

ATARI USER

Vol. 3 No. 3

July 1987

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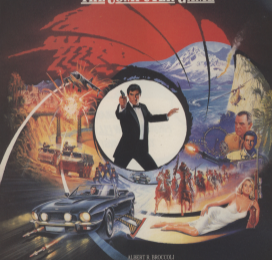
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JAMES BOND 007[™]

IN

THE LIVING DAYLIGHTS

THE COMPUTER GAME



ALBERT R. BROCCOLI
Presents

TIMOTHY DALTON
as JAMES BOND
JAMES BOND 007[™]

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M
DOMARK

THE LIVING DAYLIGHTS

Starring MANDY PATINKIN JOE DON BRUER ART MALIK and JEROME RABBIT

Production Designer: PETER LAMONT Music by JOHN BARRY Associate Producers: TIM PEYSNER and BARBARA BROCCOLI

Produced by ALBERT R. BROCCOLI and MICHAEL G. WILSON Directed by JOHN GLEN Screenplay by RICHARD MARBURN and MICHAEL G. WILSON

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UA



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News	5
The latest news of the ever changing world of 8 bit Atari.	
Five Liners	9
More of the prize-winning mini-programs sent in by our readers.	
Gadgets	11
Build a module to give the power of speech to your Atari.	
Mini Office II	14
An in-depth look at a low-cost integrated business package.	
MicroLink News	16
More about Britain's nationwide online database for micros.	
MicroRhythms	17
Music software at a price everybody can afford.	
Hints and Tips	20
Get more enjoyment out of games with help from readers.	
Dump 15	22
A superb printer utility for your Atari 1020 or Epson printer.	
3D Plotter	25
A program to demonstrate rotating shapes.	
Software Solutions	29
Our resident expert solves your programming problems.	
Rouloc	30
More help and hints from our expert adventurer.	
Map	32
A guide round the city in Alternate Reality.	
Game of the Month	34
Play Duckdash: Save the ducks from the impending hurricanes.	
Computing in Action	37
Calculate how much wallpaper you need to decorate your home.	
18 Commandments	38
Read out the best way to submit articles to this magazine.	
Reviews	41
A look at the latest software: Arkanoid, Phantoms and more...	
Palette	45
Another collection of colourful masterpieces from our mailbag.	
Special Effects	46
The start of a series showing how to create amazing displays.	
IO Channels	51
Part six of our series on the Atari's input/output facilities.	
Mailbag	55
The chance to get your news, views, means and name into print.	

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AP20

Arcade prices lopped

ATARI's hit games producer STV Software has slashed prices on its current and future arcade-style programs.

Recently released Joe & the Nuclear Caverns will now cost £3.99 on disc and £3.99 on cassette instead of £19.99 and £2.99.

The same new prices will apply to Gang - due out late July - and Pathrole Panic featuring Joel which is due for release in the autumn.

"After talking to distributors handling our products we have decided to go for quantity sales instead of holding up prices", said Peter O'Connell, managing director of STV Software (021-778 1022).

"A look at the latest charts shows that budget games are among the biggest sellers today and we have to compete with them".

This month's new release, Gang, features an alien who crashlands on earth and must locate and dig for the special crystals he needs to refuel his space ship.

Pathrole Panic will be a follow-up to Joe & the Nuclear Caverns with Joe lost underground and having to dynamite his way in the surface.

Micros in action

The thriving Shopping Atari User Group took its message on to the streets in June to show people the micros in action.

An estimated 300,000 visitors to Telford Town Centre saw demonstrations of Atari hardware and software during the six-day exhibition.

It is the latest community venture by the group which has won praise for the way it provides computing advice and assistance to local voluntary organisations.

Atari geared up for games market boon

THERE is going to be a dramatic upsurge in the games machine market this year, and Atari is determined to be ready for it.

It is no accident the computers brought out the XE computer games system to complement its 130XE and redesigned 20 million-selling 2600VCS.

"We expect a major revival in the video console sector during the last quarter of 1987 if not before", a company spokesman told Atari User.

"We believe the average age of prospective buyers is getting younger because the big market for sub-£100 hardware was not catered for



Atari's XE game system

properly in 1985 or 1986.

"This means there are a lot of under 10s out there who aren't really ready for a proper mine but are keen to get their hands on a games machine.

"And it doesn't hurt Atari's prospects that we already

have a games software range that is second to none".

Atari originally estimated it would sell 150,000 8 bit computers and games consoles in 1987. But this figure had to be hurriedly revised when advance orders for 75,000 units were placed in the first few weeks of the year.

The company began talking about selling at least 300,000 - and possibly a quarter of a million - games machines in 1987.

And, with orders for VCS machines currently standing at 80,000 units, even this figure looks like being exceeded before the beginning of next year.

Competition is hotting up

ATARI faces some stiff competition in what is expected to be a business market for games machines this year, particularly at Christmas.

The company's new consoles will come up against opposition from Nintendo and Sega.

Mastertonik has just signed a deal for the UK distribution rights to the Sega Games Console and claims: "This is a very important

project for us - consoles are going to be very big sellers this Christmas".

But Atari would appear to have the edge over the competition.

The Nintendo Entertainment System - marketed in the UK and Europe by Milton - costs £130 and the Sega Games Console £99 compared to the Atari XE at £80.00.

And while the Sega machine will be launched

with only 12 games-cartridges and the Nintendo with about 37, Jack Tramiel has already promised the XE will be backed by more than 400 pieces of software.

In addition, Atari has the lead in persuading High Street stores to stock its new product.

Diions, Garrys and Woolworths are virtually certain to give shelf space to the XE, and W H Smith another probable outlet.

Serious attraction

MINI OFFICE II is well on its way to becoming the biggest selling serious software package ever produced for the Atari 8-bit range.

Launched at the Atari Computer Show in London in April, the product was an instant hit with the thousands of visitors who flocked to the Novotel.

Several standstallers stocked the package and they were impressed by its enthusiastic reception and

bumper sales.

The £79.95 disc - with its word processor, spreadsheet, database, graphics, forms and label printing modules - is continuing to dominate its sector of the market.

Mike Jones of leading distributor Software Express told Atari User: "Mini Office II is a fantastic product, which is why it is selling very well in all parts of the country - I even had an order for 30 from Iceland the other day". And



John Hensley of Slick Distribution said: "There is nothing to compare with Mini Office II in the Atari 8-bit market. The nearest competition is American and twice the price".



Compart's 1200E bundle

Shortages hit 8 bit sales

BRITAIN'S biggest Atari 8 bit dealer Compart says it is being driven out of the 1200E market because the price of the machine has increased and supplies of vital peripherals have dried up.

Compart's managing director Steve Burke told Atari User: "In an effort to keep Atari has pushed the recommended retail price of the 1200E from £99 to nearly £130 and at the same time stopped providing disc drives and printers.

"We are losing between £5,000 and £7,000 a week in lost sales because the 1050 disc drive and 1027 and 1029 printers are not available.

"These peripherals are essential to our 1200E sales strategy and we are trying desperately to find alternative replacements at prices our customers can afford - but without much luck".

To combat the Atari price increase Compart is currently bundling the 1200E with four arcade games cartridges, Microblaster joystick with micro switches and Atari 1200E handbook for £125 - £5 less than the official £99 for the machine alone.

"This adds up to a saving of over £30", said Steve Burke. "We have about 50 Atari 1200Es to bundle, and after they are sold we are not going to carry on selling the machine on its own for

£130 it just isn't worth our while".

Atari UK spokesman Peter Water defended the company's decision to increase the price of the 1200E. "When the present management took over it inherited a price it didn't like", he told Atari User.

"For instance, a word processing bundle including the 1200E, 1050 printer and 1029 printer with software was being sold at cost.

"The management has discontinued this box-shifting exercise and because of new competition in the product is now charging what the market expects.

"Steve Burke has got it wrong about supplies of disc drives and printers. We have adequate stocks of 1050 drives and 1027 and 1029 printers in the UK to last until the end of this year, based on current demand.

"In September we are launching a replacement for the single 1050 disc drive - the X2D501 double sided drive.

"And later on we will bring out the XMM801 dot matrix printer as a replacement for current printer models.

"In the last quarter of this year we'll also be selling a 'sports bag pack' of 1200E and games software - but we are not doing any more bundling".

THE GALLUP CHART

TOP 20

ATARI SOFTWARE

THIS MONTH	LAST MONTH	TITLE (Software House)	PRICE
1	•	GAUNTLET US Gold	9.95
2	•	ATTACK OF THE MUTANT CAMELS Mastertronic	1.99
3	•	MICRO RHYTHM Firebird	1.99
4	•	DEATH RACE Atari	2.99
5	▼	COLONY Building	1.99
6	•	FRENESIS Mastertronic	1.99
7	•	GRIDRUNNER Mastertronic	1.99
8	▲	ARKANOID Imagine	8.95
9	▲	GUN LAW Mastertronic	1.99
10	▼	BMX SIMULATOR Code Masters	1.99
11	▼	LEADERBOARD Access/US Gold	9.95
12	▼	FOUR GREAT GAMES Micro-Value	3.99
13	•	STRATOSPHERE Players	1.99
14	▼	SILENT SERVICE Microprocess/US Gold	9.95
15	▲	WARHAWK Firebird	1.99
16	▼	LA SWAT Mastertronic	2.99
17	▼	NINJA Mastertronic	1.99
18	•	MINI OFFICE II Database	19.95
19	•	GREEN BERET Imagine	8.95
20	▼	CRYSTAL RAIDER Mastertronic	1.99

Compiled by Gallup/Microscope

Quartet enters the chart this month at number one, while MicroRhythm from Firebird and Mini Office II from Database offer non-games packages for your Atari - reviews of both are in this month's issue.

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Five liners

HELPDos from W.H. Ferguson

It is not long after an Atari user has obtained a disc drive that he discovers he is using a command called Dos almost as much as he uses the PRINT command. Consequently, I have written this program to allow Dos to be called at a single keystroke.

It uses a Vertical Blank Interrupt (VBI) to enable the help key to call the Dos menu from disc for Parallel2. A second VBI allows you to alter the background colour when Dos is displayed, which is normally restricted to the default value colour of Graphics 0.

Pressing the reset button disables VBIs so the program also traps this too, meaning that the VBI is reinitialised every time it is pressed.

The background colour is set to the value in location 7675 allowing you to alter the colour of the display more permanently than by just giving a different value into location 718. The background colour for the Dos menu

```

10 100 100 TO 50:MOVE 0:MOVE 1644+L0:
20 1 0:MOVE 1675,21:MOVE 1727,75:MOVE
1477+4:MOVE 1717,14:MOVE 1697:
30 1475,167,111,111,111,1,147,4,111,17,
2,164,144,111,168,2,144,8,144,170,1,75
40,71,76
50 1014 172,111,16,167,4,111,71,172,11
6,1,167,4,144,1,16,111,11,16,164,174,11
5,164,147,16
60 1675,1,164,4,147,4,1,164,16,164,164,
17,16,164,16,164,16,164,16,164,16,164,
70
80 1644 11,11:MOVE 11,17: MOVE 11,17
90,11:16 8,11,7:MOVE 8887 TO 1676:7
97
    
```

is stored in location 1127.

This program is best used with the 128KB and Dos 2.5 since the Parallel2 installed with the Dos menu allows instant access when Help is pressed. If you do not have a 128KB make sure that you have a MEMUSK1 setup when you boot the system otherwise you could lose your file by inadvertently pressing Help. Without MEMUSK1 the file will not be in memory on return to Basic.



LINE	CODE	LINE	CODE	LINE	CODE
10	1000	30	1060	50	1080
40	1080	70	1140		

ORGAN from L. Golding

TURN your Atari into an electronic organ in just five lines of Basic? Well, not quite. You only get one voice, there aren't any blast notes and the sound comes in glaucous mono-phones - but it will certainly repay five minutes typing time. Here is how it works.

Whenever you press a key, its internal code number (which is not the same as its Atari's value) is stored at location 764. The program translates these keycodes into numbers which generate specific musical pitches when used in a sound statement.

Another address (763) indicates when the key is released, and this is used to turn the sound off by reducing the volume to 0. The 14 top row keys play a scale from B to A, which is a pretty useful range.

The reply bit is converting keycodes into their respective pitch values, especially since the codes don't follow any logical sequence, it could be done by 14 IF...THEN statements, such as: IF KEYCODE=31 THEN PITCH=80, but this would slow everything down far too much.

It would allow you to play the Dead March convincingly but if you wanted something jazzy it would not be possible to get the speed.

Your solution is to store the pitch values in array(A) which can be indexed directly by keycodes, like this:

PITCH=ARRAYCODE)

Line 10 sets up the array, reads the pitch values from line 20, inserts them all in the right places and disables Break. Line 20 just makes the screen a bit prettier and line 40 handles the keycodes.

Address 763 contains a value of 0 if any key is being held down or a 0 if all keys are released. Address 764 contains the keycode of the last key pressed, as by using both of the values held in the locations together you can see which key is being used and for how long.

As it happens the top row keycodes are all between 1 and 20. These are used to point to individual elements in the array and so retrieve the correct pitch values.

The IF...THEN statement at the end of this line disables most of the remaining keys, and the zero elements in the array take care of any that slip through the net.

Line 50 generates the sound using a Basic200 expression to control volume. The value of K<N will be 1 if K is truly greater than zero, or 0 otherwise. And N, you will remember can be 0 or 8. So the expression K*(K<N) evaluates to 0 if the key is

pressed or 0 when it's released and this is precisely what we need to switch the volume on or off in the sound statement.

There are no chords or flats available so you will need to get sometimes in the right places for different tunes. Even so the instrument will cope with most nursery rhymes, a wide range of hymns and carols and a fair selection of popular songs.

```

10 GRAPHICS 0:16:MOVE 80271:088 048 16
20:MOVE 16:0:16:8007 0:1600 76,17:0:0
30 1379,117
40 1475 0,17,16,16,11,16,11,16,11,16,
50 16,16,16,16,16,16,16,16,11,17,17,
60 16,16,16,16
70 PITCH=16,217:KEYCODE=764:MOVE
1000 76,17:KEYCODE=764:160 2,16:7
85:101 100 400 1117
90 16:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0
10 16:16 16:0 16:0
110 16:0 8,16,7,16,0:16:0:0:0:0 16
    
```



LINE	CODE	LINE	CODE	LINE	CODE
10	1000	30	1060	50	1080
40	1080	70	1140		

Mini Office II



6 powerful home and business programs in just **ONE** package – at a price that simply can't be matched!

**Voted
Business Program of
the Year – 1983 AND 1984**
Special Computing Award
**This package is
incredible value!**
*Cost-Value Award
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WORD PROCESSOR

Compose a letter, set the print-out options using embedded commands or menus, use the mail merge facility to produce personalised circulars – and more!

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Enter data directly or load data from the spreadsheet, produce pie charts, display bar charts side by side or stacked, overlay line graphs – and more!

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Using a modem you can access services such as MicroLink and order a wide range of goods from flowers to software, send electronic mail, telex and tele-messages in a flash – and more!

LABEL PRINTER

Design the layout of a label with the easy-to-use editor, select label size and sheet format, read in database files, print out in any quantity – and more!

ORDER FORM

Please send me Mini Office II for the Apple II/III/III+SE (48K required), on 5 1/4" disc for £19.95

I enclose cheque made payable to Database Software, or debit my Access/Visa card:

□□□□ □□□□ □□□□ □□□□

Exp. date

Signed _____

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DATABASE SOFTWARE

Europa House, 48 Charter Road,
Bass Hill, Stockport SK7 1PQ

Make your micro talk

LEN GOLDING
makes the hardware for a speech synthesiser

WE described a gadget that responds to your voice in the March 1987 issue of *Atari User*. Now here's one that gives your Atari the power to talk back.

It's relatively inexpensive, straightforward to construct and easy to program. You can use it as a signalling device for visually handicapped people, an educational aid for students with reading difficulties or in

any situation where visual or text output is inappropriate.

It also has great novelty value. How about an adventure game with talking monsters or a spook and spell program for young children?

Now we'll describe how to build and test it and next month we'll cover its operation in detail, showing how you can easily add speech output to your own Basic programs.

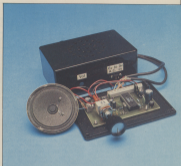


Figure 1 shows the circuit. Because the gadget draws over 100 milliamperes at full output it cannot be powered directly from the joystick ports as some external supply is needed. BR1, IC1, C1 and C2 are included so that you can use any AC source around 50-250V, provided it can deliver at least 150 milliamperes.

The transformers supplied with disc drives, IBM interfaces and 410 program readers will work satisfactorily, and for this reason we've suggested using a power socket which will accept the plugs fitted as standard in those transformers.

Don't use the power pack which supplies your computer itself as these could be a danger of overload. In any case, the PSU supplied with XLXX machines won't work with this gadget, since it delivers 5V DC. A 6v or 9v bell transformer such as Maglin PL375 works well, and has the advantage of being fully shielded to reduce the risk of mains shocks. You can, of course, buy a transformer for mounting permanently in the case - Maglin type YN140 is suitable. Current drain is around 35mA even when the unit is not speaking, so battery operation is not practical.

IC2 is the voice chip and it can produce 64 different speech sounds called allophones which, when

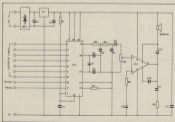


Figure 1: The circuit

Turn to Page 12

Take the tedium out of office chores

ALAN GOLDSBRO reviews a package useful in both home and office



THE Atari 8-bit computer, so long seen as only a games machine, takes on a new role with a feature-packed integrated system consisting of the six most essential pieces of business software in a single, user-friendly integrated package.

Mini Office II, from Database Software, has taken the 8-bit business market by storm. It puts together a range of programs you'd expect to be available only on more powerful computers.

The package comes on disc and is supplied complete with a well-written manual. There are six constituent parts to Mini Office II: A word processor, database, spreadsheet, graphics system, communications system and a label printer program.

Each of the six modules is self-contained and functions independently of the others, yet remains faithful to the design philosophy of an integrated suite of programs.

The solid base from which Mini Office II operates is the framework of an excellent menu-driven system which is standard throughout the six modules.

They ease the user into a friendly environment and get tackle the many different and comprehensive features based on high superlative quality and efficiency.

When you boot the disc you are presented with the main menu where you select the required module using the cursor keys and Return. The computer accesses the disc, for the module to be loaded into ram and each one has its own series of menus from which options are chosen.

Looking at the word processor first, there are lots of further options avail-

able. Text can be created in either 22 or 42 column mode, edited and then previewed in 80 columns on another screen.

There are so many features in the word processor that there isn't room to describe them all here. Suffice to say that standard features such as Search and Replace, Cut and Paste, Justification, Insert and Overwrite modes are available.

Other features are Headers and Footers, automatic Page numbering, Merge text and Caps conversion to name just a few. Some features that you would expect to find on more expensive word processors are missing but the features in the Mini Office II word processor are more than adequate for most situations.

Many of the commands are available from the built-in menus but the programmers have also included a mechanism for embedding the majority of commands directly into your text without even leaving the editing screen. In conjunction with all the mod-

ules your work can be output to either an Epson compatible printer or directly to an Atari 1625 dot matrix printer. Print commands are available from the menu or can be embedded into text.

You can cope with different styles of print, line spacing, margins, header and footer offsets and number of copies. Text files which are too large to fit in ram can be chained together when printing out.

In the field of business software, databases are essential. The one in Mini Office II allows five types of field: Alpha, decimal, integer, date and formula. It's the final field which probably has the greatest power but not only the standard operators but many others often only found in spreadsheets.

Creating your database and entering records are done from separate screens and both are easy operations. Records can be scrolled forward and backward either singly or in groups of 10 or 100. Individual records can be marked manually or automatically, and marked records can be used to create a sub database from your main one which can be saved to disc as a separate file.

Searching for data follows the same easy style. Select on any field using standard operators such as equal to, not equal to, greater than or less than. Sorting data can be progressive all over your fields and indexed in ascending or descending order.

Mini Office II has some of the best facilities seen in an 8-bit database. Not only can you calculate formula fields on screen but any numerical field can be totalled across a whole data file.



Figure 1: Word processor menu.

Merging with another Mini Office II database file proves no problem.

When it comes to printing records you'll find all the commands and structures that were so evident in the word processor. Records can be printed vertically or horizontally across the page and printer commands can be typed in to customize style and pitch.

As you'd expect from an integrated package, all the data can be used in either the word processor or label printer modules. I wish all databases could be this easy to use.

Mail merging is one of the additional features of Mini Office II. By using the word processor to define your letter you can send many people the same letter personalising each by merging their names and addresses from your database to the letter.

An essential feature of a successful office environment is the ability to forecast data flow and financial viability. Spreadsheets are ideal for this and the one in the Mini Office II package is more than capable of looking after all that number crunching.

You enter data into cells by placing the cursor on top of the cell, typing in your value and pressing Return. Columns can be sized up to 70 characters wide and all the standard operators found in most spreadsheets are available. Calculations – the main part of any spreadsheet – can be carried out automatically or manually. Cells may be replicated, justified and formatted to accept the usual types of commands and styles associated with large numbers and monetary applications.

Formulas can be replicated either absolutely or relatively or even a mixture of both. Some of the more powerful replicate functions of more powerful spreadsheets are lacking but the features available are adequate.

Loading and saving the spreadsheet is standard, and partial save is also available. Cells can be jumped by using the effective 'Goto' command and files can be opened and frozen to assist input. The formulae construction can be displayed on either screen or printer and the expected range of commands are available for the printer routine.

An impressive help screen is available for the numerous commands associated with managing the module and to wrap up this section there's the opportunity to save up to 20 rows or columns to disc in a form that enables the Graphics option of Mini Office II to read in as a data set.

The Graphics module provides a

powerful yet simple way to get your computer to display numeric data in an easy-to-understand form. It can be used in two ways: By entering data directly from the keyboard or by loading spreadsheet data that has been previously stored on disc.

Graphics includes Bar, Line and Pie Charts with further options of 2D or 3D displays. Up to three data sets can be used to create your graph and each data set can hold between two and 20 values.

Scaling of graphs can be manual or automatic with a grid option for visual clarity. Text can be added and overlaid



Figure 2. Graphics options.

anywhere on the screen, bars, normally only seen in 16 bit programs, add a visual effort to an already impressive display of graphical data representation.

Pie charts can be selected from any of the three data sets with a range of 50 options to ease identification of data. The bar graphs can display all three data sets at once either side by side or stacked. Negative values can be displayed visually and accurately.

Individual screens can be saved to disc and if required, printed out any time by Mini Office II or independently by a suitable graphics program. Alternatively, the stored screens can be used in other applications such as a slide show.

Again, print routines are for both Epson and 1024 printers plus you can print to a disc file for insertion into a word processor file between text. How's that for integrative?

Going online with Mini Office II takes all the hard work out of linking your computer to another. The Mini Office II Communications system has been designed to work with both the Atari 850 Interface and suitable modern and the Miracle Technology's DataKit RS232 interface cable and modem.

Standard protocol options such as

MicroLink/Telescan Gold at 300/300 and 1200/1200 baud rate are part of the main menu. Communication protocols between other systems can be customised and links to bulletin boards worldwide can be set up with Mini Office II.

One powerful feature of this module is the macro keys which allow you to define a single key press to send quite long and complicated messages to the remote computer. Up to ten keys can be defined with 240 characters reserved for each macro.

The module is ideal for accessing systems such as MicroLink or bulletin boards, but unfortunately can't be used to access Prosal.

The final module is the Label printer – a handy feature in itself but when combined with information from your database makes a nice auto labeler.

Labels can easily be designed on screen using the editor, incorporating information from your database if required. You can produce address labels, stock labels or anything you set your database up to do. Alternatively, the module can work independently from the database to produce up to a 100 repeated labels.

The label printer can print text or data fields anywhere on the label. Their depth and width can be controlled and they can be printed more than one per wide. Label formats can be saved to disc so once you've created a design it can be accessed at any time. Test prints and printer controls are menu options that can enhance the quality of your labels.

There are a number of features not yet discussed that are available in every module. The screen colours can be changed right through the whole 256 variations, there's an invaluable convert/text option when saving files and a mini data site in memory allowing you to see dictionaries and use associated functions such as delete and format.

Without doubt Database Software has broken all records in producing an excellent suite of programs useful both in the home or small office. The result is a superb blend of stand alone programs packaged together for the price of a single program. It may lack a few of the features of more expensive packages but at £79.95 it's the best value business program available for the 8 bit Atari market.

Product: Mini Office II
Price: £79.95
Supplier: Database Software, Europe
House, 68 Chester Road, Hazel Grove,
Stockport, SK7 5BY

Take off with MicroLink

The British Airline Pilots Association - BALPA - has marked its golden jubilee by joining MicroLink.

Trade union for 1,000 commercial pilots, BALPA negotiated with 20 UK airlines and a similar number of foreign flag carriers who employ its members.

"We celebrate our 50th birthday this year, so it seemed an appropriate time for us to log on to the new information technology", said a spokeswoman. "Until now we've depended on the telephone - our office didn't even have telec."

"A very high proportion of our members are computer and communications enthusiasts when they're not flying. They'll be happy now MicroLink has provided facilities for two-way electronic messaging between themselves and BALPA.

"Apart from improving contact with our members, we'll be able to use electronic mail and telex to communicate with airlines and other pilot associations throughout the world".

Legal advice goes online

MICROLINK has opened yet another world first by taking on board a unique electronic legal and financial service for firms and individuals.

Insight provides round-the-clock legal advice, help with tax and VAT problems, and insurance cover against the cost of litigation.

It serves a wide range of personal and business needs resulting from minor problems, like disputes with neighbours up to full scale Customs &

Excise investigations.

A team of 50 solicitors and barristers provides a 24-hour legal advisory service. Any legal problem can be dealt with either by electronic mail or telephone. Full written advice on complicated matters is promised within 24 hours.

There is a legal fees insurance package covering solicitors' and barristers' fees, court costs, witness expenses, and opponents' costs in certain cases.

Personal financial advice

- on banking, pensions, insurance and tax - is offered during office hours and available in most cases through a local member. Written reports can be provided within 24 hours and consultants are available for personal visits.

Business membership of Insight also includes a wide range of special assistance for companies, covering such areas as staff insurance, tax, cash flow forecasting, pension scheme analysis and employee benefits.

Companies can also buy an Inland Revenue and VAT protection service, in the event of In-Depth tax, PAYE or VAT investigation.

Company accountants can draw an advice from former Inland Revenue and Customs & Excise inspectors and get professional representation at hearings and tribunals. Up to £25,000 towards professional fees for preparing a case is included in the protection.

Two brand new Insight services will benefit from the immediacy of MicroLink communications. The first provides on-line mortgage quotations and information for property buyers.

The other supplies details about commercial finance, venture capital and other forms of commercial funding for established businesses and start-up schemes alike.

Insight, operated by Investment Marketing Services, is an electronic mail extension of the IIPC legal and tax advisory service which has been operating for seven years and has half a million UK subscribers.

Calling all subscribers

THE latest technological advance on MicroLink allows subscribers to enjoy all the communications benefits of radiopaging for as little as 20p a day.

Thanks to a link-up with British Telecom's national radiopaging service, it means that MicroLink electronic mail and telex transmissions need no longer stay uncompleted on reaching their destination. And users won't be put to the trouble of accessing their mailbox when it's empty.

As soon as an Email or telex message arrives the radiopaging service is automatically alerted and the subscriber gets a "beeper" call.

The same procedure takes place in the opposite direction - messages to other people can't be ignored or overlooked if the addressee carries a radiopaging device.

These are also all the other advantages of radiopaging - like keeping users constantly in touch with their base.

CONSORTIUM FOR COMMS

A MICROLINK association of community groups involved in computing has gone on-line with MicroLink.

Headway Info Tech Consortium is a non-profit company formed by 45 adult education institutes, training schemes and local voluntary organisations in the London Borough.

It supports member

organisations - including the City of London Polytechnic - that use computers for administration, maintaining databases, and courses in programming, business computing, design and desktop publishing.

Consortium executive director David Cheltenham said "MicroLink will help our members of socially

useful applications of new technology - particularly the potential for development of a local online community database.

"We envisage starting with a directory of education, training and leisure information that gradually allowing local organisations, co-operatives and trades unions to set up closed user groups".

RHYTHM AT THE RIGHT PRICE

HOW do you fancy a digital drum kit for £1,999? I thought so!

Microrhythm is a product of the ingenuity of 2-83 Systems – the boys responsible for Replay and Mix Master which we reviewed in the July issue of Atari User. It uses samples of actual drums which were recorded with their Replay system at a rate of 10kHz.

In fact, if you read that review you'll see that the Digidrum program supplied with the cartridge is virtually identical to Microrhythm. In case you missed it – shame on you – here are a few more details.

The main screen uses a system of

IAN WAUGH reviews Microrhythm's – digital drums.

pull-down menus containing the following options: Patterns, Play, Edit, Tempo, Song and File. Patterns lets you select any one of 28 patterns. You can wipe them all at once or individually.

Still displays a grid containing the selected pattern with the drums listed

down the left. You highlight a drum with Select, Shift moves the cursor on the grid to the right and a drum is toggled on and off the cursor position with Start. The process could have been a bit easier, but it works fine.

The program loads with eight drum sounds, but only two can sound at the same time. The bass, snare, mid-tom and low-tom are mutually exclusive as are the cymbal, closed hi-hat, open hi-hat and hand claps. You can still write some good rhythms though.

Having programmed a few patterns you move on to the Song menu to string them together. A song can hold up to 32 steps and each consists of a pattern number and the number of times it is to repeat. If the pattern number is 0, the song will jump to the pattern number given in the repeat part of the step. If both are 0 the song will restart.

File is where you save and load songs and patterns.

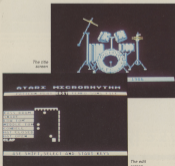
Some of the procedures you have to go through are a bit tedious. For example, why can't you select another pattern from the edit screen and why can't you play a pattern from there too?

Still, what can you say for £1,999? I say go to your nearest software shop and buy one.

Producer: Microsystem
Price: £1.99
Supplier: Direct Software, 6478 New
Dulwich Street, London, W14 1PS
Tel: 01-279 0762



The title screen



The edit screen

The Atari 520 ST gives you the power to defeat deadly enemies, slaughter monsters and outwit cruel captors.



Gauntlet - G.S. Ball. Enter a world of monsters, traps, mystery and combat in this ultimate role-playing fantasy game.



The Fall - Ocean. Voyage to 17th century Hong Kong for action and excitement with pirates, smuggling and trading.



Madmax - G.S. Ball. It's fast, spinning wheels to get past the potholes, obstacles and forbidden zones to reach the other side. And that's just the beginning.



Skatbold - Imagis? The latest craze for coin-op game. Are your reactions quick enough to handle 30 different play screens?



Star Raiders - Atari. Star Raiders are the only force strong enough to hold off the Zords. Your task is to command the Mutrosaur...are you up to it?



Flight Simulator III - Sublight. Test the controls of a Cessna 182 or Learjet 250, with high speed 3D graphics for realistic landings and takeoffs. It's just like the real thing!

But it's not all fun and games.



Atari Word Plus - 8.5.5 Professional word processor featuring a 40,000 word spelling and grammar checker including 100,000 thesaurus words for full control of those letters etc.



Superbase Personal - Precision Software. All the features of CERL (combined with full relational database power Easy to set up, flexible, easy unique private index fields).



First Street Publisher - Newsprint. The complete first top publishing package. Gives you page make-up combining text and graphics for sophisticated professional-looking documents.



HP 500 - Lotus Distribution. HP Professional is an integrated spreadsheet, database, and graphics package. IBM environment plus your 1.8 M compatibility.

Mixing business with pleasure is no problem with an Atari 520 ST. Not when you've got over 1,600 software titles to choose from.

You'll find all the latest games and a huge range of business titles from the top business software houses. And the range is growing all the time.

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ATARI 520 ST
WORKS HARD. PLAYS HARD.

Your HINTS & TIPS

Vegas Jackpot

HERE IS the arrangement of each reel, so you know how many numbers are needed for the next money.

Reel 1	Reel 2	Reel 3	Reel 4
One 3	One	One	One
Five	Seven	Eight	Seven
Eight 1	Four	Seven	Five
Eight 1	Eight	Five	Seven
Four	Seven 2	Seven	Seven 2
Three	Five	Eight	Four
Five 1	Seven	Apple	Five
Five 1	Seven 5	Seven	Five
One	Four	Eight 2	Seven
Four 1	Three 1	Four	Apple 1
Eight	Four	Three	Five
Seven	Apple 1	Four	Five
Seven 3	Seven	Four	Three 1
Three	Four 1	Three 1	Three
Five 1	Seven 1	Three 1	Three
Eight	Seven 2	Seven	Four
One	Seven	Four 1	Five
Five	Seven 1	Apple	Seven 5
Seven 2	Apple	Eight	Four
Four 1	Four	Four 2	Three
Three	Three	Eight	Apple 2
Eight 1	Four	Four	Seven

David Baxter and Kenny, Runcom.

Summer Games

ON the 100 metres, wiggle your joystick round and round instead of left and right or up and down to get fantastic times. — Bill Jordan, Mook Newton, Ocean.

Spellbound

SMASH the glowing bottle by dropping it and use the broken glass to read the engraved candle. The mirror displays your energy and the objects at the bottom of the screen.

The crystal ball can be used to locate people, except when you are in the FBI. — Paul Stone, Oxfam, Leice.

Goonies

ON the first screen move one of the Goonies up to the attic where the printing press is and start printing some money. When the woman goes to get the money move the other Goonie down, go behind the water tank and jump diagonally at it. This knocks it over and makes the trap door open.

On the second screen, when the ball has gone past you, get on the lift and go to the bottom. Change to the other Goonie and move him to the end and when the ball has gone past again get on the lift and go down, but drop off on the ledge above the ladders.

Move the Goonie at the bottom onto the machine and this will raise the rack. Move the other Goonie on to the band and move him out a bit. Move the first Goonie to the left, dodge the pole, jump on to the ledge and get the key. This will open the door at the bottom.

On the third screen move one Goonie up to the man who is having the shower and move him

across the pipe, being careful of the steam.

Move the other Goonie to the pipe and then move the first Goonie down. A man with a gun will appear and you move the Goonie who is nearest the thinnest pipe up to the second set of ladders. The pipe will burst and you can get out.

On the fourth screen, don't move anywhere until the bats (that arrive when the bells ring) leave. Then trap the cannon balls by jumping on and off the little objects that come off the roof. Stand on the object at the bottom of the roof and the slates will disappear one at a time.

On the fifth screen collect all the skulls and push them to where there are already two skulls. To get on to the skulls from the roof, bounce on the object underneath the bones.

You need five skulls on the ladder to allow you to move to the next screen. — Morgan Enton, Nuffak.

Leaderboard.

If you are having problems taking a lot of shots, getting past the green, green balls and you will go past the hole with the amount of shot you have taken registered on the Leaderboard. This can be used to get to your favourite hole quickly. — Bill Jordan, Mook Newton, Ocean.

Mercenary

WHILE you are holding it, the red time bomb is used to repair damaged buildings. Just fire at the remains of a building and it will rebuild instantly.

The metal detector shows who owns a particular building by displaying a colour in the message window. Green is a petrol building, blue is a madhouse building, and red shows to the owner it. — Paul Stone, Oxfam, Leice.

Montezuma's Revenge

AT the start get to the top of the rope. Keep pressing (select), pull the joystick down and you will go down into a different room. — David Baxter and Kenny, Runcom.

Game

Ninja

AFTER collecting all six holes a secret trapdoor (always) appears in the top of the Grey Wall. Go through it and you should be in a blue room. Kill all the people and collect the last hole. After doing that go back to the beginning to complete the game. — Paul Stone, Oxfam, Leice.

Superman

PROCEEDING the Break the Reposition Superman when he is in trouble. But be careful — this can also get you into more trouble if you're unlucky. — Bill Jordan, Mook Newton, Ocean.

Star Raiders II

WHEN you are in the other star system and short on energy (but don't have enough time to go to a space station to refuel), get energy by going to the sun. Once you are there you will have to get away quick or you will burn. If you do get away you will find your fuel tank is full. — Paul Stone, Oxfam, Leice.

To help you destroy
the aliens



and defeat the
taxman,

we've massacred
the price.



For a limited period, the Atari 520 STM is even more of a knockout than usual.

We're offering it for just £449.95 (inc. VAT) complete with 5F304 disk drive, 5M125 mono monitor, a mouse worth £24.95 and 1st Word, worth £49.95.

So as well as saving you from the enemy, the 520 STM will also save you £184. You'd better hurry though, because it won't

be long before our stocks are wiped out.

ATARI 520 STM
WORKS HARD - PLAYS HARD



Dump that screen . . .

Print your favourite pictures with this routine from KEVIN MILFORD

THE Atari 1025 graphics printer has never been backed up by many programs to produce screen dumps, and with the exception of Mini Office II has never been fully compatible with most word processors on the market.

At last, here's a utility that allows you to produce hard copies of your favourite pictures either on an Atari 1025 or Epson compatible printer.

To use this utility you must have QRTR pictures already stored in file format on disc. The kind of file produced by pressing the insert key while using StarWriter or any of the Micro Printer files that have been converted are good examples of pictures to use.

When you run the utility the screen will go blank for a few moments while the program initializes, then you will be asked to input your printer type - Atari or Epson.

After replying A or E you are asked for the picture filename which must always be entered in the form: D:FILENAME.EXTENSION. The program will then load the picture and display it in four shades of grey.

If the luminance distribution is not how you want it, press C and a single beep will sound. You can then swap the luminance value of the colour registers around by pressing the numeric keys 0 to 3 in order.

The program takes the key presses in pairs, so if you press 0 and 1 the values of those two registers will be exchanged. You may continue to swap the values until the luminance of the picture is to your liking.

Once you have the picture how you like it, press Escape followed by F. Two beeps will be heard and the picture will then begin to be printed out after a slight pause. It takes a while to print out a full screen and it is printed four lines at a time with a pause as the next seven screen columns are calculated.

Essentially the program works by

converting seven columns of screen display into four rows of printer information. This is achieved by using the colour register information gained by the LOCATE command to index a series of arrays, which will give the pin density pattern required for the luminance obtained.

This is then fed into a further series of arrays ready for printing. The screen display contains four luminance - 0, 5, 10 and 15.

The array REG contains the addresses of the colour registers 0 to 3 in sequence, so that PEEKREG00 would return the value for register 0. Lines 165 to 225 obtain the colour register used at a screen location, which is divided by three to give a luminance range of 0 to 3 (black to white).

Each pixel is four printer pins long and two pins high. Figure 1 shows the printer pin patterns used to represent the luminance range 0 to 3. As the printer head contains seven pins, seven screen columns are interpreted into four printer rows at the same time.

This gives rise to the high number of pattern arrays holding the decimal equivalent of the pin patterns. For example PATT00 holds the first column of pattern 0.

Each pattern array has a direct relationship with one of the printer row arrays P01 to P04. The contents of the pattern arrays are sent to the printer by lines 275 to 350 of the program.

The CHR\$ statements in the first PRINT statements set the printer up for high density (GRAPHICS) printing.

Line 350 prevents the program going into the attract mode, and line 320 indicates the end of the loop. The FOR...NEXT loops of K and Y control the area of the screen being translated. Once the picture has been printed the program returns you back to Basic. If you want to print another picture, just type RUN.

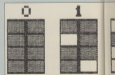


Figure 1: Atari 1025 printer pin patterns

MANY Atari flight simulators and other games, such as *Mercenary*, use vector graphics to give the illusion of moving through three-dimensional space. This program — *3D Animation* — demonstrates some of the techniques used to manipulate vector graphics.

Type in the Basic listing and save it in the usual way. Unfortunately, because of the large area of ram used for storage and the use of Graphics 14, the program will only work on an 8000, or XL.

When you run it you must first plot a shape on the screen by moving the cursor within the framed section using a joystick. To prevent an out of range error when the shape is plotted the cursor will not move to the far right or left of the screen.

To plot a point simply press the fire button and after the first point has been plotted a line will be drawn back to the last one. Points can either be plotted as foreground or background: To change, press 1 for foreground or 2 for background before plotting the point.

After drawing a shape press Start to go to the plotting routine to set the number of plotting parameters. The first is the angle of rotation which is a value between 0.1 and 0.8. A value of 0.1 means that each shape plotted will rotate by a small amount and a value of 0.8 performs an almost complete rotation.

Then set the direction in which the object rotates (forwards or backwards, clockwise or anti-clockwise).

There are three types of axis rotation and all give the effect of the shape going into the distance and then coming closer again.

Rotation 1 spins the object on a flat plane and does not highlight the foreground/background division. Rotation 2 makes the shape rotate through a horizontal axis, and rotation 3 through a vertical axis, while rotation 4 is a combination of rotations 2 and 3.

The computer calculates and draws the 12 individual shapes that make up the animation sequence. If the maximum 48 points are used this takes a few minutes and as each shape is drawn a machine code routine stores it in ram.

To animate the shape another machine code routine transfers the stored shape data from the ram storage area to the screen ram area. The high speed of machine code gives the smooth animation effect.

To stop the animation press the spacebar and you can then either draw another shape or animate the same shape with different parameters.

You can demonstrate how fore-

Manipulating vector graphics

STEPHEN WILLIAMSON shows how to animate shapes

ground and background points affect a shape by entering the pyramid shown in Figure 1 — with all points as foreground — then animate it. Then return to the plotting section of the program and plot the shape again but with the points marked 2 as foreground and point 8 as background.

To do this correctly make sure that you are in Foreground mode (FORE-GROUND is highlighted by inverse letters) to begin with and plot point F1. Move and plot F2, then F3 and back again to F4, (previously F1) in order to complete the outer triangle.

Press 2 to change to background and move to B5. Then change to foreground before plotting B6. Use same position as F3. Return to background and plot B7 and finally change to foreground to move to F8.

You'll notice that the point in the centre of the triangle is a background point and lines F3, F4 and F2 are connected to it. Because all lines are connected to each other it is often necessary to draw over a line more than once, just as if you were drawing the same shape on a piece of paper without your pen leaving the surface of the paper.

When the pyramid with background point is animated, it will appear to be in three dimensions and not as the flat surface of the shape plotted without the background point. A maximum of 48 points can be plotted at any given time.

Let's look at how the program works. By convention, in a two dimensional shape the horizontal position of a point is known as X and the vertical position as Y. So if you use the command PLOT 48,30, a point will be plotted at a point 48 pixels across the screen and 30 pixels from the top of the screen.

In order to represent a third dimension — depth — we can use the letter Z. Without the benefit of 3D Holograph TV we cannot actually plot 3D shapes using an Atari computer — but by clever use of perspective the mind can be fooled into thinking that a 3D object has appeared on the screen.

Figure 2 shows the three coordinate principle. Line X of the cube drawing represents the horizontal X axis and line Y is the vertical Y axis. Line Z is the depth or Z axis. Any point on line Z can be thought of as a measure of how far away the point is from the observer.

The program scales the Z axis so that a value of 0 gives the effect of an object on the surface of the screen. A negative Z value means that the object has left the screen and is near your eye, while a positive one takes it behind the screen. So, theoretically, an object can hit you on the head or disappear into the innards of your TV. Such is the paradox of a two-dimensional world trying to simulate a three-

Turn to Page 37



Figure 1: The pyramid shape



Figure 2: The three dimensional cube

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dimensional environment.

The theory behind 3D vector plotting is complex, but a study of the program will show some of the techniques used. The variable `PNTX(I)` is used to hold the X coordinate of each point, `PNTY(I)` the Y coordinate and `PNTZ(I)` the Z coordinate. The variables `LINX(I)`, `LY` and `LINZ(I)` keep track of which point links to which.

The routines in lines 1260 to 1550 include the equations for changing the coordinates of the points after each shape has been plotted. `SCALE` is used both the `ARRS 3` and `ARRS 2` routines (see line 300).

Lines 320 to 398 draw the shapes and store them in rows. Line 560 finds the `SCALE` variable which, using the Z coordinate, determines the scale of the shape. The smaller it is the further into the distance it appears to recede.

Lines 610 to 660 draw the points on to the screen. Note that all points are made relative to the centre of the screen by adding 75. (The program uses a Graphics 14 screen of 160 x 760 pixels).

The program has been written primarily to be fun and to show that fairly

complex 3D animation sequences can be displayed without using vast amounts of complicated machine code.

Experiment with various shapes and

relations. Try altering the rotation equations (lines 1270 to 1400) or change the link relationships (variables `LINX(I)` and `LINZ(I)`) and see what happens.

```

10 REM $P 10000000
20 REM $P 1000000000000000
30 REM FOR SHAPES ONLY
40 REM
50 REM 2DROTATION
60 GOSUB 7000
70 FOR J=0 TO 81
80 GOTO 9000,3000,7000,14
90 NEXT J
100 REM FOR 3D, 2, 1, 0, 0, 0, 0, 0, 0, 0
110 GOSUB 7800,6000,1100
120 GOTO 540,200,0,0,0,0,0,0,0,0
130 TO 100 SHAPE
140 10000 540,200,0,0,0,0,0,0,0,0
150 TO 100 SHAPE
160 10000 540,200,0,0,0,0,0,0,0,0
170 TO 100
180 GOTO 140,200,0,0,0,0,0,0,0,0
190 TO 100000000
200 TO 1000000000000000
210 NEXT J
220 IF 10000=0 GOTO 10000,0,0,0,0,0,0,0,0,0

```

Turn to Page 28 ▶

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500	\$360.00	\$360.00	\$360.00	\$675.00	\$675.00	\$675.00	\$675.00
1000	\$700.00	\$700.00	\$700.00	\$1320.00	\$1320.00	\$1320.00	\$1320.00
5000	\$3400.00	\$3400.00	\$3400.00	\$6300.00	\$6300.00	\$6300.00	\$6300.00
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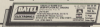
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Driven Skate Crazy

I WISH to complain about the game *Skate Crazy* that you published in the April 1987 issue of *Atari User*. I typed it in exactly as it was printed, but when I ran it the title screen appeared, followed by an error message for line 2140. I checked this line and it was just as you had printed it in the magazine.

I took this line out of the program and ran it again. This time the error message was for line 3570, so I took this line out as well. When I ran the program again the title screen appeared with no error message. I thought I had corrected it but nothing else happened.

There is nothing wrong with my computer as far as there something wrong with your program? Also, how do you use the Get It Right? table contained in the text? — *Victoria Crisp, Bratislava, Czech*

◆ The listings that we print are taken directly from working copies of the programs, so we know that they are correct.

So why didn't this one work? Well, you don't really go into enough detail in your letter about what type of error occurred, but I'd hazard a guess that it was most likely an error number 8 or number 9.

These relate to the READ statement which occurs in both of the lines you had trouble with, and you will probably find that the problem is with the DATA lines associated with the READ on line 2140.

If you take a look at the listing you will see that lines 1050 and 1060 read their numeric data from lines 1080 and 1090. Since these are both okay, the problem must be with the data which follows on lines 2000 to 2127.

This should be input via the READ command on 2140, so any typing mistakes will only show up when line

SOFTWARE Solutions

Your programming problems solved by ANDRE WILLEY

2140 is reached. Thus, when you deleted 2140, the error then occurred with the next READ statement (on line 3570).

Since there is a lot more data later in the program it is unlikely that an error 8 (DATA exhausted) has occurred, so the error type you are encountering is more than likely an eight — telling you that the program expected a numeric value but found something else, such as a letter or punctuation mark.

Check through lines 2000 to 2127 to make sure that all of the numbers are correct, and that you haven't mistyped or missed out a digit, or typed a full stop instead of a comma. Any of these would cause the sort of error you describe.

You should never try to correct a program by simply removing an offending line. This is partly because the programmer has obviously put each line in for a specific purpose, but also because (as we have seen) the error is very often caused by a mistake on a completely different line.

The Get It Right table is one sure way to check that you haven't made any typing mistakes. Details of how to use it were printed in the August 1986 issue of *Atari User*.

Joystick action

I OWN an Atari 800XL and a 7070 disc recorder, and I find your magazine action-packed and crammed with great reviews of games. I am interested in programming but have a problem with reporting joystick movements.

Could you give me an example to show me how to move using the joystick and the fire button? — *P. Deymer, Bratislava, Czech*

◆ There are two commands you need

to know — STICK and STRG. The first tells you which direction the joystick is pointing, and the second tells you whether the button is pressed.

Each command is followed by a single number in brackets, normally a zero or a one, and this specifies which joystick socket you want to use. Thus STICK(0) would return the position of the first joystick, and STRG(1) would tell you if the button on the second joystick has been pressed. STRG gives a result of zero whenever the button is pressed, and a one at any other time.

The numbers returned by STICK are as follows:



The following short program demonstrates how to move an object (in this case an asterisk) around the screen:

```
10 GRAPHIC SCREEN 700,700
20 X=100:Y=100:DIR=0:PRINT " * "
30 GOTO 40:PRINT " * "
40 IF STRG(0)=0 OR STICK(0)=0 THEN 4
50 DIR=DIR+90:GOTO 30
60 IF STICK(0)=10 THEN Y=Y-10:GOTO 30
70 IF STICK(0)=11 THEN X=X+10:GOTO 30
80 IF STICK(0)=12 THEN Y=Y+10:GOTO 30
90 IF STICK(0)=13 THEN X=X-10:GOTO 30
100 IF DIR THEN DIR=DIR+90:GOTO 30
110 IF DIR THEN DIR=DIR-90:GOTO 30
120 IF Y=0 THEN Y=100:DIR=DIR+90:GOTO 30
130 IF Y=100 THEN Y=0:DIR=DIR-90:GOTO 30
140 GOTO 11:GOTO 11:PRINT " * "
150 END
```

Most joystick routines will be similar to this one, but you might like to use it in conjunction with our recent series on *Player Missile Graphics* to get some great effects.

Are you having problems getting your programs to work? Write to your favorite Solutions, Atari User, Software Solutions, Atari User, Software Solutions, 66 Chestnut Road, Norwalk, Conn. 06854. We will answer as many as we can out within the pages of *Atari User* but, unfortunately we cannot give personal replies.

Lurking Horro is just

that..

by
Ruoloc

TALK about exhausted – there I was, minding my own business when these five Naagals came into the local inn and started pushing and shoving people around. Well, not one to be slow in getting into a good fight, I brought out my trusty sword and laid into them.

The actual fight lasted no more than a few minutes – well I do have rather a lot of experience in these matters – but the real reason for my distress was because of all the free drinks that the landlord gave me. He was so grateful for my assistance that we celebrated all night.

In fact I have just got back to my class in time for the posting and this month's column, so without much more ado let's see what's new in the world of adventure.

The first bit of good news I have for you is that there is a new Infocom adventure about to be released called *The Lurking Horro* and it's full of ghastly surprises and unsuspectable fear.

Any horror fans who haven't given up the shilling classics of Steven King and H.P. Lovecraft, or shirked at the lightening images in *The Shining* and *The Exorcist* cannot call themselves horror fans. Now you can experience what horror is really like with Infocom's change from witty spoofs to interactive nightmares.

As the main character in the story, you have enrolled at the George Edwards Institute of Technology, and have found nothing else except the stacks about the old campus basements and storage rooms, some so ancient that they contain only rotting piles of unidentifiable junk.

You have heard about the decrepit underground tunnels crumbing into hazardous piles of concrete, and have vowed never to set foot in any of them. You do, of course, end right with a blizzard raging and the wind howling, when a strange force draws you into the dark ether regions of the institute. Then an eerie sound grows closer... Stop, enough of this. I'm starting to get edge myself.

Suffice it to say that the adventure has been written by Dave (Zork, Spellbreaker, Suspect, and Starcrossed) Lebling and all the usual bits and

pieces are in the package. Make sure you read Alan Diaz for a full review in the future.

The second bit of good news this month is that there is another new Infocom release imminent, and this one is called *Planetfall*. Yes, it is a sequel to *Planetfall*. After three years and countless requests, author Steve Mercurio has brought back that lovable robot Floyd in an adventure which puts the fate of the whole Galaxy in your hands as you are enlisted in the Stellar Patrol.

Your heroics in *Planetfall* earned you a promotion from Ensign Seventh Class to Lieutenant First Class in the very boring paperwork task force.

Life is just very tedious, and to cap it all you are assigned to travel to a nearby space station to pick up some forms. Imagine your surprise when you discover that your companion for the journey is the mischievous and playful Floyd.

When you both arrive at the station, all is not well. The place is deserted save for an outcast, a balloon creature and a brainy robot named Plato. Something is very wrong... but what?

This game is a worthy sequel to *Planetfall*, and Steve's humour, so apparent in *High-tilers* and *Leather Goddesses*, is well in evidence here. So watch out for another review.

I hope you like the map of *Alternate Reality*, on the next two pages (give around that place almost drove me bonkers, but anything to help fellow adventurers) and I look forward to our meeting next issue, when all that is interesting in the world of adventuring will be served to you on a silver platter.

See you next
month





LEE from Walsall has bought Ultima IV and needs some guidance on how to find The Stones and how to get followers to join him. Ultima and my good friend Lord British have given us a tough nut to crack as the playing area is vast, so don't expect me to give the whole game away – it would take up too much space anyway.

Instead I will reveal to you whose each name can be found. Honesty is in Moonglow, Compassion is in

Britain (in the forest), and Water can be found at Rowen. Justice is hidden at Trea, Sacrifice is in the fire pit in Minoz, Honor south-west of Trinalc, Spirituality is in Lord British's castle and Humility is in the village of Favea. Write back and tell me how you get on.

Mathan from Sheffield is having problems with Colossal Adventure and wants to know how to get the Platinum Pyramid out of the Plover room and where to find the pirate's treasure chest.

The chest in the Plover room is so small that only if you drop everything can you squeeze in. Once inside, just say FLOVER and you will appear at the Y2 rock room. Then say FLOVER again and you return and so forth.

The pirate skulls in the main maze and his chest is hidden deep inside it. You can actually get to it in four mazes from a certain spot, but I am not going to spoil the fun for you.

Calvin from Nottingham has a

problem involving Orcauch's riddles in Return To Eden. He doesn't know how to top the answers. Well, just type the actual SOLUTIONS Calvin. And don't mess about with "The answers are", just type in the answer.

Ken White is having trouble with Babylon, he can't see the toilet to visit the sidestairs! Also, he can't get THROCK to work in SPELLBINDER.

The toilet is used by inserting it in the turnstile, if you examine it you will find a slot. THROCK is used by planting the weed in front of the Gate and invoking the said spell, which will aggravate his condition long enough for you to get past.

Phil Hardy cannot get out of the City in Lapis Philosophorum, even though he has the answer after returning the cat to the old lady.

The answer is to dangle the amulet in front of the guards' eyes: They will be hypnotised, and forget their orders not to let anyone out.

Drive into danger

IMAGINE a world where the only form of employment is driving an armour-plated car, full up to the brim with weaponry, along hostile roadways, fighting any other driver on the road in order to deliver cargo from one city to another.

Then, for sport and relaxation, do battle in a city's arena, pitting your car, driving skills and life against others for a prize of fame and wealth.

This is the world of Autoduel, a role playing adventure game in the Dungeons and Dragons vein but with a futuristic bent to it.

You begin with \$500 and just your legs for transport – which in Autoduel is decidedly antiquated – so you need to get cash quickly to buy your first car and then begin your duelling career.

New recruits start in the arena on Amateur Night, where you are given a car to use on the track against five other hopefuls. If you win you get \$1500 and can start buying new equipment to add to your car.

As in all role playing games, your character develops as you progress in the game, and as you reach each new city the chances of getting more exciting jobs increase.

In each city there are a number of locations to visit where you listen for rumours, get repairs or buy new weapons. You can even set off salvagers from your car on the road duelling and best of all is to become an FBI marshal and clear all the evil-doers from the highways.

The game is based on Steve Jackson's board game Car Wars and Origin has used the Ultima team to convert it into a computer project. The packaging impressed me: You get a detailed manual, a full colour road map and even a mini pack of road tools.

The only flat tire in the game was its black and white display, which does not do much for the old Atari colour capabilities.

Still if you like playing role playing games this is the one for you.



Program: Autoduel















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such as House of Ill repute
-  - Traps: One entrance, no exit
-  W - Wilderness entrance
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or door (sometimes invisible)
-  - Two directional access
-  - Entrance (in this instance to a
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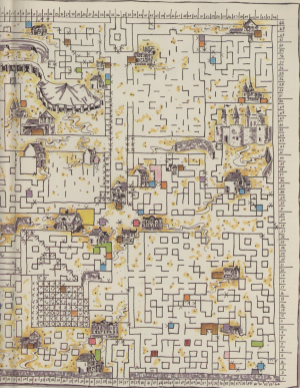
Access to dungeon, palace, arena, or wilderness from the city is only possible when the relevant part of the series is available.

N



E





DUCKDASH

BY JOHN GYMER

HURRICANE Harriet is heading towards your farm. Heavy showers have already turned your yard into a pool of mud and the wind is yet to come. All the animals have been put in barns and old sheds — except for those straggled ducks, who refuse to be rounded up. And you haven't got long before the hurricane hits. So you, farmer Dash, must hurry around the yard and collect all the ducks as quickly as you can.

Now this sounds very easy but there are dangers in the yard. Two deadly farmer-eating spiders have decided to shelter from the storm there, so as you can avoid collecting the ducks you must avoid them — so do.

The main problem with your yard is that as you run, your feet slip up the ground, and if you ever come in contact with one of the holes you lose a life. You also lose a life if a spider catches you or if you run out of time when the storm hits.

Also in the yard you'll find sticks and peats of mud which trap you — briefly — if you stand in them. These can also trap the spiders and this can add more gamesmanship to play.

When you finally escape from the pool of mud which (shows an screen as a white cross) it will change into either a hole or a safe square you can walk on.

Two players can play the game with one player as the farmer plugged into port 1 and the other as the spider in port 2. This option can be selected from the main menu and adds a lot of fun to the program.

In play mode you can abort the game by pressing the start key, and for extra bonus points you can collect the coins — shown as yellow dots — that are scattered around the yard.

Once all the ducks on screen have been collected you are awarded bonus points for time remaining and you move on to the next screen which will have more ducks, more spiders, more sticky ponds and faster spins.

If at any time you lose a life you continue on the same screen until you

complete it or until all your lives are lost. The game then ends and you are returned to the main menu where you can select one of six levels.

One is easy and six is very hard, with the bonus points at the end of each screen calculated according to skill level selected.

VARIABLES

HSC High score.
SC Score.
SK Skill.
B, B1, B2 Position of farmer.
Y, Y1, Y2 Position of spider.
LEV Screen level.
LIV Lives.
TIME Time left.
MEM Address of character set.

PROGRAM BREAKDOWN

50-600 Main loop.
80-150 Farmer movement.
200-300 Spider movement.
400-500 Sound effects.
700-900 Menu screen.
900-1270 Initialization.
1280-1440 Redefine characters.
1450-1520 Music data.

```
10 REM *****
20 REM =      =      =      =
30 REM =      =      =      =
40 REM =      =      =      =
50 REM =      =      =      =
60 REM =      =      =      =
70 REM *****
80 REM      REM *****
90 REM *****
10 REM *****
110 REM *****
120 REM *****
130 REM *****
140 REM *****
150 REM *****
160 REM *****
170 REM *****
180 REM *****
190 REM *****
200 REM *****
210 REM *****
220 REM *****
230 REM *****
240 REM *****
250 REM *****
260 REM *****
270 REM *****
280 REM *****
290 REM *****
300 REM *****
310 REM *****
320 REM *****
330 REM *****
340 REM *****
350 REM *****
360 REM *****
370 REM *****
380 REM *****
390 REM *****
400 REM *****
410 REM *****
420 REM *****
430 REM *****
440 REM *****
450 REM *****
460 REM *****
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760 REM *****
770 REM *****
780 REM *****
790 REM *****
800 REM *****
810 REM *****
820 REM *****
830 REM *****
840 REM *****
850 REM *****
860 REM *****
870 REM *****
880 REM *****
890 REM *****
900 REM *****
910 REM *****
920 REM *****
930 REM *****
940 REM *****
950 REM *****
960 REM *****
970 REM *****
980 REM *****
990 REM *****
1000 REM *****
```



Reading the paper

ERNIE LITTLE eases the task of wallpapering

WHEN buying your rolls, did you ever think: "It'll even help with the housework?" And have since spent many hours trying to justify that very statement?

In response to all these letters we get pleading for more domestic utilities, we've come up with a program to help you calculate how many rolls of wallpaper you will need when you decorate a room.

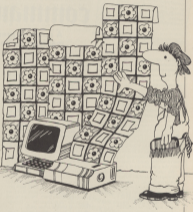
When the program is run you are requested to input the size of the room that you wish to decorate, both in length and height — these measurements should be in metres.

The height is between the skirting board and the ceiling, the length of the walls is the total distance around the room, including doors and windows to allow for any wastage.

You will now be asked for the length of the roll of wallpaper. Most rolls sold these days are preset to 10m by 600mm so you will usually enter 10.

The total number of rolls to buy will now be printed. The total to buy is derived from rounding up the total number of rolls calculated.

Please note that this is only intended as a rough guide, and doesn't take into account pattern matches.



VARIABLES

- A Height of walls
- B Distance around room
- C Length of roll
- B Number of rolls needed
- D Number of rolls to buy

```
10 PRINT "WALLPAPER CALCULATOR"
11 INPUT "WALL LENGTH OF ROOM IN METRES:" A
12 GOTO 13
```

```
13 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
14 INPUT "WALL LENGTH OF ROLL IN METRES:" C
15 PRINT "WALL LENGTH OF ROLL IN METRES:" C
```

```
16 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
17 FOR A=0 TO 1000 STEP 10
18 NEXT A
```

```
19 PRINT "WALL LENGTH OF ROLL IN METRES:" C
20 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
```

```
21 FOR A=0 TO 1000 STEP 10
22 PRINT "WALL LENGTH OF ROLL IN METRES:" C
23 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
```

```
24 FOR A=0 TO 1000 STEP 10
25 PRINT "WALL LENGTH OF ROLL IN METRES:" C
26 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
```

```
27 PRINT "WALL LENGTH OF ROLL IN METRES:" C
28 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
```

```
29 FOR A=0 TO 1000 STEP 10
30 PRINT "WALL LENGTH OF ROLL IN METRES:" C
31 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
```

```
32 PRINT "WALL LENGTH OF ROLL IN METRES:" C
33 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
```

```
34 PRINT "WALL LENGTH OF ROLL IN METRES:" C
35 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
```

```
36 PRINT "WALL LENGTH OF ROLL IN METRES:" C
37 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
```

```
38 PRINT "WALL LENGTH OF ROLL IN METRES:" C
39 PRINT "WALL HEIGHT OF ROOM IN METRES:" B
```

Get it right!

WALL LENGTH OF ROLL IN METRES	WALL HEIGHT OF ROOM IN METRES	WALL LENGTH OF ROLL IN METRES	WALL HEIGHT OF ROOM IN METRES
10	2.00	10	2.00
10	2.50	10	2.50
10	3.00	10	3.00
10	3.50	10	3.50
10	4.00	10	4.00
10	4.50	10	4.50
10	5.00	10	5.00
10	5.50	10	5.50
10	6.00	10	6.00
10	6.50	10	6.50
10	7.00	10	7.00
10	7.50	10	7.50
10	8.00	10	8.00
10	8.50	10	8.50
10	9.00	10	9.00
10	9.50	10	9.50
10	10.00	10	10.00

We already know how skilled and creative Atari users are, and we look forward to receiving your programs and articles for publication in future issues of Atari User. However, looking you send your masterpieces off to us there are one or two points that you ought to bear in mind to make all our lives easier. We call them The 18 Commandments...

The 18 Commandments

A guide to presenting your masterpiece for publication

WHILE not wanting to put programmers' creativity into a straightjacket, we've found that life can be made easier for the magazine, our readers and the programmers themselves if we stick to certain standards.

It has also occurred to us that it's no good our just knowing what we want. We have to tell you, our potential contributors. So here are our 18 commandments.

Don't be too daunted by the list—it's mostly just common sense and good programming practice.

1. **Send us your programs on tape or disc.** There's no point in just sending a listing and asking if we're interested—you can't expect us to evaluate a program from that. We may be good, but we're not that good! A cassette or disc with the program on it is a must.

We rarely use two-part programs in the magazine. Games in two files may look professional, but they're the kiss of death as far as the magazine is concerned. Too much can go wrong when people type them in.

2. **Avoid using characters in variable names that lead to confusion** such as F and J, P and Q. Meaningful variable names help as well—`SCREEN` is far more understandable than `AL`.

3. **Tell us what the program is by name**, by its end and refer to it by name. You'll be amazed at the number of programs we get where the author forgets to tell us what it is all about.

In any subsequent correspondence, reference to "my program" can cause problems by its vagueness. Okay, we'd have the program on record somewhere, but life would be a lot easier all round if its author were less modest and admitted he was the genius behind MegaInvaders.

4. **Label everything with the program's title and your own name and address.** Keep your own copy, too. So far the only existing copy of one particular

classic game hasn't disappeared in the post—but there's no reason to run the risk of yours being the first.

5. **If it's a game let us know how to "cheat"** so we can test out the higher levels. We're getting on a bit here and our reactions aren't as good as they used to be, but that they were up to scratch when they were as good as they used to be...

6. **And on adventure-type games or whatnot** should come with a map of the rooms and any other relevant info sheet. Much as we'd like to, we just don't have time to guess the name of Rumpelstiltskin's brother, no matter how much we admire your ingenuity. Anyway, he works in our attic(s).

7. **Put more than one copy of the program on your tape or disc.** And if you want your submission back let us have a stamped addressed envelope with the name of the program on it.

You won't appreciate this unless you've run a computer magazine, but if you use tape please send each program on a separate cassette. If not, we just can't handle them. The rule is, one program per cassette—though recorded several times on it.

8. **Let us have a printed listing if possible.** Screen dumps or off-screen photos are much appreciated, though not vital. Diagrams are always of use! Often a point that's difficult to put into words becomes clear as crystal when you sketch it out.

9. **Give a description of the program, what it does, why you wrote it, and outline the way it works and its variables and subroutines.**

10. **If it's a game let us have a plot.** You'll get an idea of the sort of thing by reading the instructions to one or two of our games.

Maybe you could also give a few ideas for its improvement or expansion. Even if you can't get your upgrades to work, there's a good chance that one of our talented

readers will.

Every subroutine must be titled clearly with a GEM and should be referred to by it. Again, make the title meaningful. Also, when you GOSUB, use a REM to indicate which subroutine you're using. For example:

```
100 GOTO 1000: GOTO 1001: GOTO 1002
```

```
-
```

```
1000 GOTO 1000: GOTO 1002: GOTO 1003
```

```
-
```

```
1003 RETURN
```

At first this may seem to be far too much fuss, but it's not just for the readers' benefit. As your programs grow you'll find that such REMs more than repay the effort by allowing you to keep track of your work.

When you write out your list of subroutines—which is vital—try to do it in this form:

```
100 EXAMPLE Show how to call...  
200 DELAY Hold things up...
```

where the line numbers refer to the lines in which the subroutine is defined. Again, this helps by making things clearer to our readers—and you.

We don't expect your program descriptions to be classics of English literature, but it does help if they make sense and are easy to follow. Try reading them out loud—you'd be amazed how much such a simple technique can improve your writing.

Also, if you get stuck trying to put something into words use this trick: Tell someone what it is you're trying to put into words—then write it down. Before you reject this hint, try it—more than one professional writer swears his career to it.

11. **Make sure that the program actually works.** Try it out on your friends for

their criticism (painful though it may feel). The acid test is to ask them to type it in. And — when you find yourself musing through classified lists, "How could anyone be that stupid!" (the answer is "regularly") — steal out the mite in your own eye and offer your program to take account of the feedback.

It's not easy to do, as the all-too-frequent blunders among the editorial staff here testify, but it's worth it.

Instructions can make or break a game. Make sure that yours really do instruct. They should be complete and it helps if the spelling and grammar are correct. Apart from causing confusion, such errors also make programs look unattractive.

As well as misspellings, bad grammar, split words and general untidiness are all to be avoided.

Following even the simplest program can cause problems for the most experienced programmer — don't add to them unnecessarily. One major cause of having to return programs for modifications is colour/mode/dos/m impossibility.

You can develop a beautiful program making use of all the splendid colour the Atari has to offer, only to find that the action disappears in an inoperable fog on a monochrome TV — and vice-versa.

If possible, try your program on both types of television. User groups are invaluable here, as they are in all aspects of program development.

● Please do put lots of nice explanatory REMs in your programs. A couple of REM statements with nothing after them at the beginning of the program gives us room to put in our messages without messing up all the line numbers you have referred to in your program description.

● Avoid having lines with just a REM and nothing else. It may make the program look neater, but we won't welcome letters asking what the missing words are. Remember, people will be spending hours typing your programs into their micros. Make their life easier if you can.

● Desable space all your written matter. This means leaving a blank line between each line of text which is vital from our point of view — try to follow our style. We have our own ways of doing things: For example, we press the Return key, not the RETURN key as you might expect.

Just look how we do it in the magazines. Our programs are Program 1, Program 2 and so on, our diagrams Figure 1, Figure 2.

● If you must use long multiple lines don't go over 114 characters by using abbreviations for commands as

people then complain the lines are too long.

● Don't use abbreviations in text. They're exceptionally easy to miss — for the sake of typing two extra characters you can save our readers hours of frustration.

● Please, when you send us your work, include a separate page telling us that it is your own work, has not been offered elsewhere and that we have your permission to print it. If you don't we'll have to return it.

● It's always nice if a program can have an alternative key or joystick option.

● One of the major causes of programs crashing is because the user inputs something the programmer wasn't expecting. All right, the idea shouldn't type in REM when you ask him his age, but believe us, they will, out of sheer generosity — particularly if the program is educational. There is something about GAs programs that brings out the devil in us all.

So try out all the unlikely options — if you don't, some poor user will.

Actually, it takes a lot of skill to idiot-proof a program, as it is delicately known in the trade. Often you're so involved in getting the program to work as it's supposed to that you just can't make the mental leap needed to see it as the passively mischievous reader does — so try it out on your friends.

● Another invitation for a reader to

when he sees something like

REM

Exactly how many blanks it he supposed to enter?
User

REM "YES" PRINT

for a space.

● Tell us who you are. We like to know your Christian name, and it is also interesting to know your age and profession. After all, we might reject your program, but if we knew you were a fellow letter we'd have been able to send you Obscureoff's "Falling letters" on the 13000, for review.

Also a telephone number — both home and work — with the correct STD code is really useful, and can save a lot of time.

Here endeth the 10 rules. If you follow these when you submit something to us you'll stand a much better chance of having it published. More importantly, you'll become a far more professional programmer.

And the letter you become the more satisfying it is.

Contributions should be sent to:
Features Editor, Atari User, Europe House, 68 Chester Road, Mavel Grove, Sleaford SK7 8NY.



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Shivers down the spine

Program: Phantom
Price: £7.99 (suggested), £9.99 (street)

Supplier: Tynesoft, Jubilee Industrial Estate, Blyth, Tyne and Wear, NE71 4YE
 Tel: 091-454 4077

STRANGE things are happening – unexplainable and eerie occurrences. So when I picked up my copy of Tynesoft's latest game *Phantom*, shivers ran down my spine.

You are a professor of extra-physics who happens to be interested in psychic phenomena and built a portable nuclear accelerator, presumably in his garage. Now this reactor makes a large hole in spooky phenomena.

So with reactor in hand you are well prepared for the horrors that face you, or are you?

On loading I was greeted by the control panel featuring score, reactor level, heart rate (it beats per minute) and an electrocardiograph (ECG), which resides on the bottom right of the screen.

Now it appears that you only have one life and the BPM indicator increases every time a ghost comes into contact with you – once this reaches 100 your old ticker will give out.

You arrive at Ye Olde Inn, and are met with a plan view that looks more like a maze.

Scarrying around are ghosts, who as soon as they see you, begin to converge.

Easy, I hear you say, out with the nuclear accelerator and good, the spoons begin to vanish in clouds of ectoplasm. This is a pretty neat weapon as it wipes out several spoons in one blast.

But there is one problem – you only have a limited supply of isotopes in your reactor and if you empty it you are in deep trouble.

Five ones are scattered about the inn, but as discretion is the better part of valor, you can dodge the spoons, instead.

You have to battle your way round four screen levels of the inn, collecting keys and other items on your way.

You eventually battle with a large and very nasty ghost. At this point I realised that my heart rate did not go down in the maze from one level to the next, indeed it only *settled* when I completed the inn and moved on to the Dungeon where a completely different set of enemies decided to have tea for breakfast.

With 84 different rooms and the mansion and castle to explore there is plenty to keep you on your toes – especially as the difficulty and quality of music increases.

The graphics used throughout are first-rate coupled with a wonderful



background tune. Character animation is superb both for spoons and your player character.

My only quibble is that the spoons can get you without you being able to shoot them. This is not a major problem because if you are good enough you simply sidestep them.

Instead of rampaging around the screen, hunting and slasting your enemy, with *Phantom* you must use tactics to negotiate each screen. This evasive angle adds a very addictive quality

to the game.

Phantom is original and well worth buying for the sheer pleasure of playing it. So when it comes to the sheer conflict and you have rambles in your attic or creepies in the cellar then "Who yer gonna eat?" – Tynesoft.

Mal Fawcett

Sound	10
Graphics	9
Playability	9
Value for money	9
Overall	9



Weary wagging

Program: *Fransis*
Price: £3.99
Supplier: Microzone, 4-12
Paul Street, London EC2A
4JH
Tel: 01 377 6880

ALTHOUGH *Fransis* describes itself as a game guaranteed to bring you near total nervous collapse, my guess is that it is more likely to be caused by boredom from monotonous gameplay.

You are armed with a Station which is actually two thick bars, one running vertically down the screen, the other horizontally.

Each bar can be moved separately against a plain backdrop, the vertical one going left and right, and the horizontal bar, up and down. The movement is controlled by an appropriate tug on the joystick.

Enter the aliens, stage left, right, and all ways. These

particular machines are not visually striking. Being either circular, diamond or other sharp-angled shapes.

Your task is to destroy the heads before progressing to the next level.

The way to exterminate the infestation is by moving one of the bars across its path — the aliens explode on impact. If aliens are heading from the right, sweep the vertical bar from the left. Pink arrows on the bar point the direction the bar is currently facing.

You also have some smart bombs at your disposal, — triggered by pressing the fire button. They will rid you of all the aliens in the immediate vicinity.

And that's it, really. There are 40 waves of aliens to get through and while it gets faster and more furious, you are still simply wagging one of two bars back and forth. I grant that dextrous



handling of your Station is needed to make progress but the game failed to catch the imagination. It's all too much of a rushiness.

Fransis was written by Tony Takashi, well-known arcade games fan. Despite his wide experience of arcade action, I'm afraid he hasn't produced a stimulating game.

Fransis doesn't come anywhere near generating the sort of excitement that many other games for the Atari have managed to deliver.

Better graphics, less simplicity and much more gameplay variety might have awakened my interest. As it is, although this game is cheap, you'll be advised to have a look at some others in the Microzone range. This is not one of their finer offerings.

Bob Chappell

Sound	2
Graphics	2
Playability	2
Value for money	3
Overall	2

There you pogo

Program: *Spong*
Price: £7.99 (boxed), £3.99 (soft)
Supplier: Red Rat Software,
11 Farnell Street, Manchester M4 3DU
Tel: 061-625 1650

THE main character in *Spong* is some sort of deformed Aussie jumping around on a pogo stick. It brings tears to my eyes just thinking about it.

Anyway, you set off to find the fabled Lost Golden Pogo stick, spotted on by the wily of Danny Boy. While I like to think I have an open mind on musical matters, I was glad to be able to surmise this particular cacophony off.

You are given five lives to begin with and there are chances to win extra lives. Each screen has to be completed inside a time limit and there are 50

screens to pogo through.

Moving from left to right your progress may be checked by a number of obstacles and hazards. These include lava flows, raging fires, laser beams, acid rain, bomb-dropping helicopters, meteors and one or two others.

These can be dodged by careful timing of your movement or avoided by pogoing on to and across platforms, conveniently strewn about the place. The platforms can be of the rock-steady or distinctly temporary variety.

You hop gently along, moving left or right. Pressing the fire button increases the height and length of the jump. The spiking movement is good and jaunty and adds to the difficulty when trying to assess particularly tricky jumps.

Should you lose your last life 38 screens into the game, you don't have to go



back to the beginning next time round.

On restarting you can choose to begin at screen 10, 25, 30 or 40 depending on how far you reached. Even as an absolute beginner you can start on any screen between 0 and 9.

The graphics are bright and cheerful, though blocky and rather unimposed. The raging fires are little more than glowing embers, the background scenery could have come from *Lagoland* and as for the lava flows — well I've seen more anim-

ation in our gumbie stone on bath night.

There's nothing new under the sun, so gone an old adage — and *Spong* by Red Rat Software certainly does nothing to try to disprove it. On the other hand *Spong* is well put together and is reasonably challenging.

Niels Reynolds

Sound	4
Graphics	6
Playability	7
Value for money	7
Overall	7

Cutting it fine

Program: *Hover Rover*
Price: £1.99
Supplier: Madsentronic, 6-10
Aur Street, London WC2M
4AP
Tel: 01-277 6880

A *CAME* about lawn mowing by Jeff Minter? What, he of the megatonnis, all-action, rip-roaring, blast-out-of-the-sky 'lawn'? No, it can't be the same Minter.

But it is. *Hover Rover* is not a new game — in fact it came out on the Commodore 64 way back in '83.

The game has you borrowing a neighbour's hover mower to cut a series of lawns. You've barely started cutting your first lawn when the neighbour decides he wants his mower back. Then begins the

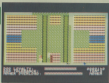
chase, you rocketing around the lawns, flower beds and hedges with the neighbour in hot pursuit.

If you go too berserk with the mower, it overheats and cuts out, leaving a hiatus in your manicuring exploits and it has cooled.

Should you send your mower ploughing across one of the many flowerbeds, an angry gardener joins in the pursuit.

One way of leading off pursuers is to set Rover, your faithful dog, on to them.

The gardener and Rover, sensitive souls, will never cross a flower bed unless you have slashed a path through it. Not so the neighbour, who will trample anything in his desire to recover the mower. It pays to play the vandal to keep



the edge on them. You have three lives and 16 gardens to conquer. Therefore, you get the lot again at a faster speed. You can begin on any of the first eight lawns you like and have a one- or two-player game.

The view of the action is from directly overhead which, although it now looks a bit dated, is cleverly done.

Music is jaunty rendition

of "In an English Country Garden" and several effects are excellent. *Hover Rover* offers many an enjoyable, fast-action bout of daily fun. Should be top of your shopping list.

Bob Chappell

Sound	4
Graphics	4
Playability	4
Value for money	10
Overall	4

Breaking out

Program: *Arkanoid*
Price: £3.95 (inc VAT) plus
Supplier: Imagine 6 Central
Street, Manchester M2
6AS
Tel: 061-822 8222

WHO would have thought that the game of '81 would be a relative of the legendary program *Breakout*?

Well, Imagine thinks it has a winner with its latest release *Arkanoid*. It looks like *Breakout* but has many hidden surprises.

Imagine has already converted the original arcade version of *Arkanoid* as to other computers including the ST with considerable success but I'm sorry to say that the *Arkanoid* 8 bit version is well below average.

The game has a very simple but fun — you control a ball in the form of a short tube. This must be used to keep a bouncing ball from reaching the base of the screen. The ball must then be ricocheted among a

mass of coloured bricks, breaking down the wall until all are destroyed and then you go on to the next level. I know it sounds exactly the same as *Breakout* but there are nice additions to make it more fun.

Each level has a different pattern of bricks and various bricks need more than one hit to remove. Some have coloured, one-hit-needed capsules hidden behind them and as soon as you destroy one the capsule appears and falls down for you to catch.

Each capsule has a different colour, identifying label and different effects. Catching a new capsule will negate the operation of any previously caught capsules.

The best capsule in most cases is the L for Laser. Your ball turns into a double laser which can blast the bricks. The instructions do say that a D capsule exists — breaking the ball in to three — but I never got one.



Released at intervals through slots at the top of the screen are aliens that cause great confusion between you and the ball. If the ball collides and sits on alien the ball can rebound in any direction.

There are 32 screens to work through before the climax confrontation with the Dimension Changer, whoever or whatever that is.

Arkanoid can be played by one or two players and the ball is controlled by either paddle, joystick or the keyboard.

I have seen and played the ST version and this makes me feel even more

gratifying of the 8 bit version.

The game lacks in graphics, the colours clash making the game at times impossible to see, there is no music and it seems to give capsules out by the dozen making each level too easy to complete.

I feel that a lot more could have been done especially with such an easy programming task as *Breakout*.

Richard Vasser

Sound	4
Graphics	4
Playability	4
Value for money	7
Overall	4

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LOTS of pictures have dropped into our mailbox since last month's Palette, including some of the demonstration pictures from Red Hat's Technicolour Dream software illustrated here.

If you would like to see your masterpieces in print, send them to: Palette, Atari User, Europa House, 88 Chester Road, Hazel Grove, Stockport SK7 9NR.



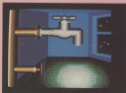
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SPECIAL FX



In this new series we'll delve deep into the underpinning areas of your Atari computer. FX will give you some insight into what can be achieved by using a little imagination and harnessing the many hardware functions available.

We start off this month with a machine code routine that sends player missile graphics down the screen. This shows how it is possible to change the player missile graphic (PMG) X positions as the electron beam moves down the screen. Both a Basic version and the machine code source program are given.

Type in the Basic listing, save it and RUN it. A breakdown of how it works is given in Table 1. After a short pause the screen will display diagonal lines and stars moving across the screen.

Note that there are only four PMGs on the screen. How is this done? Well, let's look at the assembly listing.

Most of the work is done between lines 490 to 590. The X positions of each sprite are taken from location 26, which is increased every vertical blank (every time a TV frame is displayed). Then the positions are altered by the angle value, and the new PMG coordinates are set after waiting for the horizontal sync (HTSYNC) signal.

This procedure of changing the X-positions is continued until the value of the vertical counter (VCOUNT) reaches 128.

This indicates that the electron beam is near the base of the screen and nearly ready to re-display a new frame. Location 26 is increased by the Operating System during the vblank period, which gives a new position for the PMGs to start from.

Don't worry if you don't understand

RICHARD VANNER shows how to produce amazing displays with your micro

how the machine-code works, because the Basic program has been written so that you can use the code in your own programs.

You could try altering the two angle variables ANGLE1 and ANGLE2 or change the widths of the player missiles and the data stored within them.

Unfortunately, when you change graphics mode the PMG area becomes corrupted, so make sure you're in the correct mode when you

use the routines in your own programs.

Another limitation in the program is the fact that it spends all its time changing positions and checking for the Start key. To overcome this problem you must use a feature called the Display List Interrupt (DLI).

Next month we'll look at how to put up a DLI and give you designs that will split sprites and colours which will run independent of your Basic programs.

80-100	Sets up 16 of space for PMGs and sets up A8 which holds the machine code.
110-180	Tells the ANTIC chip-enable PMGs and sets the player address pointers.
190-240	Clears all player graphics memory.
250-300	Fills each player with some form of data. You can change this to your own requirements.
310-340	Copies machine code data into A8.
350	Sets ANGLE1 and ANGLE2 to 0 and 75 respectively. Try changing these to various values. Low values for lines and high values for star type effects.
370-400	Sets player widths. Values poked here can be 0 or 2 normal, 1 double or 3 for quadruple size.
410-440	Prints a message on to the screen.
450	Calls the machine code that is stored in A8 with the two parameters ANGLE1 and ANGLE2.
460	Ends the program.
2000-2400	Holds the data for the machine code.

Table 1: Breakdown of the Basic program

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Independent User Group

OVER the past few months we've been looking at facilities provided by the Central Input/Output System — or CIO. You should now be familiar with the way that the operating system uses CIO to pass data to and from the various peripherals, and how you can use those same CIO handlers from within your own programs.

One of its most powerful and useful facilities is to supply a common protocol for data transfer. This allows a program to send or receive bytes of data without knowing anything about the hardware device it is accessing.

This makes it very easy to add new drivers to the existing set, and the OS allows plenty of space in the Handler Address Table for just such a purpose.

The most complex driver that you are likely to come across is the disc operating system for Dos as it is better known, and over the next couple of months I'll be showing you in more detail how it works.

There are many different types of Dos available, but the most common is the well known Atari Dos 2.5. This has been expanded recently to give us Dos 2.5, but the main principles of operation are exactly the same.

Various other manufacturers have produced their own Dos software but most of them use the same basic disc format. Many also add their own special facilities, but for the moment we'll concentrate on the standard Dos 2.00.5 format.

The first thing to realize is that a disc drive differs from most other peripherals in that it is a random access device — it can read and write data at various different positions on the disc under software control.

While a cassette must be set for record OR playback by the user, a disc is perfectly capable of being written to or read from whenever the computer requires. This opens up the possibility of transferring data between files on a single disc, or changing the data contained within one file — both of which are impossible when using tape.

Any Dos must therefore provide a number of operations. It must allow many different files to be stored and accessed on each disc and these must be capable of being read or updated and then deleted again when they are finished. There should also be a set of housekeeping routines for such tasks as copying files, altering the names of files, making new or backup discs and so on.

The disc drive is actually only cap-

A close look at Atari Dos

Part 6 of Andre Willey's series on the Atari's input/output facilities

able of five very simple operations. The first is to format a blank disc. This effectively partitions the new disc into 120 separate blocks of data known as sectors (see Figure 1).

Each of these is 128 bytes long so a full disc can store 92,160 bytes (26K). The 1050 drive is also capable of formatting in a special enhanced density mode which contains 1440 sectors instead of 720 thus giving a total capacity of 184,320 bytes (180K).

The next three operations that the drive can perform are Write Sector, Write Sector with Key(s) and Read Sector. These allow you to store or retrieve new data into any sector. Finally the drive can also list the computer know its current status and provide information about the last

Turn to Page 82 ▶

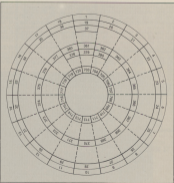


Figure 1. Sectors on a single density Dos 2.5 disc

operation is completed and the type of disc in the drive.

In addition, you may recall from Len Goldberg's series on autobooting that the OS is only capable of a very simple boot operation - that of loading a set of consecutive sectors from the start of whichever disc is in drive one when the power is turned on.

All this leaves us with a picture which is a far cry from the all-singing Dos specifications outlined earlier. If all the computer can do is manipulate these sectors containing just 128 bytes, how can Dos ever do all those clever tasks we are by now used to?

Perhaps now you understand why I stated that Dos is probably the most complex - and largest - of the device drivers. It's also why Atari decided to load it in from the disc at power-up time rather than permanently use up an extra 10k of memory space that would be completely wasted as far as tape users were concerned. The whole of the original OS only took up 10k, so incorporating Dos as well would have doubled the non-space required.

The very first Atari Dos (Dos1) would you believe? loaded this entire 10k block of machine code into memory in one go, thus reducing start work space in Basic to a meagre 20k on a 48k machine.

It was quickly realized, however, that not all that program code was needed all of the time. When programming in Basic all that you require are the new Open/Close file and data transfer routines, plus a few **RD** commands for other functions. Certainly

there is no point in wasting the extra memory taken up by the menu system which is only needed occasionally.

Dos 2.0 splits this software into two parts. Part one, contained in the **DOS.SYS** file, is the actual 5k disc handler routine used by DIO. Part two, the 5k **DUP.SYS** file which is only loaded when you type **DOS**, contains all the menu facilities such as duplicate disc and copy files (See Figure 11).

The routines contained in the **DOS.SYS** file allow the user to do all the things we require of a disc system without concerning ourselves with which sectors are being used. Dos works out which sectors it will have to use for which files, and all we need worry about are filenames and the bytes of data contained in them.

You may have noticed a slight discrepancy in what I've said so far. If the file **DOS.SYS** tells the computer how to treat sectors as separate files, how does the **DOS.SYS** file ever manage to load itself into memory? Well, the simple answer is that it doesn't!

The first three sectors of a Dos format disc are reserved for a special bootstrap loader capable of loading and running the **DOS.SYS** file itself. These sectors load at 5780 via the normal disc autoboot method and are also responsible for setting up the **DOSINI**, **DOSVIC**, **MEMDISC** and **HATABD** pointers.

These allow Dos to set within the CIO environment, and prevent it from being overwritten by any other software (such as your Basic program. In

addition this code will be run again whenever System Reset is pressed in order to reinitialise the disc handlers.

Once the boot process is finished you will see the familiar **READY** prompt from Basic. If you type **PRINT PRINT** you will get a result of 32,128 bytes - or about 32k. Without Dos this figure would be 37,800, so Dos has in fact taken up 5,672 bytes of memory.

This doesn't include the disc utilities menu, which is only loaded from the **DUP.SYS** file when you type **DOS**. This uses up an extra 5k of memory, which will, of course, wipe out any Basic program you might be working on. To avoid this, you can set up a file called **MEM.SAV** on your Dos disc.

When this is present, the first 5k of your program space is saved into this file as soon as you type **DOS**. Then, when you have finished with the utilities menu and you enter **Alt** to return to Basic, the contents of the **MEM.SAV** file are copied back into memory and your program is instant once again.

At this point it's worth mentioning one of the major differences between Dos 2.0 and Dos 2.5 - the ramdisk. As you will know if you use a 1300E, Dos 2.5 allows you to use that extra 84k of banked memory as a second disc drive. It also stores **DUP.SYS** and **MEM.SAV** on the ramdisk which means that there is no appreciable delay while the save/load operation takes place.

If you don't have a 128k machine and must use a normal floppy disc for the **MEM.SAV** file it takes a little over 20 seconds before the menu appears. Without **MEM.SAV** this is reduced to just seven seconds, so many people react to simply **SAVING** their programs before typing **DOS**.

To understand the disc system a little better, let's look at the way the

```

DOS OPERATING SYSTEM 2.0 VERSION 02/85
COPYRIGHT 1984 ATARI CORP.

  DIR  DIRECTORY          I.  FORMAT  DISK
  RMV  REMOVE FILE      A.  DUPLICATE DISK
  COPY  COPY FILE       L.  SHOW  LOGS
  DELETE FILE DEL      L.  SHOW  LOGS
  REMOVE FILE          TH.  RMV  BY ADDRESS
  LOG  FILE            M.  SHOWS  MEM 300
  DELETE FILE         O.  SHOWS  FILE
  WRITE 005 FILES     P.  FORMAT  SINGLE
  
```

SELECT ITEM OR **ENTER** FOR MENU

System	Contents
1.5	Boot Information
4-389	Free for files
580	VTDC
581-585	Directory Information
589-715	Free for files
720	Not available from Dos

Figure 11. Dos sector map for single density Dos 2.0 disc

computer uses those 720 for 1640 sectors to store your programs.

Figures 11 and 12 show the disc format for a Dos 2.0 disc in single or

Turn to Page 54

TECHNOLOGY SO ADVANCED ...

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- 100 titles - 520K expansion
- 100 titles - 520K expansion
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- 100 titles - 520K expansion
- 100 titles - 520K expansion
- 100 titles - 520K expansion

OPTIONAL SYSTEM

- 100 titles - 520K expansion
- 100 titles - 520K expansion
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Sectors	Contents
1-9	Boot information
10-268	Free for files
269	VTOC
269-268	Directory information
269-1023	Free for files
1024-1848	Not available from Dos

Figure 30: Disc sector map for enhanced density 5.25 disks

enhanced density. The first three sectors are always used for the boot information. These may not be used for file storage, even if you don't actually have a DOS.SYS file on that particular disc.

There are three other types of sector on the disc - directory sectors, file data sectors and the Volume Table of Contents (VTOC).

The directory information is contained in eight sectors near the middle of the disc (sectors 381 to 388). It is here that all of the file names are stored, plus any other information about the files such as length, starting sector, status and so on.

Each entry is 16 bytes long, so every sector can contain details of up to eight files - giving a maximum of 64 files per disc.

Just prior to the directory sectors comes the VTOC sector, numbered 389. This is probably the most important sector on the disc because it holds the table of free space which is referred to each time you want to write any information to the disc.

As each sector is filled up, Dos looks at the VTOC to find the next available unused sector. When this sector has been allocated to a file it is removed from the VTOC free list and marked as being unavailable. Only when you delete a file from the disc are those sectors marked as again being free.

The rest of the sectors on the disc are available for storing the files themselves, with the exceptions of sector 720 on a single density disc and sectors 1024 to 1848 in the case of enhanced density discs.

When Dos 2.0 was first developed, the software authors wrote their brand new system to use all 728 disc sectors, numbering them from 0 to 719. The

hardware designers of the old 810 disc drive, however, programmed the unit to respond to a sector numbering system using numbers from 1 to 728 - most unusual in computer terms. Hence Dos 2.0 couldn't use sector 720 and the hardware couldn't use sector 269.

On a 1040 sector enhanced density disc, sector 720 is used just like any other but in this case the last few sectors can't be accessed because of a limitation of the 18-bit file sector numbering system used by Dos 2.0 which was never designed to go beyond 1024 - This means you lose 17 sectors at the end of each disc.

Why Atari designed the 1056 to use this unusual system of 1040 512-byte sectors, when the established norm for data storage capacity was by then to use just 728 512-byte sectors, no one is quite sure - but the upshot of it all is that you lose about 26 of space from every enhanced density disc.

Next time we'll continue looking into the disc system and see how it stores and keeps track of all of your files and data. See you then.

The truth about TELEX

How much does it cost to go on Telex?

You could go the conventional way and buy a dedicated Telex machine. The cheapest will cost you £1,304 (inc VAT), the latest £2,975 (inc VAT). You will also need a separate telephone line, costing £101 to install, plus £408 a year rental. That's a total outlay over the first year of a minimum of £2,809. (All prices include VAT.)

Or you could do what most and more Atari users are doing - use your Atari to double as a Telex machine. And just use your ordinary telephone!

How do I turn my Atari into a Telex machine?

All you need is a modem and appropriate communications software (see the advertisements in this issue), a telephone, and a subscription to international Telex. In fact, Telex is just one of a growing number of services available to Atari users on Macintosh. With Macintosh you can also use the news, as it happens, go shopping, create your own closed user group, send telemessages and electronic mail right round the world, download file repositories, propagate directly into your network... and much more.

But why use Telex?

Because it's a standard means of instant communication between business. Today there are 150,000 Telex machines in use in Britain - and more than 2 million there are worldwide. It's good to immediately speed up business communications - and it's quick as using the phone but far more efficient, because you have a hard copy of every "transmission" for your records.

But there's a big bonus you get when you use international Telex that the conventional way doesn't offer.

With Macintosh you don't have to be in your office to send or receive Telex messages. You can just as easily use your computer at home (or even a portable) - so now you can check whether there are any Telex messages waiting for you - anywhere, anytime. Here's this for your business efficiency!

Know the facts? See Page 8

Program to suit the 1029 printer

I AM considering buying Mini Office II but would like a few points clarified. Would my Atari 1029 printer work with this particular program as most of the other utilities I own totally ignore this printer.

Also will the communications program operate using split baud rates and if it will not can you please explain what baud rates are available to me? — A. F. Sharp, Teesside.

Mini Office II supports the Atari 1029 printer throughout the entire package as well as allowing the use of all known compatible printers.

The package allows you to create graphic images of all forms of graphs on your Atari 1029 printer as well as working perfectly with the other modules of Mini Office II.

In regard to your other query, the communications package does not allow split baud rates but does offer 300, 600, and 1200 baud, which facilitates most of the modems on the market for Atari computers.

Replacing keys

WWTY reference to a letter in the July 1987 issue of Atari User concerning the moving of the Pause key on a 1010 tape recorder and replacing

a broken key with it. I recently did the same thing to my 1010 tape recorder and I replaced the broken key with the Pause key.

I then found that Silica Step actually sell replacement keys for this recorder. I sent off for two keys and received the keys very promptly for a price of £7.92 which included VAT, postage and packing. Silica Step can be contacted on 07 308 1111. — Kevin Kingsnorth, Banbury.

Buying a disc drive

I OWN an Atari 800K1 and tape recorder and am now considering buying a disc drive. I am unsure about what I get when I buy one, which Dos is the best to buy and how to use it. What sort of further comments will I get and do I need to load this Dos every time I use my drive? — W. Golding, Liverpool.

When you buy an Atari 1050 disc drive you will get a power pack, serial IO lead and discs. On one of these discs you will find Dos 3 which is not the best of the

Dos files available but is probably adequate for your needs.

When working from Basic you must load your computer with Dos first or you will not be able to save any programs to disc once you have written them.

You do not always have to load Dos. When you load most games you simply use the game disc.

You receive a comprehensive list of commands on your screen when you load Dos, allowing you to format discs, copy Dos discs and generally edit and manipulate files from one disc to another.

As to which is the best Dos, all have very similar command options but you will find that Dos 3.5 is the most friendly and easy to use.

Software problems

MY friend has recently bought a new Atari 1040ST computer and it comes with a built-in mouse. This has a connector that looks the same as the joystick one on my Atari 800K2. Does this mean that I can use the

mouse on my old Atari? — D. Redmond, Harrogate, N. Yorks.

The connection is the same on both mouse and joystick and you will find that the mouse produces a value in location \$A018 (00100 hex) when you move it. The problem is that no software is yet available which recognises the values output by the mouse.

Music on call

THIS may seem a very simple question, but is it possible to play normal music through the Atari 1010 tape recorder and also is it possible to run the recorder on and off via Basic without using the CLDMS or CSAMS commands?

The answer is varied when I tried to write a program to play some Christmas carols and found that I couldn't get the timing of the record channels so I gave up in desperation.

Then I wondered if it was possible to play and control music through the recorder and so solve my problem. — S. Burton, London.

Yes, it is possible to play music through your 1010 tape recorder but the sound will come through the TV speaker and may sound a little distorted depending on the age and quality of the speaker inside your TV.

The way that this is accomplished will answer your second query as well, it is possible to control the recorder from Basic but it is hardly ever documented in manuals. To turn it on you simply type POKE \$A018,02 then press Return.

If you put a music tape in,

Turn to Page 60

Connecting up to MicroLink

I OWN an Atari 800K2, disc drive and printer and wish to expand my system to include a modem. I was wondering if I joined MicroLink would I be able to have it charged directly to me instead of to my parents as the phone bill.

My other problem is that my system is in a converted shed and the phone is on the ground floor. Would the modem and the phone have

to be side by side? — M. Broadbent, West Yorkshire.

The only charge on your phone bill will be the cost of the telephone calls to the MicroLink computer. MicroLink charges are billed to you separately and payment is by a direct debit from your bank account.

To work out how much you would owe your parents for the use of the phone, the MicroLink bill specifies the

connect time to the system at both peak time and off-peak times. You will, therefore, be able to calculate the total phone call charges. Because your system is in the attic, it will be necessary for you to get an extension from the telephone socket downstairs to a socket in the attic. It is possible to buy such extensions from most electronics shops.

press. Play on the recorder and turn the volume on your TV up you will hear the music. If you want to turn it off type FORD 54818.80 then press Return. By including this in your programs you can have exciting music without the effort of programming it.

Software checkmate

IN a recent item in the June issue of Atari User I stated that CDS Software claims that their chess program is the best 3D chess program for the 8 bit Atari. I would like to point out that Chessmaster 2000 from Software Country has been around much longer so I feel that the claim is invalid. — **Len Felt, Sandealand.**

Atari on tape

COULD you please tell me how the Atari micro writes information to the tape recorder. This point is of particular interest to me after reading your excellent series and I would like to

ATARI USER Mailbag

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

The address to write to is

**Mailbag Editor
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Hazel Grove
Stockport SK7 9NY**

know more on the technical side of how it is done. Also, what is the Foley chip that is often mentioned in articles. — **A. J. T. Buckton, Manchester.**

● The way that the Atari writes information to the tape recorder is in fixed length blocks of 800 fixed (physical bytes). Then a serial transmission is used to read or write data to the recorder.

The speed chip inside your micro handles any data streams coming into or out of your Atari in a set order. I start bit (space), 8 data bits 10 space, 1 mark, then one stop bit (mark).

Your sound chip sends or receives a byte by least sig-

nificant bit first. The recorded block is 132 bytes long and is broken down into marker characters for measurement of speed followed by a control byte then by 128 data bytes and finally a checksum byte.

The chip that you have heard referred to as Foley is in fact the sound chip and was given this name when the machine was first built.

This chip was new and is not available in any other micro and like the other new chips inside the micro such as Antic and OTM was given a name. The Foley chip also creates all the sound outputs that are available from Basic allowing you to obtain superb sound simply.

Taxman's warning

IN THE article "Check up on the taxman" published in the June issue of Atari User there were some errors.

Overall it would be unwise for your readers to rely on the accuracy of the machine for checking their PAYE tax deductions. For the majority the machine will be in error by *percent* only, but for those whose taxable pay averages over about £240 per week, the error could be quite large. — **G. G. Lawton, Island Revenue.**

Wrong listings?

I READ your magazine every month and find it very interesting. But whenever I type in one of your listings it never works, so I skip it and type it checking every character and they still never work. So I have come to the conclusion that none of 2000 work and that your listings are all printed wrong.

Could you please explain how the sound channels work. — **G. Gallina, Pitts.**

● All the listings are taken directly from working programs and they are checked before we publish them so that they are correct. The problem is that even a small typing error will stop them working.

Take a lot of care when you type them in and make use of the Get It Right program that we published in the August 1985 issue of Atari User. This program will help you in your efforts, correct your typing errors and get a working program.

There are many complex ways of producing sound on Atari home computers, but it nearly always comes back to the Basic sound command. This takes the form of SOUND (1,10,10,10) and the numbers shown can

Adapting an Apple drive

I RECENTLY acquired a pair of Apple IIe disc drives which my son had scrapped. When I tried to plug them into my 80088 I found that these appear to be no socket for it to fit in. On the back of the disc drive there is a 20 way ribbon cable and a label giving a warning — remove the cable only in the Apple II interface card. I have one of these, and now know that the drives are single side, double density, 40 track, 80 sectors per inch.

Inside the drive there is a disc analogue card, so can you please explain to me

why I cannot use these drives on my micro. What modifications would I need to make and would I need to use the interface card? If so how would I connect to my 80088. Would I also need a separate power supply as the drives take their power supply from the computer, and when connected should commercial software run on this drive? — **J. A. Oatham, Essex.**

● The disc drives on the Apple II computers are rather different from most other drives as they use a lot of electronic interfacing.

This is why the interface card must be bought to use with the Apple II.

Unfortunately an awful lot of work on the electronics would have to be done to make it compatible with an Atari computer. It would probably not be worth the trouble when you could sell the drives and put the money towards a fully compatible Atari 1050 disc drive.

You would get Dos, and the correct lead and a power supply and you would have no problems running any of the commercial software available.

be changed to any other number within the parameters of the SOUND statement.

The first number indicates which sound channel you wish to use in the range 0 to 3 and the second number indicates the rate you want to use. This can range from 0 to 255, giving you a lot of variety.

The third number indicates the duration level of the note with the number 00 indicating a pure note. This number can range from 0 to 14 in even numbers only.

Finally the fourth number indicates the volume level of the note and this ranges from 0 to 15 with 15 being the loudest. By experimenting with this command you will be able to create some very interesting sound effects, and if you refer to the five lines section of this issue of Atari User you will find a program that will turn your computer into an electronic organ.

Adding a modem

I AM interested in adding a modem to my Atari 800 setup so that I can access MicroLink as advertised in Atari User. However, I am not clear exactly what sort I need and what additional software and interfaces will be required. Can I access Protext through MicroLink? — Chris Reed, Milton, Keynes.

■ Adding a modem to your system is not as expensive as many people think and can be very useful.

There are several available for you to choose from. Prices range from £180 for a manual modem to a few hundred pounds for ones which will dial the MicroLink number for you automatically.

You will also need an RS232 interface box or a lead to connect your Atari 800 to directly to a modem. You will also require a communi-

cations program.

Unfortunately you cannot access Protext through MicroLink at present, but it may be possible in the future although no definite date has been set.

Holiday tips

YOUR readers may be interested in an idea I recently used to help me enjoy my holiday better. One of the things I dislike most is writing postcards, so I used Atari Office to help.

Before I departed I set up a database file of my friends' names and used the label printer to print them out on sticky labels. Then I printed out an equal number of labels with the following text on them:

Hello, a great time was had by all, your family enjoyed your visit and we hope you had a great trip too. Love all the family, etc.

It was then just a matter of using two stickers and a stamp to the cards, deleting the appropriate words and signing them. I hope this time saving idea will enable your readers to enjoy their holidays rather than waste their writing cards. And when it comes to Christmas, I've got the names on file ready to address the envelopes of the cards. — Ian Jones, Cleved.

Converter converted

G. W. TSON'S Ave-line converter to hexadecimal converter in the May issue of Atari User is great. However, rather than entering it as (255) (255) numbers, I thought adding (255) at the end of line 20 makes the routine more useful.

Since typing in Dave White's Field Area the March issue of Atari User

I've finally been able to get near my Atari for my wife playing on the bandit. It's a great program, and if she paid me what she's lost I could probably afford an XE by now.

Finally, in the mass formatter by Colin Faggot in the June issue of Atari User, the bar is hidden in line 2 by POKE 255,0. I suggest POKE 255,15 in line 8 to inhibit the cursor in the window when an error message is displayed. You seem to have used POKE 255,0 on these five lines.

Support missing

IN the May issue of Atari User, when my son tore away packets, there was a letter from someone who had sent for something from Commodore Support UK, advertised in your magazine. They had not received it.

I also sent for something from them costing £39.99.

We have been trying to contact them since August 1985. Although we asked for help of consumer services all we got was promises.

After letters sent by our solicitor there was still no answer, so we applied for a court summons. We were given a judgement against the Laneson of Commodore Support UK.

The solicitor has told us that there is no one or any group at 153 Parkside Street. — Mrs. M. G. Sanderson, Greenhorns, Rotherham, Yorks.

Mass formatter

WHEN I received the June 1987 issue of Atari User I got very great enjoyment out of reading it. I would like to say it is one of the best issues I have read since its start.

The only problem I came

across was in the Five Lines Mass Converter program.

In lines 3 and 8 the string showed three brackets which are not on the keyboard.

They are meant to be the clear screen character (CHR\$(125)) which is obtained by pressing Escape+Control+Clear. — A. S. O'Neill, Hants.

Display lists

I HAVE had an Atari 8000, for two years and would like to know what a display list is? I know it has something to do with the graphics mode but that seems to be the limit of my knowledge on the subject. — B. Wain, Didsbury, Manchester.

■ The display list is a series of numbers that describes the way in which the graphics chip — Arbus — must display the screen. The address pointer to where the display list begins is at location 960-961 (C5C0-C5C1). The July to December 1985 issues of Atari User contained a comprehensive guide to the subject.

Cursor flashing

I WAS delighted to see my cursor flashing routine printed in the Five Lines section of the June issue of Atari User.

Unfortunately I have to admit there is a bug in the code as printed, which results in cassette users not having the promised against system resets as mentioned in the text. The program does work for disc users.

The fix is to replace the seventh number in the data on line 20 to 149 by 103. Line 20 should now read:

```
20 DATA 194,160,4,1,1,1,128,
19,149,103,160,128,10,11,1
41,14,1,160,100
```

— B.M. Black, Preston, Lancs.

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– Anthony Ginn, writing about the Atari ST version in the May 1988 issue of the Atari User

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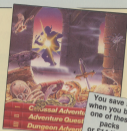
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