,15
1,169,0,141,20
800 DATA 6,169,0,133,203,169,114,133,2
04,160,0,177,219,24,101,205,133,203,14
4,2,230,204,32,47
810 DATA 131,177,219,170,165,205,24,10
5,48,133,203,144,2,230,204,202,208,242
,162,0,189,48,130,138
820 DATA 24,105,65,145,205,232,224,5,2
08,242,230,20,6,32,47,151,160,0,177,21
9,201,255,240,3
830 DATA 76,209,130,32,47,131,177,219,
141,21,6,32,47,151,177,219,141,22,6,32
,47,131,96,230
840 DATA 219,208,2,230,220,220,96,150,
52,72,160,0,185,0,113,109,2,113,89,0,1
13,162,0,189
850 DATA 2,113,93,0,113,240,0,113,125,
0,115,157,0,113,110,1,113,232,224,4,20
8,253,200,192
860 DATA 4,208,212,104,168,104,170,96,
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1,13,6,141,16
870 DATA 8,32,72,137,169,25,141,172,11
8,141,173,110,169,90,141,15,6,169,1,14
1,17,6,169,253
880 DATA 141,252,2,173,252,2,201,33,20
0,20,32,150,135,169,255,141,252,2,173,
252,2,201,33,208
890 DATA 249,189,255,141,252,2,32,239,
131,32,246,131,32,132,132,32,31,133,32
,160,133,32,20,134
900 DATA 32,197,133,173,12,208,41,12,2
A0,3,76,252,134,173,15,6,208,3,76,252,
134,173,4,6
910 DATA 201,201,208,5,76,252,134,169,
0,141,50,208,173,20,6,208,3,76,5,136,7
6,147,151,165
920 DATA 20,197,20,240,252,96,173,3,6,
141,0,208,141,1,208,174,5,6,189,133,13
9,170,172,6
930 DATA 6,169,28,141,255,6,173,7,6,20
5,15,180,53,138,153,0,12A,169,81,138,1
53,0,125,24
940 DATA 144,12,189,221,130,153,0,124,
189,249,130,155,0,125,200,252,200,255,
6,208,217,169,0,133
950 DATA 207,169,114,133,208,173,4,6,5
6,235,5,74,74,74,168,165,207,24,105,48
,133,207,144,2
960 DATA 230,208,136,208,242,173,3,6,5
6,233,66,74,74,24,105,3,101,207,133,20
7,144,2,230,207
970 DATA 165,207,24,105,14,133,207,176
,2,198,208,173,11,6,240,11,169,170,141
,1,210,173,4,6
980 DATA 141,0,210,96,169,0,133,204,17
3,128,2,41,4,208,26,169,1,141,7,6,250,
204,174,3
990 DATA 6,224,48,240,12,160,96,32,1,1
53,201,0,208,5,204,3,0,174,5,6,173,128
,2,41
1000 DATA 8,208,23,230,204,169,0,141,7
,6,224,200,240,12,160,90,32,1,133,201,
0,208,3,230
1010 DATA 3,6,165,204,208,15,173,11,6,
208,45,169,0,141,1,210,24,144,37,206,6
,0,208,52
1020 DATA 173,11,6,208,12,172,5,6,185,
214,130,141,1,210,140,0,210,169,5,141,
6,6,206,5
1030 DATA 6,16,5,169,3,141,5,6,96,169,
0,133,203,132,204,170,189,224,130,24,1
01,204,168,177
1040 DATA 207,201,70,240,2,230,205,232
,224,6,208,236,165,203,98,173,6,6,208,
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1050 DATA 235,5,41,7,240,12,238,6,6,23
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24,177
1060 DATA 207,201,70,240,1,232,200,177
,207,201,70,240,1,232,224,2,208,12,230
,4,6,230,4,6
1070 DATA 169,1,141,11,6,96,189,0,141,
11,6,173,8,6,208,11,173,132,2,240,1,96
,169,1
1080 DATA 141,5,6,169,1,141,11,6,206,4
,0,205,4,6,182,0,173,132,2,240,1,232,1
60,49
1090 DATA 177,207,201,70,208,1,232,200
,177,207,201,70,208,1,232,173,4,6,201,
50,208,1,232,224
1100 DATA 0,240,5,169,0,141,8,6,96,173
,14,6,240,6,206,14,6,32,175,135,175,13
5,0,208
1110 DATA 8,169,32,141,5,210,76,207,13
3,175,15,6,141,4,210,169,40,141,5,210,
201,13,6,169
1120 DATA 65,133,203,162,0,180,210,139
,177,207,197,203,240,14,232,224,6,208,
242,238,203,165,203,201
1130 DATA 70,208,232,96,50,235,65,170,
152,56,233,230,138,24,101,207,133,207,
144,2,230,208,169,0
1140 DATA 170,180,40,150,145,207,232,2
24,5,208,244,206,20,6,173,14,6,24,105,
10,141,14,6,169
1150 DATA 50,141,15,6,96,169,0,141,12,
6,162,1,136,203,180,205,139,169,3,141,
255,6,173,10
1160 DATA 210,89,0,123,153,0,123,200,2
06,255,6,208,241,32,54,131,189,44,113,
```

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Don't miss this great offer!



SAVE £3 ON THE ATARI USER TOOLKIT

For a limited period we have reduced the price of one of the most popular offers we have ever run. Now, with a saving of £3, the *Atari User* Toolkit represents incredible value and is an offer you should not miss!

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Toolkit automatically boots from cassette or disc and makes use of normally unused memory. It consists of stunning utilities – specially commissioned by *Atari User* – complete with comprehensive instructions, telling you how to get the most from each utility.

TOOLKIT'S COMMANDS

CLICK	Turns that sometimes annoying keyboard click on or off
DEL	Instantly removes single lines or blocks of unwanted Basic lines
REN	Renumbers your Basic programs in any line increment
DIR	Displays a directory of any drive without having to enter Dos
VAL	Converts numbers between decimal, hexadecimal and binary
GIR	Calculates and displays the useful *Atari User* checksums
LVAR	Lists all the variables used by a program and shows you where they occur
CHANGE	Alters the name of every occurrance of a variable in a program
STRIP	Reduces the size of a program by removing all REMs
LISTING	Prints all the Atari's special characters on an Epson compatible printer

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Disc ~~£7.95~~ **£4.95**

TO ORDER PLEASE USE THE FORM ON PAGE 45

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```
240,5,222,44,113
1170 DATA 208,101,169,52,113,240,96,23
8,12,6,169,4,113,24,125,20,113,157,4,1
13,208,81,169,0
1180 DATA 157,52,113,173,10,210,41,7,1
70,169,52,113,240,10,232,224,8,208,2,1
62,1,76,105,134
1190 DATA 169,1,157,52,113,173,2,113,4
1,1,24,10,157,12,113,169,169,1,192,0,2
40,2,169,255
1200 DATA 157,20,173,173,3,113,41,240,
9,10,157,20,113,173,0,113,41,240,9,14,
157,36,113,173
1210 DATA 1,113,41,127,157,44,113,166,
203,252,224,8,240,3,76,34,134,169,1,15
3,203,166,203,160
1220 DATA 0,185,12,113,240,2,160,50,18
9,197,159,170,169,15,153,204,185,137,1
59,157,0,126,185,152
1230 DATA 130,157,0,127,232,200,198,20
4,208,250,230,205,165,205,201,0,208,21
1,169,0,141,2,210,162
1240 DATA 0,173,12,6,240,2,162,2,142,3
,210,96,32,156,135,160,0,169,0,153,0,1
20,153,0
1250 DATA 127,153,0,123,200,208,242,16
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4,3,6,16,2
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,210,96,32,156,135,160,0,169,0,153,0,1
20,153,0
1270 DATA 127,153,0,123,200,208,242,16
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4,3,6,16,2
1280 DATA 101,205,141,3,6,141,0,208,14
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,215,200,147,118,173
1290 DATA 147,118,201,16,240,3,76,184,
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1300 DATA 118,217,148,120,208,6,200,19
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6,153,148,120,200,192
1310 DATA 8,208,245,76,208,136,169,3,1
41,15,210,169,0,168,153,0,210,208,192,
9,208,248,96,162
1320 DATA 15,254,120,110,109,120,110,2
01,26,240,1,96,109,16,157,120,110,202,
76,177,135,236,16,6
1330 DATA 173,14,6,201,20,240,6,169,0,
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73,17,6
1340 DATA 141,6,210,73,23,141,17,6,169
,15,141,7,210,162,45,222,120,110,169,1
20,110,201,15,240
1350 DATA 1,96,169,25,157,120,110,202,
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1360 DATA 15,133,203,32,175,135,169,20
3,208,249,169,15,141,1,210,32,239,131,
169,2,141,1,210,32
1370 DATA 239,131,206,173,110,173,173,
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,202,208,250,162,34,254
1390 DATA 120,110,189,120,110,201,26,2
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1400 DATA 112,112,240,71,57,120,240,7,
240,7,240,7,240,7,240,7,65,106,136,72,
152,72,138,72
1410 DATA 172,0,6,162,0,24,141,10,212,
185,104,136,121,170,136,141,22,208,141
,10,212,232,224,16
1420 DATA 208,239,200,192,6,208,2,160,
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112,240,176,64
1430 DATA 0,14,14,12,10,8,6,4,4,6,8,10
,12,14,16,0,32,150,135,169,0,141,14,6
1440 DATA 141,47,2,141,210,2,141,208,2
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1450 DATA 141,48,2,169,136,141,49,2,16
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1460 DATA 0,6,169,1,141,15,6,173,11,21
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1,47,2,32,230
1470 DATA 131,208,15,6,208,20,169,180,
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69,0,141
1480 DATA 0,6,169,0,133,77,173,31,208,
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1490 DATA 169,0,168,153,0,123,153,0,12
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8,230,141,30,208
1500 DATA 169,120,141,7,212,169,3,141,
29,208,169,63,141,47,2,169,49,141,111,
2,169,50,141,192
1510 DATA 2,169,246,141,193,2,169,52,1
41,195,2,169,3,141,10,208,169,0,141,12
,208,173,c1,0
1520 DATA 141,3,6,173,26,6,141,4,0,169
,1,141,5,6,141,6,6,169,0,141,4,113,141
,7
1530 DATA 6,141,0,6,162,0,32,54,131,16
9,255,157,4,113,169,1,157,20,113,173,2
,113,157,44
1540 DATA 113,169,0,157,52,113,232,224
,8,208,227,173,10,210,41,7,170,208,1,2
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62,1,208,204,23,6,208,238,141,52,113,0
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1560 DATA 111,114,101,98,16,10,16,10,1
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08,101
1570 DATA 118,101,108,98,10,10,17,0,0,
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,3
1580 DATA 48,48,50,51,96,97,98,99,144,
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7,1,0,0,12
1590 DATA 28,28,62,52,62,48,24,24,60,3
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0
1600 DATA 0,0,0,44,60,61,126,0,0,12,0,
60,126,126,126,127,127,127,102,102,60,
24,24,24
1610 DATA 24,24,28,0,0,0,0,0,0,12,28,28,
62,52,62,48,24,24,60,36,102,114,114,56
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1620 DATA 0,0,0,0,0,44,110,0,0,0,0,0,4
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1630 DATA 127,127,127,127,120,120,60,24,56
,60,108,110,0,0,0,0,0,0,0,12,28,28,62,52
,62,48
1640 DATA 24,24,48,30,99,112,123,63,0,
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1650 DATA 126,0,0,12,0,60,126,120,127,
127,124,124,126,126,126,60,30,109,199,96,0
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1660 DATA 56,56,124,44,126,12,24,24,60
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,96
1690 DATA 96,16,0,0,0,0,2,110,0,0,0,0,0,
52,60,108,126,16,0,48,0,00,126,126,126
1700 DATA 254,254,254,30,30,60,24,28,6
0,56,110,0,0,0,0,0,0,0,48,50,56,126,44,1
24,12
1710 DATA 24,24,00,30,70,14,222,252,0,
32,16,0,128,129,66,0,0,0,0,0,0,32,60,1
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1720 DATA 126,16,0,60,0,60,126,126,254
,254,62,62,126,126,60,26,102,227,66,0,
0,0,56,112
1730 DATA 56,0,0,0,0,0,255,255,255,255,7
,7,7,0,0,0,0,126,192,160,208,232,244,2
50,255
1740 DATA 254,252,240,240,224,192,128,
0,0,0,0,255,255,255,255,224,224,224,0,
0,0,0,1,3
1750 DATA 5,11,23,47,95,255,127,63,31,
15,7,3,1,0,52,76,100,124,148,172,196,0
,60,84
1760 DATA 108,132,156,180,204,228,3,14
,1,6,87,94,145,148,193,194,0,60,98,1,6
9,97,48,49
1770 DATA 98,97,1,0,0,48,0,22,46,7,16,
10,31,16,16,16,0,10,255,10,3,22,3,26
1780 DATA 3,30,3,0,11,12,11,10,11,32,1
1,36,11,40,11,22,10,26,10,0,10,11,19,1
6
1790 DATA 19,21,19,20,10,31,10,30,10,4
```



Get rid of the bombs but watch out for the rocket

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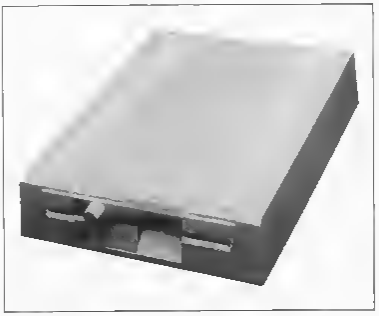
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1000 DATA 24,18,255,126,189,0,22,48,0,
0,48,0,18,14,24,18,14,13,13,22,18,8,8,
24
1010 DATA 8,6,4,5,4,40,5,4,255,4,2,10,
2,14,2,18,2,22,2,26,2,30,2,54
1020 DATA 2,42,2,9,7,39,7,8,11,40,11,7
,15,41,15,24,15,24,9,12,15,28,15,28
1030 DATA 15,34,15,4,19,43,19,255,128,
189,0,6,10,0,22,10,38,8,10,38,22,10,25
5,36
1040 DATA 19,30,3,9,19,6,3,24,17,255,5
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1050 DATA 8,7,2,36,0,4,22,5,5,25,10,3,
41,15,2,29,11,3,38,18,5,255,4,4
1060 DATA 24,2,32,3,14,2,18,4,13,7,19,
10,4,14,33,18,19,15,4,19,42,19,24,8
1070 DATA 27,14,11,15,38,15,20,19,42,0
,50,6,8,11,34,11,255,87,117,24,4,1,255
,20
1080 DATA 8,28,12,20,18,28,20,255,128,
43,0,0,48,0,22,48,8,12,1,17,13,1,21,9
1090 DATA 1,29,5,1,4,17,1,7,5,1,13,18,
1,15,7,1,23,18,1,27,18,1,30,18
1100 DATA 1,34,14,1,37,0,1,41,18,1,255
,0,9,17,18,21,6,29,2,4,14,7,2,13
1110 DATA 15,15,4,25,15,27,7,50,15,34,
11,37,5,41,13,255,74,175,5,18,1,11,18,
1
1120 DATA 17,18,1,23,18,1,29,18,1,35,1
8,1,41,18,1,255,6,20,41,7,235,52,95,12
8
1130 DATA 224,2,225,2,8,128,-1
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Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM	LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
1	AJ (W)	410	HUE (F)	780	JF(5)	1080	RFA (	1380	UM((	1680	QSU (2)
2	LAC (5)	490	DYV (1)	790	CLT (7)	1090	GUD (W)	1390	GP5 (Y)	1690	RC4 (V)
3	CAL (V)	500	UJE (4)	800	JPA (F)	1100	W7J (P)	1400	APF (G)	1700	R3N (D)
4	CAN (4)	510	7YE (G)	810	LMH (U)	1110	6BR (G)	1410	END (5)	1710	PSD (B)
5	CAN (W)	520	SR7 (P)	820	6WE (7)	1120	UAV (9)	1420	AEG (O)	1720	AKB (E)
6	CAP (7)	530	RTW (W)	830	CUK (P)	1130	H3F (U)	1430	K2Z (4)	1730	QMV (L)
10	BZE (5)	540	CYJ (R)	840	SRS (G)	1140	FK9 (4)	1440	F2L (S)	1740	YBR (F)
20	3DF (1)	550	9FW (M)	850	3FM (P)	1150	SC2 (2)	1450	4VM (R)	1750	17F (D)
30	GTL (L)	560	79U (K)	860	84L (S)	1160	GFK (V)	1460	4UT (O)	1760	S32 (E)
40	PLM (O)	570	3KU (P)	870	GX7 (9)	1170	F89 (Y)	1470	2HT (3)	1770	KL3 (A)
50	BLS (4)	580	LPK (Y)	880	HJ4 (R)	1180	G7U (9)	1480	53A (O)	1780	H4A (A)
60	1XN (2)	590	DIE (F)	890	LUT (B)	1190	AKS (J)	1490	FCS (F)	1790	S01 (A)
70	SYF (R)	600	KKH (H)	900	AMK (C)	1200	AJE (W)	1500	H5P (V)	1800	SRU (R)
80	UUK (P)	610	AS7 (4)	910	STM (9)	1210	EAR (B)	1510	7CA (A)	1810	BEA (9)
90	BC5 (G)	620	B6F (8)	920	S2A (W)	1220	L9P (5)	1520	S4A (X)	1820	BLR (9)
100	7HH (K)	630	AP0 (O)	930	I5A (1)	1230	H42 (W)	1530	3A8 (B)	1830	RR1 (8)
110	M2E (5)	640	77F (M)	940	K3A (F)	1240	5B7 (9)	1540	9UL (J)	1840	AWV (1)
120	MVU (B)	650	KUB (2)	950	GTA (9)	1250	OZK (P)	1550	SP1 (3)	1850	3FM (P)
130	A2P (G)	660	LRK (X)	960	DC1 (M)	1260	H6X (K)	1560	WP9 (5)	1860	DKH (Y)
140	27J (K)	670	6CO (A)	970	GVW (P)	1270	2GA (U)	1570	WKM (J)	1870	RTX (A)
150	KJC (W)	680	SK1 (H)	980	67V (R)	1280	H9H (B)	1580	4OG (T)	1880	L4U (J)
160	X40 (V)	690	6YF (8)	990	UFU (B)	1290	HSE (S)	1590	OPP (9)	1890	9EL (8)
170	339 (J)	700	4DK (S)	1000	3P5 (F)	1300	B9Y (4)	1600	3GB (W)	1900	4XE (A)
180	MX8 (2)	710	293 (V)	1010	2SA (8)	1310	JF2 (8)	1610	QLM (A)	1910	RPH (Y)
190	YYU (A)	720	V8M (W)	1020	TW3 (6)	1320	LEF (W)	1620	V51 (3)	1920	NS8 (0)
200	WK1 (P)	730	HCT (0)	1030	3FT (3)	1330	1CE (9)	1630	WJ9 (Y)	1930	H4J (W)
210	D82 (3)	740	1Y8 (X)	1040	SFL (A)	1340	HSA (5)	1640	CL4 (M)		
500	CUU (G)	750	K9A (F)	1050	W6A (G)	1350	H9U (L)	1650	1CE (F)		
510	3W7 (Y)	760	74U (Q)	1060	319 (F)	1360	L84 (3)	1660	BH4 (O)		
600	CUV (M)	770	MGE (S)	1070	YOL (4)	1370	SPU (V)	1670	SVK (A)		

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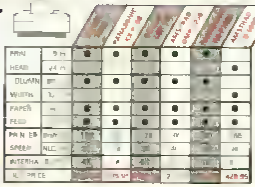
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SOFTWARE Solutions

Your programming problems solved by ANDRÉ WILLEY

THE past few weeks have been pretty quiet here at *Atari User* due to the postal strike, but I've still got a few letters in hand which present some quite interesting points

The first question comes from abroad for a change, namely Madrid in Spain, where **Klaus Estrugo Eckstein** lives.

He's been working out complex graphical formulae using his trusty Atari, but has hit a slight snag when it comes to creating the neat user-oriented front end he is attempting to design.

The most useful thing the program does is to draw the x axis, y axis and graph, then it allows you to zoom in to a part of the curve in order to take a closer look or to pull back and see the whole graph.

The main loop of the program, the one which does all the calculation and plotting of the curve is as follows:

```
605 REM ----------------------------
610 REM Function Plotting Routine
615 REM ----------------------------
630 FOR X=U TO O STEP O-05/F1
635 TRAP 3000
640 Y=X 2
650 A'X+20*F1+150+B2
660 B=-(Y)*20*F1+40+B1
670 IF A<1 THEN GOTO 720
680 IF A>310 THEN GOTO 730
690 IF B<1 THEN GOTO 720
700 IF B>191 THEN GOTO 720
710 PLOT A,B
720 NEXT X
730 TEXT 1,1, f(x)=1'2'
740 FOR W=1 TO 150 SOUND 0,121,10,12
NEXT W SOUND 0,0,0,0
745 RETURN
750 REM ----------------------------
```

The variables U, O, B1, B2 and F1 define the scale of the graph and the portion of the curve to plot. These would be set via a number of INPUT statements according to what view I currently require.

The routine would be entered via a GOSUB command after the computer was put into Graphics 8 and the colours set accordingly.

My big problem is that whenever I want to change the main equation I have to halt the program and edit the calculations on line 640. Atari Basic, or Turbo Basic which I also use, do not have an 'evaluate string' command, such as those provided on the Commodore 128 and MSX machines.

This would allow the user to enter a string like Y=EXP(X) or Y=2(X³)+5*(X²)–10 and have the computer evaluate it like a program line.*

I first tried to use the VAL command but it doesn't seem to work the way I wanted. Later I wrote each type of function into a special menu which would then ask the user to enter each parameter for the particular type of equation.

However this method is still limited to the choices given in the menu – and also destroys the whole fluidity of the program since whenever I want to analyse a completely new function I have to change all the equations in the whole program. This includes the text on line 735 which is output directly to the Graphics 8 screen.

How is it possible to enter a new formula into a variable or variables which will allow this kind of flexibility?

● As you have correctly surmised in your most comprehensive letter, there is no simple way of telling Atari Basic to evaluate a string as though it were a mathematical formula – the closest being the VAL function, which is only capable of converting a string full of numbers into an ordinary numeric variable.

This is obviously of no real use to you, but thankfully a little lateral thinking will provide a rather elegant solution, simply by resorting to that old faithful known as Return key mode – which has cropped up once or twice before on these pages. In fact what we will create is a self modifying program.

I'll first explain how this system works and then provide you with a practical example by way of a subroutine which could easily be modified for use in many other programs.

The first thing required is to store the formula you wish to evaluate in a string – EVAL$ in my example. This would normally be input at some other stage in your program, but I have defined a simple formula on line 10 to show how the system works.

Don't forget that whatever you type in this string must be a completely valid Basic statement – although you could try using the TRAP command to catch the Error 17 that would otherwise be created.

Once this formula is stored in string form you can start to manipulate it. Changing line 735 to contain EVAL$ is easy enough, but how do we enter the string as a command on line 640?

This is where Return key mode comes into play, and we must first put the micro back into a standard text screen for the technique to work – hence the Graphics 0 command. Next we move a couple of lines down the screen and print out the text of the modified line 640. This is done on program line 1030.

Note that the exact text you print is entirely up to you, just so long as it is

preceded by a line number (in this case 640) and is a valid Basic program line. You could even modify more than one line at a time using this method – just so long as they will all fit on to the screen.

```
10 EVAL$="S1N(X)+25"
20 GOSUB 1000
30 END
1000 REM MODIFY LINE USING RETURN-KEY
MODE
1010 GRAPHICS 0
1020 POSITION 2,3
1030 PRINT "640 LET Y=",EVAL$
1040 PRINT  PRINT "CONT"
1050 POSITION 2,0
1060 POKE 842,13  REM MODE ON
1070 STOP
1080 REM PROGRAM RE-STARTS HERE
1090 POKE 842,12  REM MODE OFF
1100 RETURN
```

Return key mode demonstration

Next we must tell Basic what we want it to do after our new line has been accepted – which in this case is to continue running the program, hence the CONT command printed immediately after our new line.

Finally, we move the cursor back up to the top of the screen and enter the Return key mode using POKE 842,13. When the program reaches a STOP command (line 1070) the micro tries to enter each line of text from the current screen, just as though you had typed them in from the keyboard and hence modifies line 640 accordingly. It then comes across the CONT command and continues the program where it left off.

All that remains to be done now is to de-activate Return key mode with POKE 842,12 and the job is complete – the new line 640 will have become part of the program and will execute whenever that section is used.

This technique could be extended to any type of program which requires user modification, and the only limitation is the amount of information you can fit onto a text screen in one go. If you require any more you must split it into multiple blocks with a CONT at the end of each.

Fermenting formule

Staying with pure mathematics for a while, **Stephen Pocklington** from Chieveley in Berkshire is also having problems with formulae.

I recently read in a newspaper of Fermat's Formula, *which has remain unsolved for some time. The formula is:*

$$x^n + y^n = z^n$$

I set about writing a program on my 800XL which would go through some of the possibilities and display them on the screen.

All was going well and the program worked fine for powers of 2 for which I used the SQR function to calculate square roots. However, to work with other values of n I needed to use the general format of x ↑ (1/n), which does not seem very accurate.

Using SQR(25) gives me the correct answer 5, but 25 ↑ (0.5) returns a result of 4.99999987. Please can you tell me what is wrong? Is there an alternative method or is my poor computer going senile?

● What you have come across is known as floating point inaccuracy, and it is particularly severe on the 8 bit Ateri. What has happened is that the formula used to calculate the result of raising a number to a given power is not accurate enough to give a full 8 decimal places – hence the error.

Depending on the degree of accuracy you require you can get the micro to adjust the final result to round up or down to, say, six significant figures.

The best way of doing this is to first multiply the number by 100,000, round it up or down to the nearest whole number, and then divide it by 100,000 again to get back to the original value – albeit less some of the fine detail in the final couple of decimal places.

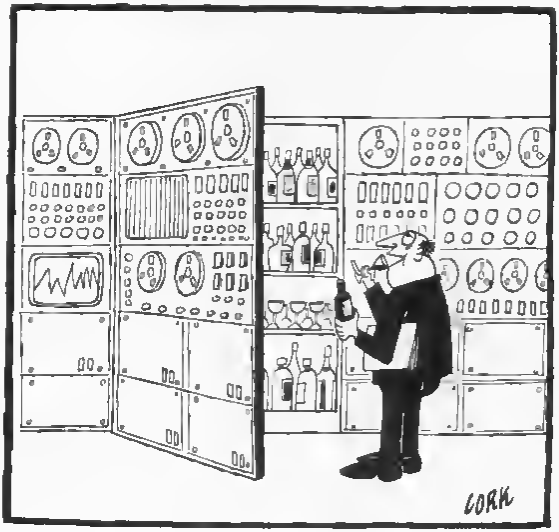
For seven significant figures you would use a multiplier of 1 000 000 instead, and for five you would use 10 000. The general format in Ateri Basic is:

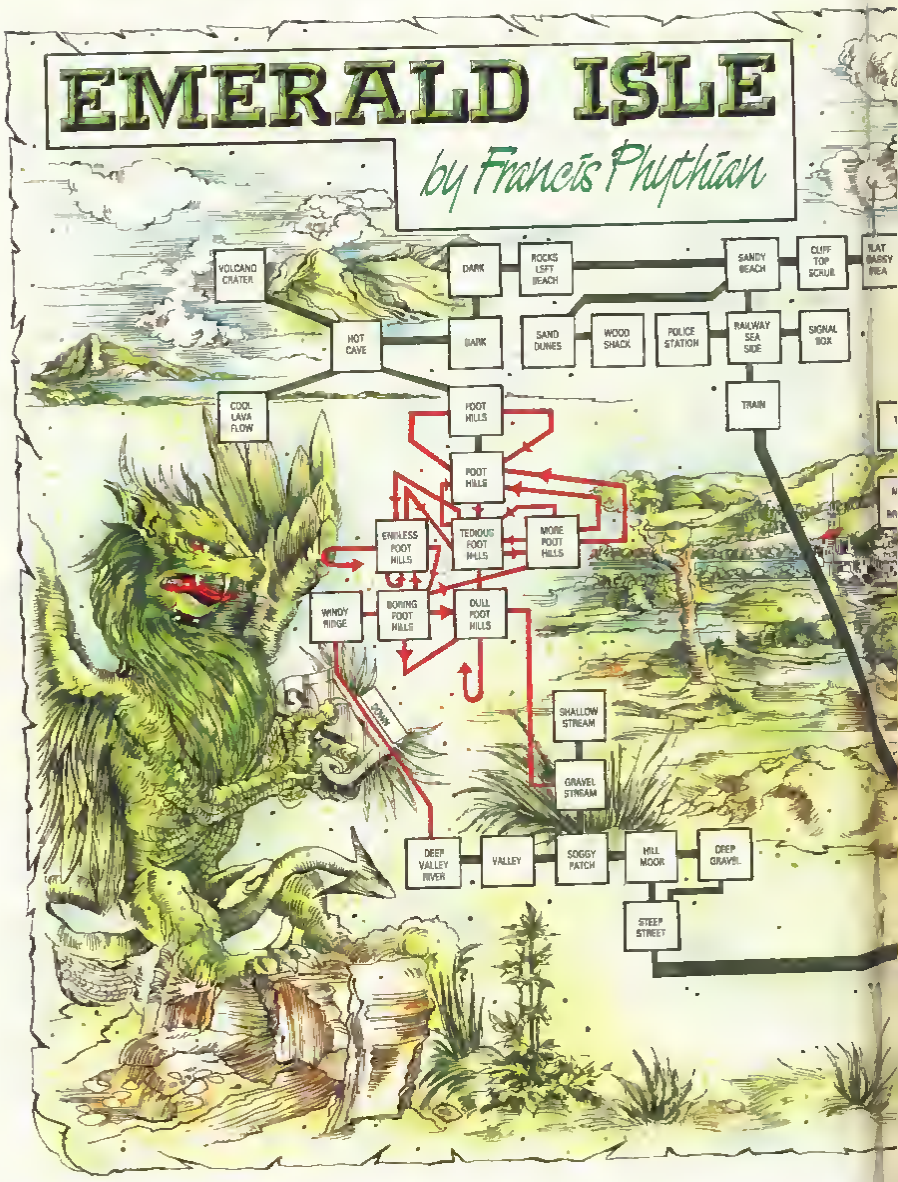
```
10 MULT=100000
20 NUMBER=INT(NUMBER*MULT+0.5)/MULT
```

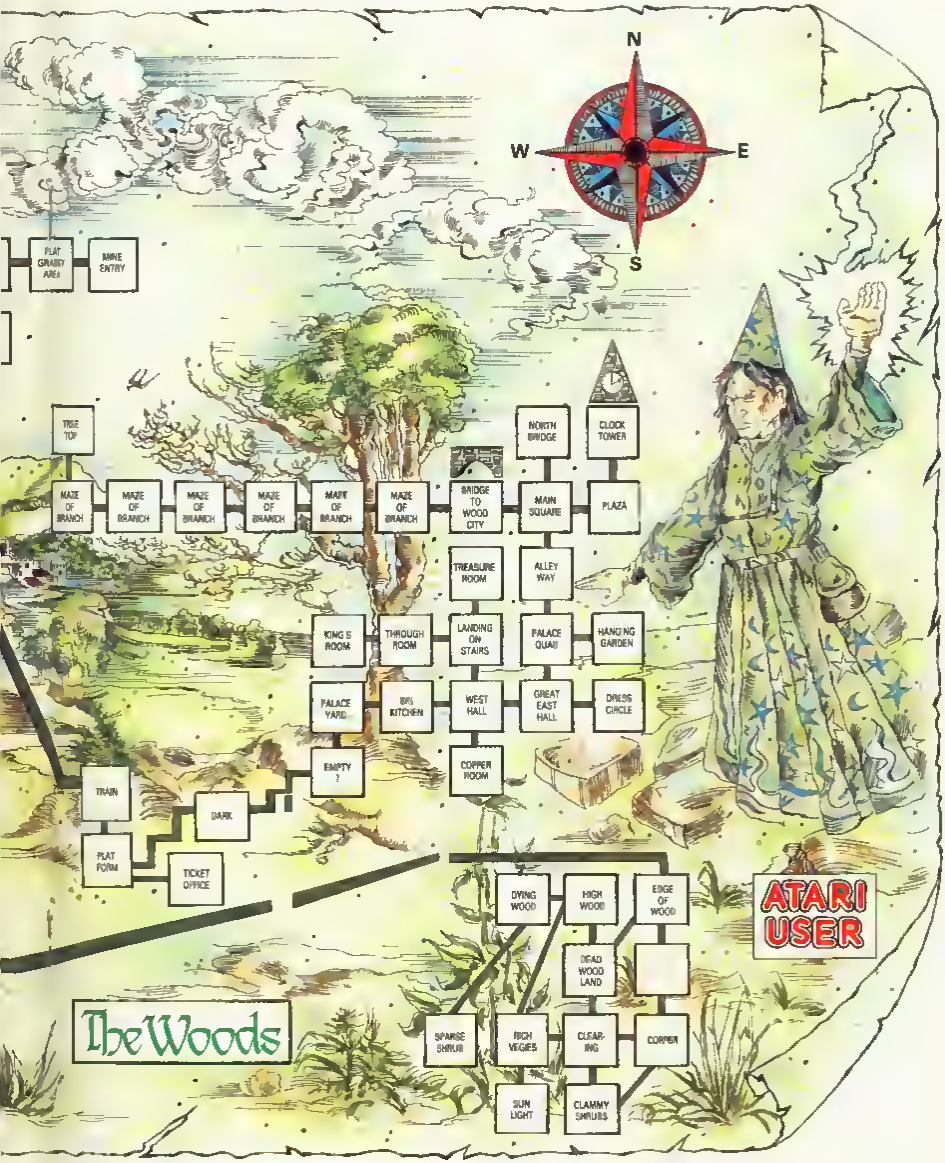
The 0.5 added to the larger figure simply rounds any fractional part left over to the nearest whole number.

Although this will enable you to calculate the figures more easily, I think you might find the limitations of the single precision floating point system tend to give you some pretty vague results anyway – so perhaps good old Fermat's formula will remain unsolved for a little while yet.

● *Well that's about all the space I've got for this month. Now that the postal system is back into some sort of order I trust you'll all be putting pen to paper, or printhead to paper in this day and age, and sending me lots more programming questions and problems.*




EMERALD ISLE
by Francis Phythian
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HOT CAVE
COOL LAVA FLOW
DARK
ROCKS LEFT BEACH
DARK
SAND DUNES
WOOD SHACK
POLICE STATION
SANDY BEACH
CLIFF TOP SCRUB
RAILWAY SEA SIDE
SIGNAL BOX
TRAIN
FOOT HILLS
FOOT HILLS
ENDLESS FOOT HILLS
TEDIOUS FOOT HILLS
MORE FOOT HILLS
WINDY RIDGE
BORING FOOT HILLS
DULL FOOT HILLS
DOWN
SHALLOW STREAM
GRAVEL STREAM
DEEP VALLEY RIVER
VALLEY
SOGGY PATCH
HILL MOOR
DEEP GRAVEL
STEEP STREET


N
W
E
S
FLAT GRASSY AREA
MINE ENTRY
TREE TOP
MAZE OF BRANCH
MAZE OF BRANCH
MAZE OF BRANCH
MAZE OF BRANCH
MAZE OF BRANCH
MAZE OF BRANCH
BRIDGE TO WOOD CITY
NORTH BRIDGE
CLOCK TOWER
MAIN SQUARE
PLAZA
TREASURE ROOM
ALLEY WAY
KING'S ROOM
THROUGH ROOM
LANDING ON STAIRS
PALACE GUARD
HANGING GARDEN
PALACE YARD
BIG KITCHEN
WEST HALL
GREAT EAST HALL
DRESS CIRCLE
EMPTY ?
COPPER ROOM
TRAIN
DARK
PLAT FORM
TICKET OFFICE
DYING WOOD
HIGH WOOD
EDGE OF WOOD
DEAD WOOD LAND
SPARSE SHRUB
RICH VEGIES
CLEARING
COPPER
SUN LIGHT
CLAMMY SHRUBS
The Woods
ATARI USER

ANDRÉ WILLEY continues his look st computer talk

RS-232 —

IF you were all paying attention last month you should by now have a fairly good understanding of how a simple RS-232 interface functions, and what its needs and limitations are

If you recall, data is sent from the computer to a given peripheral down one wire and returned from the peripheral using a second line. There are a number of additional connections but these are often left unused and can be discussed once the main principles are fully understood.

Unfortunately, no Atari 8 bit micro comes with an RS 232 interface, so if you want to access devices such as modems and serial printers you must first buy a separate interface box. Normally it will be Atari's own 850 module and so we'll concentrate on this device.

The module contains its own rom based software which loads into the micro at boot time, in much the same was as Dos loads itself from disc. You'll find in practice that many third party interface units, such as ICD's P R Connection, use exactly the same system – even down to the software control codes – so what follows should apply to most users.

If you are planning to use a modem, some form of communications software such as that provided with Mini Office II, will be invaluable, but there may well be occasions on which you want to control the interface system directly. This is handled from Basic using XIO commands, but there are a few things you should understand before starting on your first RS-232 program.

Command	Parameters
OPEN #chan aux1 aux 2, Rn" (initialise IOCB for use)	chan IOCB channel number (1-7) aux1 4 for concurrent input 8 for block output, 9 for concurrent output, 13 for concurrent input/output (P R Connection uses 12 for I/O) aux2 unused (usually zero)
CLOSE #chan (close current IOCB)	chan IOCB channel number (1-7)
GET #chan,avar (input single byte)	chan IOCB channel number (1-7) avar numeric variable for returned byte
INPUT #chan,var$ (input multiple bytes)	chan IOCB channel number (1-7), var$ string variable for returned text
PUT #chan,numb (output single byte)	chan IOCB channel number (1-7), numb value or variable to send (0-255)
PRINT #chan,text (output multiple bytes)	chan IOCB channel number (1-7), text string or variable(s) to send
STATUS #chan,avar (Get current status of RS-232 link)	chan IOCB channel number (1-7) avar IOCB dummy variable, PEEK(746) gives error status PEEK(747) gives handshake status when in block mode PEEK(747)+PEEK(748)*256 gives number of bytes unread in the concurrent input buffer, PEEK(749) returns number of bytes in concurrent output buffer (See also Figure II)
XIO 32,#chan,0,0,"Rn " (force output of short block)	chan IOCB channel number (1-7) (Block mode only)
XIO 34,#chan aux1,0, 'Rn" (Set control lines)	chan IOCB channel number (1-7), aux1 Sets values for DTR, RTS and XMT (See also Figure III)
XIO 36 #chan aux1,aux 2,' Rn" (Set speed/stop bits/etc)	chan IOCB channel number (1-7), aux1 Sets baud rate & number of stop bits, aux2 Tells computer whether to monitor the CRX, CTS and DSR lines (See also Figure IV)
XIO 38 #chan,aux1 aux2,"Rn " (Set parity/line feed/trans)	chan IOCB channel number (1-7), aux1 Sets translation mode input and output parity and line feed mode aux2 'Won't translate' character (See also Figure V)
XIO 40,#chan,0,0,"Rn " (Start concurrent I/O)	chan IOCB channel number (1-7) N B No other XIO commands are allowed once concurrent mode is activated.

Figure I RS 232 commands available from Basic

Distinct modes

Firstly RS-232 is a bi directional data transfer system. This means that bytes of data must be able to pass in either direction and, more importantly, at any time. You might, for example, have to deal with received information at the same time as transmitting your own message.

At 1200 baud this could mean up to 120 characters a second in either direction, so the software required to handle this is quite complex. More to the point, it must be monitoring the received-data line constantly so that no information is lost. This means that the micro will be completely tied up handling the RS 232 system and have no time for other types of information transfer such as to a disc drive or printer.

To get around this problem there are two distinct modes of operation for the interface – block mode and concurrent mode. The latter is used when full two way communication is required, but if you only need to send data you may select block mode, which frees enough processor time to allow any other I/O functions to take place.

In concurrent mode any information which is sent or received is dealt with

a serial in 8 bits

in real-time – as soon as you send a byte of data from your program it will be immediately transferred to the peripheral at the other end. Equally, any data coming from the peripheral will be instantly available to your program.

However, the use of concurrent mode prevents any other use of the serial I/O system – so no cassette disc or printer operations are possible while concurrent mode is activated. Since they do not use the serial bus, internal operations such as access to the keyboard and screen are not affected.

Select your channel

Although block mode is more useful if you need to access other peripherals at the same time, two major limitations are imposed. Firstly there is no facility for the computer to receive RS 232 data from the interface – it is strictly an output-only system.

Secondly, all data sent by the computer is first stored in a temporary 32 byte buffer. This means that your data will not normally be transmitted until the block is full, and then all 32 bytes will be sent as a single block – in very much the same manner as the buffering system used for other output devices such as a cassette, printer or disc.

So much for theory, now let's see how the system works in practice. Once you've connected all your cables – and that's not always as simple as it sounds – you are ready to power up the computer and allow the interface software to boot into memory.

This is automatic for a tape system but disc users must specify that they wish the load to take place by use of the special AUTORUN.SYS file provided on their Doc disc. If you are in doubt listen for a long high pitched beep sound during the final stages of the boot process. This is the special R: driver loading and initialising.

You can use the R: driver in much the same way as you would any other CIO driver. All of the usual commands are available, including OPEN, CLOSE, INPUT, PRINT and so on. Also a wide range of XIO commands are used to adjust various aspects of the data transfer. Although most XIO com-

Turn to Page 29 ▶



'Are you sure you're sending the right control codes down the RS 232!

Meaning of error bits returned by PEEK(748)

Bit	Decimal value	Meaning
7	128	Input data framing error (no stop bit found)
6	64	Input overrun error (computer missed some bits)
5	32	Input data parity error (if parity selected)
4	16	Input buffer overflow error (too much data)
3	8	Illegal interface option requested by user
2	4	External device not ready (if monitoring is on)
1	2	Error on block data output (Atari I/O bus error)
0	1	Error in command to interface module

Meaning of bits returned by PEEK(747) in block mode only

Bit	Decimal value	Meaning
7	128	128 means DSR shows ready (true)
6	64	Gives previous DSR status (as for bit 7)
5	32	32 means CTS shows ready (true)
4	16	Gives previous CTS status (as for bit 5)
3	8	8 means CRX shows read (true)
2	4	Gives previous CRX status (as for bit 3)
1	2	Not used
0	1	Current state of received data line (1 or 0)

Figure II The Status command

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mands may be used without first opening a channel, it is conventional to allocate your channel number with the OPEN command before proceeding

Four modes are available when opening a channel, block output, concurrent (real time) output, concurrent input and concurrent input/output These are specified using the first parameter of the OPEN command

```
OPEN #1,8,0,"R1:"
```

In this case the number 8 is used to specify block mode output More information is given in Figure I

The PRINT and PUT commands work in exactly the same way as you would expect and they may be used with channels opened for block or concurrent data transfer On the other hand INPUT and GET may only be used when concurrent mode is activated but otherwise function as normal

When you CLOSE a channel any remaining output bytes will be sent and the channel will be freed for other use although any remaining concurrent input data will be lost

Due to the nature of RS-232, you may wish to send data faster than the link is capable of transferring it – especially at lower baud rates For this reason text is buffered in both directions and if the output buffer becomes full CIO will wait until there is space before letting you send any more text.

XIO functions

The input buffer is much more important since you can't always stop the remote terminal from sending data to you so the STATUS command is used to check the number of unread characters waiting in the input buffer

After issuing such a STATUS command you may PEEK location 747 and 748 to give you the number of bytes currently waiting to be read A good program should then GET or INPUT those characters until the buffer is empty If the buffer gets too full some information may be lost, so you should check its status frequently

When in block mode STATUS can also be used to find the condition of the remote end of the link via the Data Set Ready Clear To Send and Carrier Detect lines A number of other functions are available each controlled by its own XIO command These are listed in greater detail in Figures I through V

XIO 32 is only required when you are working in block mode, and it will force the software to send the current buffer contents even if that buffer is not yet full

XIO 34 allows you to indicate your readiness to communicate with the remote device by setting the condition of the Data Terminal Ready Ready to Send and Data Out lines

XIO 36 is used to set the baud rate (or speed) of communication the number of stop bits and the number of bits sent per word (usually set to eight) This command is also used to determine what sort of control line monitoring should be undertaken

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Add one number from each table to select the current control line status	
0	Don t change DTR
128	Set DTR to Not Ready (false)
192	Set DTR to Ready (true)
0	Don t change RTS
32	Set RTS to Not Ready (false)
48	Set RTS to Ready (true)
0	Don t alter the data output line
1	Set output line to 0 (false)
2	Set output line to 1 (true)

Figure III XIO 34 Set condition of output control lines

Add the following numbers, one from each table, to give a value for Aux1	
Value	**Meaning**
0	300 baud
1	45 5 baud (RTTY 60 words per minute)
2	50 baud (RTTY 67 words per minute)
3	56 875 baud (RTTY 75 words per minute)
4	75 baud (RTTY 100 words per minute)
5	110 baud
6	134 5 baud (used on some older IBM systems)
7	150 baud
8	300 baud
9	600 baud
10	1200 baud
11	1800 baud
12	2400 baud
13	4800 baud
14	9600 baud
15	9600 baud (19 200 baud with P R Connection)
0	8 bits per word)
16	7 bits per word } – Only 8 bits per word (that is normal bytes)
32	6 bits per word } are available with the P R Connection
48	5 bits per word)
0	Add 1 stop bit
128	Add 2 stop bits

Use the following values for Aux2 to select which lines to monitor					
Value	**Monitor lines**		**Value**	**Monitor lines**	
0	None		4	DSR	
1		CRX	5	DSR	CRX
2	CTS		6	DSR CTS	
3	CTS	CRX	7	DSR CTS	CRX

Figure IV XIO 36 Details

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before sending any data. This monitoring system works in real time, and will return an error if any of these lines should indicate Not Ready during transmission of data.

XIO 38 controls the use of parity bits if required as a simple method of line error detection. It also allows you to add a line feed byte after each Return and to convert between standard Ascii codes and Atari's Atascii system.

Enable link

Finally, XIO 40 is used to enable concurrent mode on the data link. This has the effect of locking out any further changes, since all the other XIO commands will only function in block mode. If you do need to alter any settings you'll have to CLOSE the channel and start again.

● *Next month, after this has had time to sink in, I'll show you how to use the RS 232 driver to write a simple communications program which will let you experiment with online systems.*

Add the following values (one from each table) for Aux1

Output Parity	
0	None
1	Set output to odd parity
2	Set output to even parity
3	Set parity bit to 1

Input Parity	
0	None
2	Check for odd parity and clear bit
8	Check for even parity and clear bit
12	Don't check parity, but clear parity bit anyway

Translation mode	
0	Light Translation (155 (Carriage Return) altered to 13)
16	Heavy Translation (155 changed for 13, plus ignore Ctrl codes)
32	Atascii Mode (No Translation)

Line-Feed mode	
0	Ignore
64	Add a Line Feed after each Carriage Return

(Aux2 is the Ascii value of the character which will be returned if the Heavy Translation mode can't cope with an incoming byte.)

Figure V. XIO 38 parameters available

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One that got away

by Rouloc



ONE adventure released earlier this year which I haven't told you about before is The Eternal Dagger from SSI – Strategic Simulations Inc. This is another fantasy game based very much on its close relative, Wizard's Crown. As is usual with this type of tale, an evil Necromancer has laid waste an island.

His conquest was made easier by a dragon which had stolen a holy relic from its normal resting place. You must first recover the relic from the dragon because without it you cannot hope to defeat the Necromancer and his evil army of undead.

Before you can even get down to playing the game, you must create four – yes, four – playing discs with the aid of the program. These are all needed during the whole game. That takes some time, so be patient. Then it's advisable to have at least a quick read through the detailed 30 page manual that comes with the two disc game.

Having carried out these preliminaries, you are ready to start. The game is played using the keyboard – mostly single key commands – and the good news is that plenty of on screen prompts are provided. The bad news is that the frequent disc swapping and accessing time required takes a good deal of the fun out of the gameplay.

You commence with your adventurous band of eight characters just outside a tower. Each of your characters has a number of attributes (intelligence, strength, dexterity and so on), skills, abilities, weapons, armour and sundry other items. You may tailor any or all of your characters to build up just the sort of band you feel would fare the best in the coming adventure.

The main screen is a two dimensional map across which the characters trek. They can move in any direction, rest, search and make camp. On encountering other creatures they may elect to talk, run or fight them.

Combat can be quick – in which case the computer takes over most of the work and simply updates you on the progress of the battle – or tactical – in which case you take over all the decision making. Each round of tactical combat can take some time as many commands and movements are at your disposal.

The sound and graphics are nothing to get excited about, but are adequate for the purpose. What this game does have to offer is stacks of detailed and accessible data on every character and plenty of commands and options for you to play around with.

For instance, the combat commands allow you to ready an item, sneak, throw a weapon, turn an undead, cast any one of a vast number of spells – up to your acquired magical ability, naturally – load a bow or crossbow, defend, stand on guard, launch an aimed weapon, defensive or killing attack.

Magic spells include unlock, freeze, invisibility, fumble, fear and protection at the easier end of the spectrum with fireball, lightning bolt, magic blast, paralyse and life steal at the tougher end of the spell range. Prayers can be invoked to heal and help the band in a number of ways.

There are towns where you can visit the market place to buy and sell, the temple to pray and restore your characters' karma, Inns to carouse, eavesdrop and rest, docks to catch a ship, money changers to swap your less valuable coins for gold, the enchanter's shop to buy magic items and the alchemist's to create magic potions.

There are also dungeons to be explored, and here you can search, cast Foxfire or Night Vision – so you can all see in the dark of course – open and close doors and generally try to find what you can. Be very cautious here as these underground labyrinths are deadly. Numerous traps and monsters wait for you around every corner.

The Eternal Dagger has plenty in it – a vast land to explore, loads of characters, masses of stats and information and battles by the bagful. However, it is very similar to other games of this nature and you could be forgiven for thinking that when you've seen several, you've seen them all.

One of the drawbacks with a large game such as this is the constant disc swapping which is a real pain and slows down the action almost to the point of annoyance.

However, the SSI games have a large following and for those who enjoy this type of fantasy cum strategy game, Eternal Dagger is not likely to disappoint.

Until next month, keep your knapsack full and your sword arm strong.

Turn to Page 33 ▶

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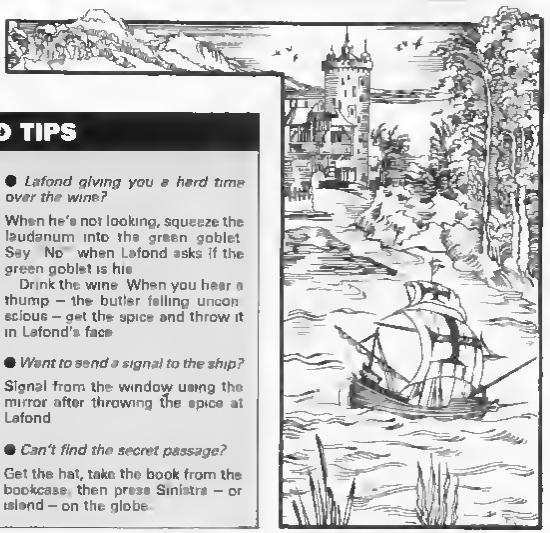
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HINTS AND TIPS

This month's hints and tips concentrate on Infocom's Plundered Hearts. This is not one of the most difficult adventures ever released, but nevertheless it still has its fair share of teasers.

It certainly has its place in adventuring history as one of the few adventures to solely feature a female as the lead character.

● *Can't put out the fire in the hold?*

Tear a piece off your dress, soak it in water and then throw it over the gate.

● *Want to leave the ship?*

Enter the cask and cut the line. Wait for the current to pull you to the island.

● *Lafond giving you a hard time over the wine?*

When he's not looking, squeeze the laudanum into the green goblet. Say "No" when Lafond asks if the green goblet is his.

Drink the wine. When you hear a thump – the butler falling unconscious – get the spice and throw it in Lafond's face.

● *Want to send a signal to the ship?*

Signal from the window using the mirror after throwing the spice at Lafond.

● *Can't find the secret passage?*

Get the hat, take the book from the bookcase, then press Sinistra – or island – on the globe.

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THE COMPLETE USER GUIDE

I TOTALLY agree with the letter from Stephen Pratt in the September 1988 issue of Atari User *– in particular his reference to several conversations he had with different computer owners So I have decided to give you my own list of other computer owners and list them in order of tolerence – 1 being the worst and 5 being the least moronic*

1 The BBC owner Totally intolerable Has a high death rate in classroom arguments He thinks the BBC is the best micro in the world despite its poor graphics, miniscule memory and high price Classic quote "The BBC really is a good bargain!"

2 The MSX owner Insufferable You would think he could understand the lack of software problem but all he ever talks about is Konami roms It's a pity rom games play so slowly – especially Nemesis – and they are very expensive Classic quote "Konami, Konami, Konami!" in a frenzied state

3 The Commodore owner Aaghh! He thinks his micro is the best in the world because it has all the latest games coming out for it But why does it take so long to load – even on disc? Fighter Pilot takes two minutes and 27 seconds Some owners even think Commodore is a British company Classic quote "I'm just loading a game, it'll be ready in three weeks time"

4 The Spectrum owner Barely sufferable Like the Commodore owner he thinks his micro is the best because of the games for it But he is at a loss for words when cornered on colour clash, poor sound and the C5 Classic quote "The sound is very realistic, it reminds me of a fly"

5 The Amstrad owner Not too bad – at least in my experience, my brother owns one and he's all right Owners tend to understand the lack of software because of their problems in Amstrad's early days Classic quote "Oh dear!"

My letter may seem unfair to some computer owners but it does reflect the conceited opinions of the majority I would think most Atari owners have, over the years, met people like this – I know I have! – **Christopher Smith Welling Kent**

● Quite a letter Chris but you missed one computer owner out – the ST owner Classic quote "Over rated"

HEAVEN'S ABOVE!

I READ with interest the review of the Atari Planetarium in the August 1988 issue of Atari User *I have had the program for some time now, having bought it because of my interest in astronomy I have discovered that it not only shows sights in the heavens but depending on the city, it also shows local landmarks*

For example, in London it is the tower of Big Ben – but not the rest of the building Other cities I have discovered this interesting feature in are Toronto (CN Tower), New York (Empire State Building) San Francisco (Golden Gate Bridge) Surprisingly though, Sydney's two famous landmarks aren't shown

There could be others but I haven't yet found them I'm too busy viewing astral events past, present and future I own an 8 bit and ST – I didn't have the heart to get rid of my 8 bit when I got the ST – and it's a shame the new machine can't match the older one in quality software of this nature – **C G Christie, London**

● It's nice to see you have still kept attached to your roots But we have found that a lot of ST owners were formally 8 bit enthusiasts who defected

Hollywood or bust

ON Monday September 12 I sat myself down in front of the television without the slightest intention of switching my computer on The cult science fiction movie Bladerunner was on and I wasn't going to miss it

There I was enjoying the action when I caught sight of a neon Atari logo At first I thought I was mistaken, but no, it was definitely there Around this time the ST wasn't on the scene and the major Atari computer was the 8 bit

This shows just how popular, and how well advertised, the 8 bit is in America It's a shame Atari UK doesn't take heed of this and look after the best 8 bit like its American counterpart – **Martin Wilkinson, Catterick, Yorks**

● This just goes to show what a star of the silver screen your Atari 8 bit is

Driven to piracy

I HAVE been an Atari owner for four years now and I use my machine mainly for entertainment During this period of time I have spent more than £300 on good quality disc software I am very proud of my all-original collection and I strongly speak against any form of computer software piracy

Which brings me to the point of my letter During these four years of owning an Atari, the software supply has always been limited when compared to that available for many other machines You could say I have at times envied some of these micro owners

This isn't because the Atari can't match the quality of these micros – in fact it totally surpasses them in hardware design

It's the fault of the software houses They simply don't bother to convert popular programs to run on the 8 bit Atari

About a month ago I came across two absolutely fabulous pieces of games software for my Atari and they have had me glued to my television set ever since – Elite and The Last Ninja

The catch? Well, both games are pirated and, as far as I know, haven't been released in the UK I would like to know why they haven't been released? I'm not surprised some people are lured from buying originals it is a shame that quality software of this nature is denied us What makes it worse is that there are many more games where these two came from

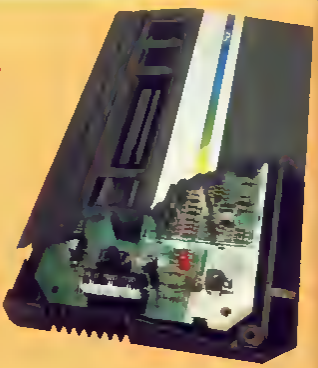
So, can Atari User tell me who is producing such wonderful games and why software houses haven't released them? – **Name and address supplied**

● Frankly, we don't know who is producing these games A few years ago there was a rumour that Elite had been written, but Firebird had quashed its release As to The Last Ninja we have heard nothing

It is a possibility that independent programmers – those outside a software house – have produced the games at home

The VCS System

NEIL FAWCETT casts a critical eye over more rom cartridges for the 2600



I AM looking this month at Dragster, Beamrider, Fire Fighter, Laser Blast, Skindiver and Grand Prix. They come from a number of companies – Activision, Imagic and Sancho – and vary in quality.



Dragging along

Product Dragster
Price £9.95
Supplier Activision, 23 Pond Street, Hampstead, London NW3 2PN
Tel 01-431 1101

THE Dregster cartridge tells you that you have just bought one of the most exciting video games ever designed. It also tells you that this is a very complicated game and takes a little time to learn.

In the very early days when Dragster first came out I would have agreed with the first comment – but not now. Dragster, as the title informs you, is about driving one of the world's fastest accelerating cars in a race against time.

As the clock counts down your stomach begins to churn with excitement and then it reaches zero and you are off down the track at around 100mph. You control your car with a joystick which operates the clutch, gear stick and, as the Americans call it, the gas.

By combining several joystick movements you can change gears upward quickly and accelerate your car down the course – but remember you can't go down through the gears.

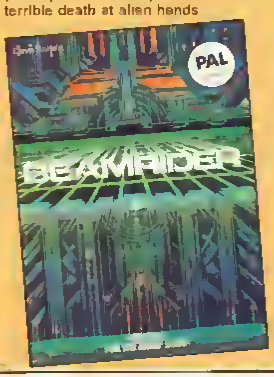
Were this a new game I would criticise it heavily, but in view of it's years I'll pull my punches. The graphics are plain and the sound effects abysmal. Gameplay is average, but I got fed up after I'd been racing only a short time.

Beam me up VCS

Product Beamrider
Price £9.95
Supplier Activision, 23 Pond Street, Hampstead, London NW3 2PN
Tel 01-431 1101

SET in the upper reaches of Earth space, a web of blue beams has spread everywhere. They are being used by alien life forms to invade our planet.

Will you just watch, or will you take the required action and fight? If you choose to fight it's time to roll up your sleeves, mount the beams and ride. If you opt to watch you're in for a terrible death at alien hands.



Animated graphics create a 3D perspective that virtually pulls you into the screen. Pulsating sound effects intensify the action as a dizzying array of objects zips from beam to beam.

The game features numerous different aliens to destroy. Each sector you enter is progressively harder and you must be on your guard at all times.

Beamrider involves fast action, is fun to play and tests your reaction time and nerve. If you love a good shoot 'em-up give it a try. It combines tomorrow's technology with game designer Dave Rolfe's fantastic imagination to forge a challenge you'll return to again and again.

Fiery challenge

Product Fire Fighter (Imagic)
Price £9.95
Importer Atari World, 11 Fennel Street, Manchester M4 3DU
Tel 061-834 4941

MIDNIGHT. The city sleeps. Suddenly a cry pierces the night. 'Fire! A man's trapped up there!' A raging blaze crackles and climbs. A desperate man waves his arms and races from window to window, floor to floor. His situation looks hopeless.

Be strong. Douse the flames with your hose. Line up your ladder and save him. Keep trying, you're his last chance – his only chance.

As the fire spreads even higher, he climbs a floor at a time to escape the blaze. Only by reaching him with your ladder can he be saved. Put out the flames then race back to the fire engine, jump on and scramble up the ladder. Then snatch him from his fiery peril to the safety of the ground below.

You direct your rescue operations.

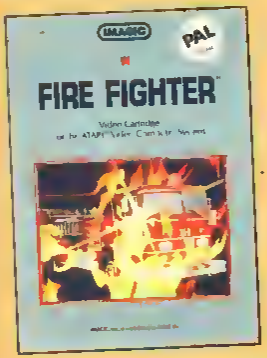
with the left joystick controller and when the game begins, your fire fighter appears on the fire engine Move him to the front of the ware house and turn the water on – you have a limited supply so make it count.

Extend the ladder until it rests directly against the warehouse wall. Have the fire fighter jump back on to the engine by leaning the joystick to the right then move him up the ladder towards the man

You ve won the game when the ladder has been extended to the floor where the man is waiting and he joins you on the ladder

Following this comes a jubilant ren dition of ' For he s a jolly good fellow' which signals a job well done

Fire Fighter is a wonderfully addic tive game which will keep you busy for some time Adequate graphics and average sound effects complement the gameplay making this cartridge a winner



Beat off the aliens

Product Laser Blast
Price £9 95
Supplier Activision 23 Pond Street Hampstead London NW3 2PN
Tel 01-431 1101

AS the intrepid commander of a fleet of intergalactic spacecraft, you're engaged in a vicious battle with a race of aliens – and they re no pushovers

Their radar systems track your every move and their force fields block your



every advance Even when you des troy a wave of attackers tougher, more skillful reinforcements replace them

But keep on fighting The more attackers you destroy the more points you earn, and eventually it will be your turn for reinforcements in the form of an extra life

The screen is split into two main sections At the top is your lead ship and reserve fleet The remainder is taken up by the lunar surface on which the enemy bases you must destroy are located

These ground attack forces are equipped with radar detection sys tems which help them aim their lasers at your ships If you allow your ship to hover in one place too long the enemy will quickly line your ship in its sights leading to disastrous results By flying low to the ground you can keep your craft under the radar

However, as the battle progresses each new regiment of enemy attackers has a stronger force field, which grad ually forces your ship farther away from the ground, making it an even easier target

Don't give up when you take a direct hit Even though your ship will quickly lose altitude you can still control its descent and crash into a base This accomplishes two things – it destroys the attacker and it adds the value of the destroyed installation to your points total – which gets you even closer to receiving an extra ship

The graphics sound effects and playability of Laser Blast are average If you have bought all the other 2600 cartridges and want another one for your collection buy it But at the end of the day it s just another zap the aliens shoot em up

Sunken treasure

Product Skindiver (Sancho)
Price £9 95
Importer Atari World 11 Fennel Street, Manchester M4 3DU
Tel 061 834 4941

FABULOUS wealth in the form of gold, diamonds rubies and emeralds await a brave diver But beware, man-eating sharks sea monsters and other dan gers lurk below the surface protecting the sunken treasure Many have tried to steal the booty from its watery grave but all have failed never to be seen again Now it s your turn, if you dare

The game consists of two levels which must be negotiated The first has you spearing fish with your har



poon gun When you have killed them all you must enter the sunken galleon at the bottom of the screen – this will take you to level two

Be very careful though the walls of the galleon are sticky and if your diver touches them he will be stuck until you free him by rattling the joystick from left to right. If he hits the wall at high speed he will stay there until his oxygen runs out and he dies

Inside this ship lurk three huge sea monsters which protect the treasure You can't kill them if you shoot at them so you must dodge them by swimming away You will notice some

Turn to Page 38 ▶

VCS 2600

◄ From Page 37

narrow openings in the sides and walls of the ship which your diver can go through but the sea-monsters can't

Watch your oxygen supply at all times After retrieving a treasure chest (or, if your oxygen supply is too low you will have to return to level one

The graphics and sound effects are reasonable as is the gameplay, but I recommend you try before you buy It is one of those games that some people will love and others hate

Life in the fast lane

Product Grand Prix
Price £9 95
Supplier Activision 23 Pond Street, Hampstead London NW3 2PN
Tel 01-431 1101

BUCKLE up snap your chin strap, adjust your goggles and get ready to handle a high powered formule racing machine You'll need all the nerve anticipation and reflexes of a world champion race driver to master the circuit facing you

Feel how your steering and handling change as you pick up speed Ease your car past competitors over oil slicks and across bridges at blinding speed

You ll hear the sound and fury of a true Grand Prix event Your engine whines louder and higher as your car reaches maximum revs Your wheels hum faster on the asphalt and your competitors zoom by If you hit your brakes, your tyres squeal

It s you against the clock, the road and the other drivers in a race to the finish line This all sounds great fun and it is The graphics and sound effects aren't brilliant but at least your car looks like a car – unlike some games I could name

You have the choice of four tracks – Watkins Glen Brands Hatch Le Mans and Monaco The main difference between them is the number of bridges you have to negotiate

A couple of slow practice runs through the courses will help you get the feel of the track You ll also find that, just as in real racing the faster your car is going the easier it is to lose control That's why pacing is so important – try to think ahead and anticipate what's coming up next.

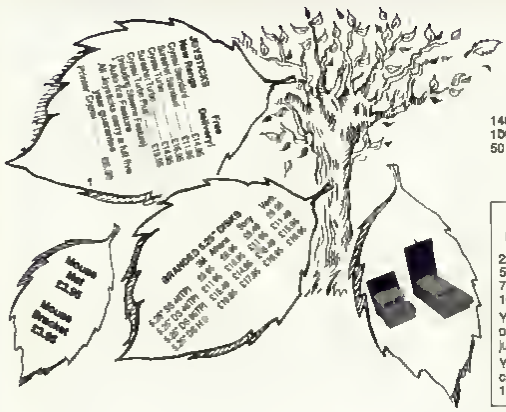
When you pass a car you ll almost never have to worry about it catching up with you from the rear So keep your eyes on the road ahead – that's where the action will be

Grand Prix is very playable and well priced at £9 95 If you like a challenge and fancy a spin give it a try



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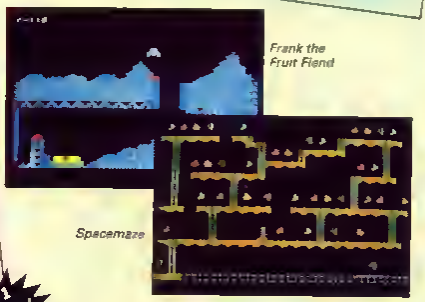
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MICRO

STEPHEN FAWCETT takes a look at what the 8 bit Atari has to offer adventurers and wargame players

OVER the years a number of companies have produced several strategy/adventure games on the Atari 8 bit micros Perhaps the best known of these software houses is SSI – Strategic Simulations Incorporated

However it hasn t had a monopoly Datasoft produced the best fantasy based graphics adventure duo to appear on the scene – Alternate Reality I and II Origin Systems also entered the market with the fabulous Ultima series and set a high standard of quality

When Alternate Reality The City appeared it was a huge leap forward for computer based adventures and is to this dey the most comprehensive computer fantasy geme I have played

In it you are walking one day when a giant alien spaceship descends and hovers above your city Soon it begins zapping people and beaming them up to be transported across the universe to an alternative reality – another planet where they are treated as slaves

This is where the adventure begins with you being let loose to explore the city in an attempt to escape home – just like E T Unfortunately your journey is hampered by the strange life forms which inhabit the labyrinth of roads and alleyways that make up the huge city complex

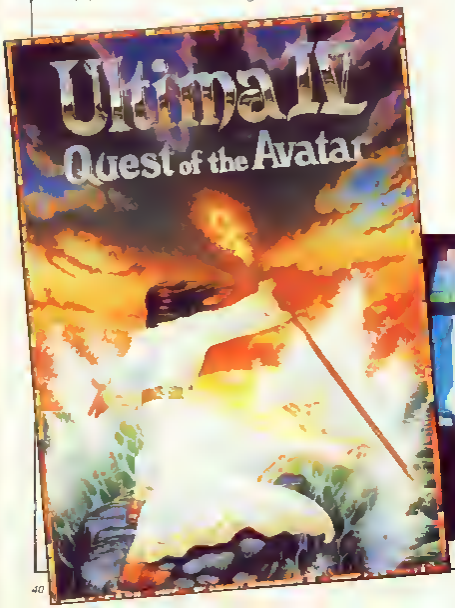
Your encounters can range from being botherad by a beggar to being zapped by a wizard Luckily a number of options are open to you and if you think about a situation carefully enough you can often get out of it easily

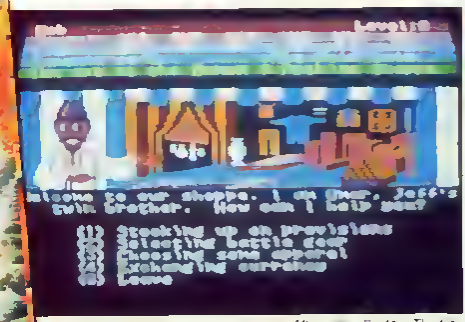
The sound and graphics are of an outstandingly high quality Each building you enter is accompanied by a multi-coloured visual image of a shopkeeper or sage, depending on where you go Usually the owner of the premises sings a short song to you

The sequel to this fantasy world, The Dungeon offered me another multitude of delights Similar in layout – that is rooms passageways and mazes – to the original adventure, you are now classed as an experienced citizen in the city This is why you are allowed to venture deep into the underground catacombs in an attempt to learn more about this strange world

Each adventure comes with a comprehensive booklet outlining everything you will need to know to survive A partial map is included in the package and you should use it as a base for exploring and mapping the rest of the game Also included is an artist s impression of major Dungeon sites

As you can see from the screen shot the graphics are brilliant and





Alternative Reality The City

BATTLEFIELD

colourful It's a shame that Datasoft hasn t brought out any more modules to add to this series I would buy them straight away

Soldiers at the ready

My next choice comes from the selection of wargames currently available from SSI – Strategic Simulations Computer Ambush is based on the exploits of a group of American GIs who are engaged in combat with a squad of German troops in a small village somewhere in France

The first thing you read when you open the game manual is the following quote taken from The Art of War, written by Sun Tzu around 500 BC referring to the tactical deployment of troops in a battle

> *Thus those unable to understand the dangers inherent in employing troops are equally unable to understand the advantageous ways of doing so*

This just about describes this tactical wargame in full Computer Ambush captures the nerve-tingling excitement and fear of war

I rate this as SSI s best simulation A superb vocabulary of commands and instructions are available to you and the documentation is first class If you like a good fight give this one a try even though it carries a hefty price tag – £19 99 – it's well worth every penny

Four times an adventure

In the beginning of 1980 a young programmer called Richard Garriot created a fantasy adventure game called Ultima Based in the mystical world of Sosaria, a band of brave adventurers must explore the magical lands in search of fame and fortune

Released by Sierra On Line it went on to sell around 100 000 copies worldwide This was the start of a fantasy empire which was to set the standards for other companies to follow

Following this marvellous adventure came Ultima II, Ultima III Exodus, and Ultima IV Quest for the Avatar All four went on to sell well around the world – especially in Japan where computer based adventuring is very popular

Methodical game play and superb computer interaction create a vivid world to romp around and an article about adventures just wouldn't be complete without mentioning the Ultima legends

Futuristic combat

Several years ago Steve Jackson brought out a game called Car Wars It was a huge success and promptly sparked a large amount of interest in the computing community

In the latter part of the 1980s Origin Systems released Autoduel which is based on the original board-style Car Wars Set in the 21st Century somewhere in the NE of America, death lurks round every bend of the freeways

You build a battle car and cruise around the motorways blasting the scum which inhabit them As with all the Ultima series the packaging is excellent The box contains a miniature toolkit – a very nice touch

Marvellous game play and a huge range of commands and actions available to you guarantee you will be addicted to this one for a long time.

Which one to buy?

The number of wargames/adventures for you to choose from is vast and you must consider what exactly you want from a game If it is too complex you will soon lose interest and if too simple you'll tire of it quickly

A game has to strike a happy balance Most of the SSI strategic simulations require a lot of reading and knowledge of all the rules On the other hand Origin games are usually playable without even reading the manual – though you usually die very quickly

The Alternate Reality series are very user friendly and enjoyable If you are just starting out adventuring or wargaming on a micro be very careful what you buy An awful lot of people have been put off by a bad choice

It really can be a fun experience re creating famous battles of old on your 8 bit Atari, so give it a try

Game	Company
Conflict in Vietnam	MicroProse
Decision in the Desert	MicroProse
Nato Commander	MicroProse
Crusade in Europe	MicroProse
Ultima	Origin
Ultima II	Origin
Ultima III	Origin
Ultima IV	Origin
Ogre	Origin
Autoduel	Origin
Alternate Reality The City	US Gold/Datasoft
Alternate Reality The Dungeon	US Gold/Datasoft
Mech Brigade	SSI
Broadsides	SSI
Computer Ambush	SSI
Wargames Construction Set	SSI
Fields of Fire	SSI
The Eternal Dagger	SSI
The Cosmic Balance	SSI
War in Russia	SSI
Colonial Conquest	SSI
Kampfgruppe	SSI
NAM	SSI
Questron	SSI
Gemstone Warrior	SSI

These are some of the adventures and wargames currently available for the 8 bit Atari

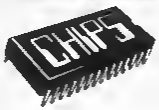
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3040 POSITION 2,5:? #6;"┣┫":POSITION
 2 7:? #6;"╋┫" POSITION 2 9:? #6;"┗┛"
:POSITION 1 11:? #6;"┣┫"
3080 POSITION 2 11:? #6,"╋┫"
3090 POSITION 2,15:? #6;"┗┛":FOR A=0
TO 15 STEP 2:POSITION 2 A:? #6;"/\/"N
EXT A
3070 A=USR(ADR(S$),CUSTOM,51+256,241
3060 FOR A=6 TO 18 STEP 3:POSITION 5 A
 :? #6 TRACKS POSITION 5,A:? #6;"■" POS
ITION 5,A-1:? #6;"■":NEXT A
3081 FOR A=1 TO 7:POSITION 0,A*2 :? #6;CH
R$(A+224):NEXT A:FOR A=5 TO 14 STEP 3:
POSITION A,A*2 #6;"■":NEXT A
3050 POSITION 2,4 :? #6,PEACE$:POSITION
 2 20:? #6 PEACES POSITION 1,6:? #6;#6
LL$ POSITION 2,8 :? #6 WAR$:?$
3092 POSITION 10,20:? #6;"PLACE ■ ";CHR
$(ASC(A$)+LOP)
3055 A=USR(ADR(S$),CUSTOM+4,51+584,32)
3057 IF LOP=1 THEN FOR A=5 TO 45 STEP
2:POSITION 19,A :? #6;"■":POSITION 19,A
+1:? #6 "■" NEXT A
3186 POKE 559 ,34:FOR DEL=1 TO 286 NEXT
 DEL
3110 FOR A=6 TO 18 STEP 2:POSITION 5,A
:? #6;"■";:POSITION 5,A +1:? #6;" ":NEXT
 A
3119 REM MAP LOOP
3120 FOR A=0 TO 3:A=USR(ADR(S$),CUSTOM+2
4+A*256,51+660,A6)
3130 S=SUM 4040
3140 NEXT A
3130 GOTO 3120
3999 REM MOVE LOOP
4006 X=INT(RND(0)*61+1
4010 A=A12*(X)-A6012*(X)+1:A=C(X)
4020 POSITION X,A:? #6;A12*(X)-1 A=A+2.7 A=A;"
";CHR$(2+A*256+X+2 A=A-5)+113+A:C(X)=65+110
*(A-1)),"-"
4030 POSITION A+A12(X)-1,A+2+4:? #6 "■
/\/" IF A>A12(X)+30 THEN RETURN
4040 GOSUB 4500 POSITION 16 A+2+1:? #6
;"   ";POSITION 16,A+2+4.7 A=A;"■■■"A6
A12(X)=Z:GOTO 4020
4086 RETURN
4499 REM NEXT LAP
4600 P=PE 77,0:C(X)=1:C(X)+1
4510 IF L(X)=LAP+1 THEN 4706 REM SAGE
OVER?
4520 IAC(X)=IAC(X)-0.1+(F=C(X)=1)*6 120
(PW(X)=27+0.1+(F=C(X)=2 A=A-1 C(X)=2)-0.1
*(F=C(X)=3 A=A-1 C(X)=2)
4525 ZVC(X)=IVC(X)-0.4A+(F=C(X)=3 A=A-1
C(X)=4)+0.2A+(F=C(X)=4 A=A-1 C(X)=2)
4530 POSITION 6 A,A+2+3:? #6;CHR$(L(X)+2
2):REM PAINT LAP NUMBER
4539 REM POINT FINISHING POST IF LAST
LAP
4540 POSITION 15,A+2+1:? #6;CHR$(X)+20
A=A-1:C(X)=LAP:POSITION 39,A+2+1:? #6;C
HR$(A+224)+CHR$(X)+LAG$1
4550 RETURN
4699 REM CLEAN-UP TIMERS
4700 FOR DEL=1 TO 186 NEXT DEL:A=USR(AD
R( 0:POKE 752,1:PRINT #16,A6:POSITION 18
,0:? "FINISH";:?
4704 ? "WINNER";CHR$(196+ID);" WAS AND OF
 ";NAME$(N*16);" IN 1"
4703 REM IS JOKING A NAMEER:
4710 FOR A=1 TO 8
4716 IF A=C(A)=N AND RET(A) THEN N=11F
OR N=0 TO 9:C=ASC(NAME$(CAM*10)-9+ID):I
F C=32 THEN GOSUB 4800:FOR :GOTO 4730
4703 NC AND(N)=N AND RET(A) THEN ? GOO
$(C+128)):NEXT A
4706 NEXT A
4706 IF N=0 THEN ? :? :? "WINNER FINAL"
:GOSUB 4000:NEW AU X:ADDERS
4740 FOR A=1 TO 8:RET(A)=0:NEXT A:FOR
A=1 TO 6:HUNIZ(A)=X:L(A)=1:NEXT A:REM
RESET COUNTERS
4745 FOR A 1 TO N:IF CASH(A)=0 THEN GU
SUB 7000:REM OUTCOME WITH NO CASH?
4746 NEXT A:N=0
4700 FOR DEL=1 TO 50:NEXT DEL:GOTO 450
0
4799 REM HEADINGS SHOW-TIME
4800 ? :? "Stake ";BET(ID)" Odds ";ROD
S(ID);" to 1   Winnings ";BET(ID)*ROD$(ID
)
4810 CASH(ID)=CASH(ID)+BET(ID)+BET(ID)*ROD
S(ID)
4820 RESTORE 30000   -
4830 READ C,D IF D=-1 INFO RETURN
4840 SOUND 0,C,10,10:FOR DEL 1 TO 8 NE
XT DEL:GOTO 4810
4899 REM END OF INFO MODE
4900 POSITION 13,21 ? "HOME IS THE POO
R":POSITION 5,22:? "PRESS       FOR IN
E NEXT RACE"
4910 POSITION 11,22 ? "START"
4920 RESTORE 29000
4930 READ A,B:IF B=-1 THEN POSITION 11
,22:? "       ":GOTO 4930
4935 IF B--1 THEN POSITION 11,25 ? "SE
LECT"
4940 ON B+ 1 GOTO 4926 SOUND 0,0,10,0
:FOR DEL=1 TO B/2 IF PEEK(632)=9 THE
N FOR :GOTO 186
4950 NEXT DEL:GOTO 4920
4995 REM ENTER GAMES SOUNDTIME
5000 POSITION X,41 ? #6;"PLAYER ";0;"
PLEASE" POSITION 0,15:? #6;"  enter YO
UR NAME   "
5005 POSITION X,13:? #6;"PRESS HIT PLEAS
E"
5010 CLOSE #1:OPEN #1,4,0,"K:":NAME$=""
5015 FOR B=1 TO 5:SOUND 0,0,0,0
5020 GET #1,D:IF B=155 THEN POP :GOTO
5060
5025 IF Q<120 THEN A=B-(N)13:POSITION
5+N,16:? #6 " ":GOTO 5006
5035 IF B<05 OR B>96 THEN 5050
5030 SOUND 0,B*2 5,10,0:POSITION 5+B,1
4:? #6;CHR$(D1);CHR$(D2);CHR$(D3);CHR$(
D)
5060 POSITION 0,15:? #6,BLANK$:POSITIO
N 5,14:? #6,"  "
5062 POSITION 0,41:? #6;BLANK$:SOUND 0
,0,0,0
5063 POSITION (15-CLEN(NAME$)*11)/2 A2:
? #6;"0 A  ";NAME
5065 POSITION 3,13:? #6;"  SAGE LUCK
 " FOR DEL=1 TO 100 :NEXT DEL :NAME$(CO
UNT*10+1 )=A1$:NAME
5067 POSITION 5,17:? #6,"
5050 RETURN
6995 REM PLAYER HAS RUN KITTY
7000 IF OR(A)=1 THEN 7010
7006 ? #6;"CASH$(A*10+1 5,A+10),"  HAS RUN O
UT LEFT AND PUSH " ? "
 DROP OUT" OR(A)=1:GOSUB 8100
7010 IF DROP=1 THEN POP  GOTO 7500 REM
 ARE ALL PLAYERS BROKE?
7020 RETURN
7495 REM END OF SAGE ALL PLAYERS BROKE
7500 FOR DEL=1 TO 100 NEXT DEL GRAPHIC
S 16:POSITION 4 9:? #6 "PRESS start"
7500 POSITION 1 ? ? #6,"all punters br
oke":POSITION 2 3 ? #6,"gone to the d
ogs"
7510 POSITION 2,11:? #6,"FOR A NEW GAM
E"
7515 FOR A=1 TO 9:BET(A)=0:NAME(A)=0:RE
XT A FOR A 1 TO 8:COSH(A)=100+RND(0)*6
NEXT A:DROP=0
7520 RESTORE 30000
7530 READ A,B IF B=-1 THAN 7520
7533 IF B=-2 THEN POSITION 10,9:? #6,"
start"
7537 IF B=-1 THEN POSITION 10,9:? #6,"
START"
7540 SOUND 0,A,10,10 FOR DEL=1 TO 0:IF
 PEEK(53279)=6 THEN POP :SOUND 0 0 0,0
:GOTO 206
7600 NEXT DEL:GOTO 7520
8000 RESTORE 30200
8010 READ A,B,C,D IF B=-1 THEN RETURN
8020 SOUND 0 A 10,10 SOUND 1 C 10 10:F
OR DEL 1 TO 0 NEXT DEL GOTO 8010
8100 DROP=DROP+1 RESTORE 30200
8110 READ A,B IF B= 1 THEN RETURN
8120 SOUND 0,0,10,10 FOR DEL=1 TO 0 NE
XT DEL GOTO 8110
30000 REM 8010 FOR 8010 TRANSFER
30010 DATA 106 101,7,200,81 104 133,22
5,104,133,224,104 133 227 104 133,226,
104,133,229
30020 DATA 104 133,220,165,0 133,210,1
33,231,169 177,254,445 226 24,105,1 10
1
30030 DATA 224,133,214 165 0 101,226 1
33 225 24,165,1,101 226 133,226 105 0,
101,227,133 227 24
30040 DATA 105,1 104,230,173 220,165 0
```

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,101,211,133,211,14,105,226,197,208,2
8
10050 DATA 206 103 229,197 231,208 208
 98
10160 REM DATA FOR OLI COLOUR CHANGE
10170 DATA 72,169 0,141 23,208,169,14
141 25 208,169,42 141,10 212,141,24 20
0 104 64
20000 REM DATA FOR BOOTEC
20005 DATA 0 0 0 0,0 85 21 5 0 0 0 0 0
 106 106 106 0 0 0 20 21,20,80 60,60
20010 DATA 0 0 0 0 0 0,127,127,127,0 0 0
 0 0 127 106 127
20015 REM DATA FOR LEGS,TROCK FENCE AN
D CROWD
20020 DATA 5 5 5,5 1 1 0,84 0 0,0 0 0
0 0 84 16,16 10 16,16 0 84
20025 DATA 5 5,4 4 16 16 0 0 84 0 0 0 0
0 0 0 84 16,4 4,1 0 0 0 0 85 0 0 0,0,0 0
 0 0 4 255,3 3 1 1 255,3,5 0,0 0 0
20026 DATA 0,150 104 85,169 169 85 150
 150 85,150 169
20030 DATA 5 5 20 80 0 0 0 01 0 0 0 0
0 0 0 01 16 16 64 64,64 64 0 01 0 0 0,
0 0 0 0,01 255,60 40,16,16 255 60 40
10031 DATA 0 0 0,0 0 106 106 85 100 16
0 85 106 100 85 255,166
20035 DATA 5 5 1 0 0 0 0 69,0 0 0 69 1
6 0 0,69,16 64 64 0 0,0 0 69 0 0 0 0 0
,0,0,69 255 1 1 1,255 3,3
20036 DATA 0 0 0 0 0 0 0 100 169 85,154 15
4 85 169 169 85 154,154
20040 DATA 5,5 4,4,1,1 0 21,0 0 0 0 0,
0,0,21,16,4,4,16,0 0,0 21 0 0 0 0 0,
0,21,255,40,40 16,16,255,40 40
20041 DATA 0,0,0,0,0 0 160 166 85,106,10
6,66,150 166,85,106 106
20110 REM DATA FOR NUMBERS & LETTERS
20111 DATA 0 0 40,40,40 40,40,63 0 0 12
61,81,82,51 51 0,0,60,61 51 60 40 44,0
20112 DATA 0,12,60,12,12 12 63,0,0,12
61,3,12,48,83 0,0,81,3,12,3,51 12 0,0,
3,15,51,63 3,12,0
20121 DATA 0,12,51,48,12,3,60,0,0,0,0,0,
60,0,63,0,0
20114 REM FINISHING BOST
20115 DATA 0,0,16 90,60,60,16,40,60,40
 40,40,40 40,40,0
20120 REM DATA FOR IRAF & JACKETS
20130 DATA 1,REB,2 BLUE,3 WHITE,4,BLAC
K 5,ORANGE & WHITE/BLACK
20199 REM DATA FOR FORM
10260 DATA QUICK SHOOTER FADES ORED DI
STANCE
20201 DATA SLOW STARTER.GOOD SLAYER
20202 DATA GOOD MIDDLE DISTANCE RUNNER
20203 DATA OVERARM FIRST RACE
20204 DATA LITTLE FOOM BUTS 33 AND GOO
D SPRINT
20205 DATA GOOD SPRINTER IO LAST 1/2 O
F LONG RACE
20206 DATA BAS GOOD RACE JUST OCCASEON
O INJURY
20207 DATA CAN BE GOOD OUT INJURY PRON
E
20208 DATA FIRST RACE BACK FROM GOOD S
TOCK
20209 DATA POOR SO FAR INPROVING EACH
OUTING
20995 REM Tune 01
23000 DATA 06,15,0,1,01,15,0,1,01 15,0
,1,56 15,0,1,01,16,0,1,72,15,0,1,01,15
,0,1,56,40,0,1,0,-1
23010 DATA 18,15,0,1,100,60,0,1 56 38,
0,1,100,48,0,1,0,-1
23020 DATA 56,15,0,1,01,16,0,1,01,15,0
,1,36,15,0,1,01,15,0,1,72,15,0,1,01,15
,0,1,06,48,0,1,0,-2
23030 DATA 36,15,0,1,100,15,0,1,16,15,
0,1,100,15,0,1,121,60,0,-2,0,100 0,-3,
0,-1
19999 DEM Tune 00
20000 DATA 01,4,0,1,01,6,0,1,01,16,0,1
,01,4,0,1,01,4,0,1,01,10,0,1,01,16,0,1
,60,10,0,1,63,10,0,1,47,10,0,1
20020 DATA 01,4,0,1,01,4,0,1,01,16,0,1
,01,4,0,1,01,4,0,1,06,10,0,1,47,16,0,1
,57,10 0,1,04,10,0,1,03,10,0,1
20026 DATA 01,4,0,1,01,4,0,1,01,16,0,1
,01,4,0,1,01,4,0,1,03,10,0,1,01,10,0,1
,60,10,0,1,57,10,0,1,47,10,0,1
20010 DATA 00,4,0,1,47,4,0,1,40,40,0,1
,45,4,0,1,47,4,0,1,03,4,0,1,60,10,0,1,
47,10,0,1,60,10,0,100,0,-1
10099 DEM Tune 03
10100 DATA 01,10,00,0,0,1,01,16,10,0,0
,1,01,16,10,0,0,1,60,100,40,0,0,1,01,1
16,40,0 0,1
10110 DATA 00,100,40,0,0,1,00,66,100,0
,0,1,0,0,-1
10199 DEM Goody Hins Tune
10200 DATA 06,47,10,0,0,1,66,47,10,0,0
,1,36,47,10,0,0,1,121,00,00,0,0,10
10210 DATA 106,53,10,0,0,1,100,93,10,0
,0,1,100,53,16,0,0,1,120,64,60,0,0 60,
0,0,-1
10295 REM Drop Out Tune
10300 DATA 166 20,0,1,144,13,0,1,104,0
 0 1 144 20 0,1 121 13 0 1 120,5 0,1,1
20,13,0 1,144,5 0 1 144,13,0,1
10210 DATA 153 5,0 1,144,20 0 10,0 -1
10299 DEM Win Tune
10400 DATA 00,15 0 1 01,4 0,1 05 4 0 1
,01,4,0,1,72,15,0,1,01,40 0,1,64,10 0
1,60 16,0,1,0,-1
20495 DEM End Of Game Tune
24400 DATA 01,10 60,10,01,10 56 10 121
,15,72,5,01,5,06,5,01,10,100,36 0, X
30510 DATA 01,10,64,10,73,10,01,10 91,
20 64 10 72,10,01,00,0,5,0,-2
20520 DATA 01,10,00,10,01 10,90,10,121
,15,72,5 01 5 10,5,01,10 160 35,0,-3
20530 DATA 01,10,94,10,72,10 01,10,91,
10,06,10,160,10,121,55 0 5 0 -1,0,-1
```



1 LAJ (W)	340 2FF (U)	740 GSE (B)	4490 E9R (F)	5043 OPM (A)	20110 D34 (M)	
2 CAK (3)	345 D10 (L)	750 ASO (F)	4500 GOM (O)	5045 JKF (L)	20111 TW4 (S)	
3 CAL (W)	350 R9U (M)	760 2AI (R)	4510 MHA (E)	5047 U7S (F)	20112 HSJ (A)	
10 7K3 (X)	355 E1U (M)	770 VE3 (F)	4520 3UV (X)	5050 VMP (F)	20113 8P3 (M)	
20 KSB (D)	360 8CV (F)	800 WK0 (2)	4525 TW7 (V)	4999 EWT (B)	20114 D54 (N)	
30 1V0 (O)	364 OUU (O)	810 WF4 (O)	4530 P09 (K)	7000 E0N (E)	20115 RSP (A)	
40 YKZ (X)	365 PLM (O)	820 EJT (K)	4539 E1R (O)	7005 7XH (W)	20120 R44 (S)	
50 JN1 (J)	386 JRV (D)	830 NU2 (J)	4540 F71 (E)	7010 N1L (4)	20130 KFL (7)	
60 MCD (9)	367 WN3 (A)	840 3KL (5)	4550 W0N (C)	7020 VFR (7)	20199 DGR (N)	
70 FU6 (3)	389 ESU (7)	850 ENW (9)	4899 EJR (B)	7490 E9U (6)	20200 1BJ (2)	
75 B5V (V)	370 B2G (S)	860 E2D (F)	4700 ART (F)	7500 UVA (J)	20201 GO5 (H)	
80 BU3 (S)	380 XGA (S)	868 EPH (A)	4705 Y5F (U)	7505 K21 (K)	20202 L3M (F)	
90 RAW (D)	385 L01 (2)	870 UA3 (2)	4709 E3K (P)	7510 GUM (U)	20203 WWJ (N)	
130 975 (6)	390 4L5 (F)	880 FRR (3)	4710 V3F (Q)	7515 11M (M)	20204 W7W (T)	
140 UVP (U)	395 7MK (E)	890 SNK (E)	4715 R9S (H)	7520 SC7 (2)	20205 XM2 (C)	
150 WDR (3)	499 EAV (J)	900 EP7 (V)	4720 B0J (E)	7530 P7P (9)	20206 DCY (W)	
160 XEA (V)	500 27H (U)	910 WR8 (A)	4730 N9V (W)	7533 AMM (9)	20207 B8S (8)	
170 12C (W)	505 KFK (1)	920 2YU (8)	4735 SJ0 (K)	7537 AFA (K)	20208 R7S (4)	
180 FAW (D)	510 SYE (D)	930 T4E (S)	4740 M0K (6)	7540 N14 (W)	20209 U8A (U)	
190 WF1 (O)	519 DJW (8)	2999 EWP (T)	4745 L99 (N)	7550 8P5 (T)	20999 EYM (E)	
199 EJS (B)	520 XL3 (X)	3000 SJS (T)	4746 S0M (8)	6000 4CZ (C)	29000 M40 (W)	
200 AJV (T)	530 J80 (H)	3020 0EH (S)	4750 4J9 (T)	6010 7E8 (M)	29010 FNQ (4)	
210 04V (8)	535 HV7 (F)	3030 D2K (Y)	4799 ENA (4)	6020 R2K (K)	29020 M5D (M)	
220 0UD (M)	540 EMV (6)	3040 C3H (9)	4800 EYJ (2)	6100 VJH (7)	29030 17K (A)	
230 1AF (F)	545 R0G (N)	3050 EX0 (A)	4810 4W5 (S)	6110 DCE (P)	29999 F3N (V)	
235 4LX (E)	550 SAE (P)	3040 SHA (F)	4820 SR2 (H)	8120 XHA (U)	30000 299 (H)	
240 SYP (A)	560 W5U (D)	3070 4YF (N)	4830 VE9 (9)	10000 D0S (S)	30001 25K (H)	
245 358 (B)	570 PP7 (C)	3080 SH9 (J)	4840 YJ4 (Y)	10010 39M (W)	30002 2C9 (4)	
250 0M2 (1)	599 EJW (7)	3085 V0R (Y)	4895 E5R (U)	10020 U0S (G)	30030 TH6 (H)	
260 4LH (J)	600 SLG (S)	3090 FEH (S)	4900 D20 (7)	10050 LVH (Y)	30099 DEN (5)	
270 8UX (D)	605 HEX (F)	3092 S9S (S)	4910 TAS (K)	10040 S7E (4)	30100 S5J (O)	
272 F5P (7)	610 C0S (H)	3095 BYS (7)	4920 SUP (G)	10050 T9P (3)	30110 SY4 (K)	
275 4JU (X)	615 7C2 (2)	3097 X5A (N)	4930 EWH (3)	10100 D23 (1)	30199 EGW (S)	
280 EMW (J)	620 C9M (C)	3100 GCA (X)	4935 E9S (R)	10110 4WW (G)	30200 EJA (S)	
285 11V (9)	630 5WX (F)	3110 J9N (J)	4940 CNH (F)	20000 B0K (F)	30210 WCS (7)	
290 XNR (D)	650 E52 (A)	3119 BEQ (M)	4950 952 (4)	20005 BP8 (2)	30299 RJM (P)	
293 CFE (O)	660 A3T (S)	3120 SE3 (A)	4999 EWR (O)	20010 MAP (T)	30500 1R4 (F)	
295 MLY (7)	665 DWM (R)	3130 SN2 (W)	5000 72S (S)	20015 D3M (C)	30310 W7L (E)	
297 S88 (W)	670 FVT (2)	3140 NLU (W)	5005 BVS (1)	20020 DTS (Y)	30399 DLM (V)	
300 49W (S)	680 JCL (A)	3150 PFX (G)	5010 22V (V)	20025 3XF (L)	30400 E5W (4)	
301 0X7 (M)	685 3HA (4)	3999 EWE (D)	5015 0UY (S)	20026 H3S (O)	30499 DWN (M)	
302 3LG (P)	690 7U0 (S)	4000 S29 (1)	5020 JAC (G)	20050 05M (2)	30500 M0R (D)	
305 1X0 (W)	699 EJX (P)	4010 XP9 (N)	5022 JWA (L)	20051 2CJ (U)	30510 C0U (O)	
310 49X (W)	700 PHE (U)	4020 SEE (4)	5025 KUG (A)	20055 XM5 (A)	30520 MFB (M)	
320 Y77 (J)	710 NFY (F)	4030 D9K (Y)	5030 DFY (S)	20056 359 (X)	30530 NWY (2)	
329 DNU (X)	720 FRY (5)	4040 AMW (E)	5040 J0J (3)	20040 36F (9)		
330 OEL (8)	730 CW0 (1)	4050 VRN (O)	5042 U1T (W)	20041 1WL (W)		

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● 130XE 1?MB US doubler Fe gusion TX Blackburn interface LY-80 printer Tel [illegible]2 [illegible]3?3

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● 800XL, 1050 printer 810 recorder 1050 disc drive, touch tablet, Vesicalc, Atariwrite Games manuals, joysticks, 2 years Atari User Mags £384 Tel Barnsley 7522388

● Atari 800 800XL, HAPPY 810 1050 410 Soft Spare Books Reasonable offers only Tc 0902 74630

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● 800XL, XC11 recorder 1000 disk drive, joystick, letter PAW worth of software, all V G E C 2 0 0 O N O Tel 0872 [illegible]

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● 800XL, 1050 disc drive 1010 recorder joystick, doorcovers, software, manuals mags £300. Tel 0844 213?78.

● 130XE 1050 diskdrive joysticks, manuals over 100 mags plus yearly comp £200 o n o Alan 0?? interface with manuals + free £?5 o n o Tel Ilford 614?38.

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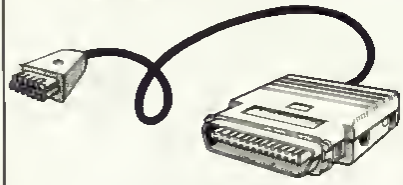
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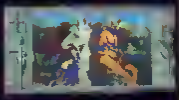


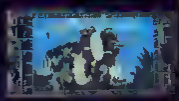
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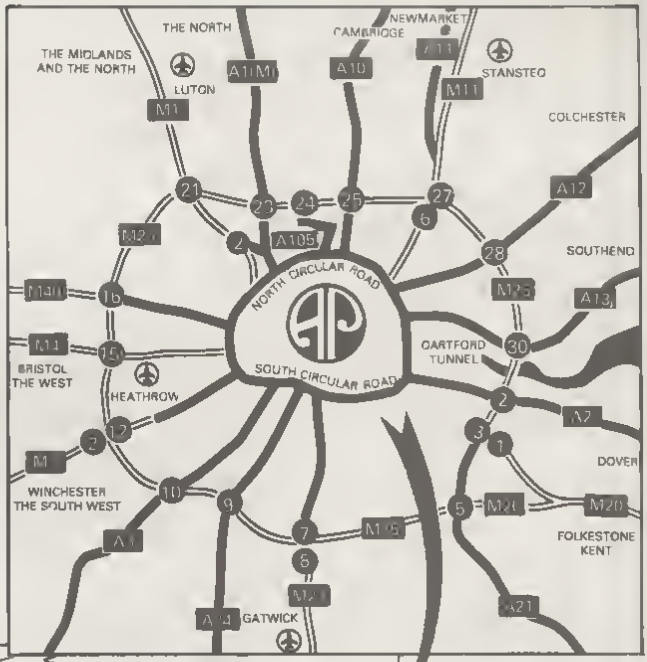
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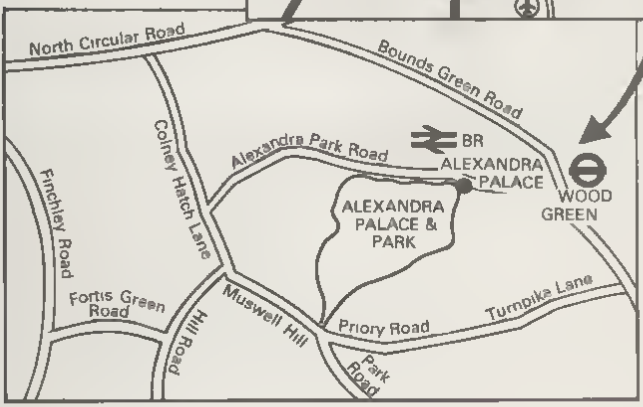
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