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Page 6 Publishing's

NEW

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The Resource for the ATARI CLASSIC and the ATARI ST

Issue 82 - January/February 1988

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This issue's

Thanks

Lee Ellingham puts it all together and fills up the gaps for the real thanks go to the following who made this issue possible

Sandy Ellingham who takes care of all the office work, advertising and mail order

For their contributions this issue

- David Bowerstock
- John Doolan
- John Peckitt
- David Burgess
- Donald A Thomas Jr.
- Dean Garryghly
- James Markwick
- Ann O'Driscoll
- Justin Wilson
- Paul Bowerstock
- John Doolan
- Pete Gorman
- Bill Wood
- Paul Bradley
- John Hall
- Alan Miller
- Deanna Pevack

APOLOGIES

I was still extremely poor in acknowledging contributions and I apologise to everyone who has sent me to and/or through it but given through the magazine. The job will be done to reply to everyone in time but the time machine is still off. If you have not heard I thank you and keep watching the mag, you might be surprised.

HOW IT'S DONE

PAGE 6 shows just what you can do with your Atari. NEW ATARI USER has always been created entirely with Atari equipment, initially on the XL but more lately with a Mega ST and other stuff, since we've got the Atari hardware makes a Mega ST31 equivalent to \$450, \$300 US version, Super 32MB Hard Disk, a 800 Keypad II, Cinema 1200 pixels, 3rdly 1200000 version. I have a couple of other systems, this machine, 800 Keypad system, Personal software used to format and then Atari Publisher 2.0. Other software includes Barren, Hercules, Turbo Pascal and various custom screen programs on the XL/XL2. Issues released on XL 200 (XL) are transferred across to the ST by SMARTLINK. Programs are installed on the XL and passed on directly by pointing to the corresponding completed. All replies relating to these will be printed and you can deal with New Atari Hardware. Each page is copied directly from film frames to a 800 Keypad II which produces finished pages exactly as you see them. All that is left to do then is fit the layout and photos together and print. Well, it's not quite as easy as that but you get the idea

Inspiration

I can't remember when the inspiration came when I first started this issue back in February but during the work in which this issue completed I was listening mostly to ... Celtic Dawn. Yes, I know it is not my normal fare but I had a letter from me at Christmas and when wandering into Our Place was intrigued to see that the new Celtic Dawn CD had the name from Think on it and I had a listen. It was surprisingly like something Steps or Charwell might do and so I took the plunge. Apart from one track which I have to skip every time I have been quite taken by the album, even especially if the start with Barbara Streisand Barbara Streisand? I must be getting old!

CONTRIBUTIONS

Without contributions from its readers, NEW ATARI USER would not be possible. PAGE 6 welcomes and encourages its readers to submit articles, programmes and reviews for publication. Programmes must be submitted on disk or cassette, articles should whenever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it!

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Page 6's New Atari User

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'The Magazine for the
Dedicated Atari User'

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CONTENTS

Issue 83 - Jan/Feb 1995

REGULARS

EDITORIAL	4
NEWS	5
MAILBAG	6
DISK BONUS	17
SPACE FIGHTER	
THE TIPSTER	26
CLASSIC PD ZONE	37
THE ACCESSORY SHOP	41
and PD LIBRARY	41
ST PD ROUNDUP	44
CONTACT	IBC

PROGRAMMING

OBJET D'ART	10
Take a new approach to programming	
NEWTON'S SQUARE ROOT	16

FEATURES

DED YOU HEAR ANYONE SAY GOODBYE?	20
What really happened in Atari's last days	
ATARI AT THE MOVIES	26
Bidding for Oscar nominations?	
ROCKE REVISITED	31
A more comprehensive guide	
COMPUTER INTELLIGENCE	34
The emergence of language programs	
JOURNEY INTO CYBERSPACE	49
Emulating the Atari 8-bit on a PC	

REVIEWS

AMS VIDEO	48
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Editorial

Almost we are back with a new issue and a new year. 1997 was a nightmare year for many personal reasons and I hope that this coming year will be better - a lot better!

The major problem last year in getting issues of *NAU* together was simply lack of time. A few years ago we could rely on the magazine and The Accessory Shop to make a bit of money to pay the bills but in the past eighteen months it has been only just paid for itself with nothing to spare. This made it essential to find other ways to make a living and in 1996 I began doing craft fairs selling items that I make from different types of wood. As 1997 approached we decided to give this a go big time and in looking craft fairs for the relatively every weekend in the following year. Although this meant having to produce stock every week I was sure that there would be times when I would catch up and could spare a week or so for a new issue of the magazine. I didn't work like that!

Because craft fairs are so expensive to do (sometimes over £100 a stall!) I was under pressure each week to ensure that we had enough goods to sell each weekend. This meant that I was out in the shed from about nine in the morning till eight at night on Monday to Wednesday. Thursday was a 'working' day in which I needed the morning to start the process and was often up past midnight to finish off. Friday, in theory, was my day off but in practice was spent finishing off last month's things before the weekend's craft fair. This was often in some far flung place and so an often didn't even make it home on Saturday. Thus the week would begin again. Occasionally I did have some spare time but things that I could not avoid then sprang up like my mother dying and having to spend almost a week being the car to get it through the MOT. That was what spoiled this issue. I actually did most of the work on this one back in September and only needed three or four days to finish it but then I had to do the same job I couldn't do the craft fairs and after that there simply wasn't one spare day until Christmas. It gets better in the run up to Christmas with the chance to make up for some of the losses earlier in the year. If I was making a fortune at this craft business I could afford to take a break now and then but it isn't like that with a constant pressure to try and make sure that next week's fair makes up for the bad one last week. I can just about manage a living out of it.

This year I hope things will be different. In planning our craft fairs we have deliberately left a few weekends every few weeks so that I have a full week and the weekend in which to do a new issue of the mag. Hopefully this will get us back on our regular and intended, bi-monthly schedule. In between these times, however, I will be working seven days a week with little, or no, time to spend preparing for the next issue. It will all have to be crammed into that one week. This is where I need your help. On the contents page you will see a copy deadline for the next issue. If you intend to send in a contribution, or if you write regularly, please ensure that it reaches me by this date. I will not have time to request you send me the files. Even better would be to send stuff well in advance. Do five or three columns or a couple of articles so that I don't have to worry about covering issues. You have no idea what sort of vital files it is knowing that I have plenty of contributions to be had! If you do not usually contribute then you may help by covering your subscription as quickly as possible so that I don't have to worry about writing reminders or be concerned about how many copies of the next issue I need. It makes a big difference to know that readers are sticking with us and every payment that comes in spurs me on to creating the mag. contributors. I have said before that there is no need to worry about future issues, when the time comes I will give you notice so that you don't waste your money.

I am doing my best this year to get back on track, giving up six potential money-earning craft fairs in July magazine to you. Please do your best to help me out in the ways outlined above. If you buy a few more CD disks this year that will be a great help in making up some money I might lose at the craft fairs. It's going to be tough but I am sure that we can do it together.

Les Elingham

GOOD NEWS AND BAD NEWS

NOSAUG NO MORE ...

Stuart Murray has finally decided to call it a day with issue 21 of *FUTURA* issued in October of last year.

After a good number of years supporting the Atari community with a fine disk magazine Stuart has found that increasing work commitments and producing a regular issue of *Futura* didn't go hand in hand. It's upon time now to going to be taken up enjoying all the Atari Classic software he has accumulated over the years - software he has finally had the time to play!

Stuart is not abandoning the Atari scene and may well contribute the occasional article to *NAU* in the future.

BUT FUTURA STILL AVAILABLE

Although no future issues of *FUTURA* are planned, Stuart Murray has given us permission to include all past issues in the *PAGE 6 LIBRARY*. If you have missed an issue or two, or indeed have not partaken of the delights of *FUTURA*, you can now get back issues from The Accessory Shop at regular prices. Check out the regular order forms and update your collection.

NEW ATARI USER/PAGE 6 BACK ISSUES

Due to lack of storage space we have had a major sort out of back issues and now have only a very few left. All issues from issue 11 up to date are still available (except issues 22 and 20) but we have no issue or *ATARI COMPASS* copies of the earlier issues and only around TWENTY copies of the same recent ones. If you want them, check the Order Form over for they will soon be gone forever.

VIDEO GAME CLASSICS

If you still have an Atari 2600 or 7800 then there is a shop in the States that might just have some software you have never seen before. Frank Polinsky puts out an occasional catalogue of some very interesting ROM cartridges for various Video Game systems that includes a disc rack for the 2600, 7800 and 3200.

Perhaps more interesting to most of our readers is that he also has 15 ROMs listed for the Atari 400/800. Most of these seem to be Atari's old software in like Commodore, Mincle Command and Pole Position but he also has *Archie*, *Block*, *Bigman*, *Qix* and *Pitfall* of the *Jelly* listed. The ROMs are \$14.99 each with \$3 overseas postage for the first item and \$2 per item thereafter. Payment has to be made by International Money Order as he does not seem to take credit cards.

Perhaps the best bet is to go in touch and ask for a copy of his latest catalogue. Contact Frank M Polinsky, P.O. Box 95422, 9th Fl, 18233, USA. The phone number listed is (415) 764-5241, evenings only 5pm to 9pm Eastern Standard Time. You need to add a 001 prefix from the UK and the UK time equivalent is 9pm to 1pm.

Frank is also interested in buying or trading old PCB cards, so if you have any get in touch, it could be better than taking them down the Car Boot sale!

Mailbag



This issue's
Mailbag
conducted by
Les Ellingham

PC CONNECTION

We start this issue's Mailbag with a note of support and criticism from *It's About Us* of Bradford who says: "It is surprising that there have not been any letters to Mailbag because I write before Christmas (1990) about the programming of PCs and the letter has not been published and I have not had an acknowledgment. Perhaps it went astray."

We need some new ideas if we are to keep *NAU* in print and I thought that *PC's* might be one possibility. Currently *PC's* are the province of *PC's* which is a pity because the 8-bit computers are quite capable of programming form. Several articles are written in Electronics magazines for clocks, keyboard controllers etc. but you have to have a PC. Also, if the technical information is to be obtained, the disks sup-

plied cost 1.44 Mb which rules out the simpler (cheap) *PC's*. Had the chance of sending them on an ST, 5M/NAU should realize that a lot of time is spent in compiling information for projects such as the above and it is very disappointing to be ignored! How does that, to be continually informed that 'without your support NAU will cease to be' is adding to retail to injury.

Another way forward is to use an emulator so that Atari programs can be used on a PC. This was mentioned in issue 81 by Richard Carr and I have also been testing it out. Where are the articles about this very exciting prospect? Like Richard I would be pleased to exchange notes about emulators with anyone who is interested.

Although I have a very capable PC, I still prefer my 8-bit for letter writing. I am writing this letter using WRITE which was published in *NAU* some time ago. WRITE does not open our printing blank sheets when printing and it is not necessary to print the number of sheets. The program stops when all the text has been printed.

I have done some work on a PC to Atari interface which currently will transfer files from the PC to the Atari but not the other way round. This

had to be abandoned due to my wife's illness and my brother's death, however there seems to be some interest so I will contact an owner as possible.

As a final note to your readers, this issue found my two newsletters useful and what about the Electronic program? Your readers do not deserve Lark's dedication if you do not put your papers.

Y All letters addressed to Mailbag are put straight into a special Mailbag tray on the day they are received and the tray is returned as I start a new issue, so it does look as if your letter was not received. *It's About Us*, very, New ideas are needed, certainly, and new articles and new programs but I do have difficulty in judging just how much interest there is in the introduction of Atari and PC. Many of the letters I receive from readers who do not wish to cancel their subscriptions state that they have bought a PC and disposed of their Atari equipment. I very seldom get letters from readers to tell me that they have bought a PC and kept their Atari. Perhaps a few more people should write. We will touch upon the PC/Atari connection from time to time - in fact much of John Dawson's column this issue reviews the possibilities of running Atari software on a

PC - but I do need to know how much interest there is. If I fill the magazine with articles that only a dozen people read then it will do more harm than good. Does the possibility of looking up to a PC excite you or bore you? Let us know one way or another.

MICE

Paul Knowley from many districts (at least it should be wrong on 1 tape this with *Printing Projects*) has a couple of questions about a well known computer model:

"Recently I purchased an Atari ST. In issue 76, I saw the bonus disk contained a program to use the mouse. In *Know The Brackets* makes use of a mouse but could you, or any other program, tell me of any other program that could use a mouse on the Atari 8-bit?"

I also know that an IBM mouse can be converted over to be used on an ST or 8-bit. Perhaps you could include the conversions required to do so in future editions, plus comments to control the mouse.

I Well, there's another PC connection already! I have to admit that I never use a mouse on the 8-bit as I've never paid much attention to

what programs might be available. There are people who use a mouse, so let's have some answers from you, even if to say that you have not found any other programs at all.

BACKING UP CARDS

John Hall from Maresfield has three questions to ask: "You have a disk that will transfer files or games to Disk or Cassette. Is there a disk that will transfer video cartridges to Disk? As we all know error and wear does happen. I try not to use my 8000s too often but it would be good if I can transfer them over to disk so there is no risk of the cartridges being for another day."

Recently, when I got my second Atari 8000, I matched a somewhat transfer Star Battle video cassette to disk by using Master Double II. I forget how he did it. Can you or someone out there shine some light on this one please?"

Thirdly, I have some more files with text in data. Can you tell me how this is done because I have tried the store every time and failed."

T Transfer of ROMs to disk

has been done many times in the past but I can't recall whether specially modified drives are needed. There are certainly programs in the Public Domain which claim to do this but I have not tried them out. In the past an article on this sort of thing would not have been published due to the pricing problem but these have changed and there is now a genuine need to back up all sorts of things and a need to share the information we have in the net. Although some software is still available, the chance of finding a replacement copy of most programs is virtually nil, so we all need to know how to safeguard our software investment. Let's have an in-depth article on backing up ROMs and disks. It's one of the few things on the Atari scene that we have not yet covered.

BACK TO BASIC

There's an easy one for someone to answer from Alan Miles in New Zealand. "I have a problem that you may be able to sort out concerning using Machine Language subroutines in BASIC programs. I know how to start them off, but how do you stop them so that BASIC can



take over again. One routine in the 3D STAFFORD.A64-LOG 14.0 don't have the magazine to refer to.)

How does anyone know how to modify the SP551 disk drive so that it can format the second side of disks as my 1080 has done?

↑ As the only way to access the second side of a disk on the 1080 is to flip the disk over and either use a write-protect labelled switch, or cut a notch in the disk, I assume you need help along these lines. (I realize a notch in the disk does not work when the SP551 uses the timing hole on the disk but I would be surprised if that is the case. I want to hear an SP551 drive that it does, fully verified, so I hardly got to know it, but someone out there will save me and should know the answer to this problem. As in the machine code problem, I am sure one of our programming aware readers will provide the answer.

SOME IDEAS

General Remark from Darwin has probably forgotten to write this letter to Mailbag as it was marked on the back of another letter and has only

Just come to light. Sorry, Graeme, let's know how your ideas? I've not done much with my Atari Classics in the past year or so having spent an unusually high amount of time on it just before that - perhaps it's been useful, so I decided to mention a couple of things which other Atari users might be interested in.

For example how about a F8000 monitor? Well, not quite, but you might be surprised that an Atari 1020 monitor with a light sensitive resistor and some suitable software can do just that. Okay the quality really makes it seem way too high, lighting's got to be right, sensor keeps falling off and it's pretty heavy, but by anyone who's interested a photo-resistor of 5 - 500 Ω should do the job even the sensitivity has been dampened down and any extraneous light excluded. To be honest, you'll have to experiment. I could write an article about it but the idea would require too few the software.

Of course, you'll need to connect your resistor across potentiometer pins and write the software to read the data (which the sensor's attached to ... meaning you'll need plus the resulting brightness. Again, it's probably worth to experiment with re-

solution, brightness and so on.

A word of warning, though - a wrong connection to your Atari could prove hazardous to its health and embarrassing things to your printer head in a presentation idea at the best of times. Make sure you know what you are doing - I can't be held liable for any Atari related accidents.

I know the details are a bit vague, but it's just an idea, working ones. Give it a go!

Also, given the copyright discussion going on just now regarding software, couldn't the same be said of books? There must be plenty of Atari text that could go on the Net, if it's not already there - useful but rare stuff like Do Be Atari.

As for the Atari bug game I may be better, again soon, or it may not be for years, with just occasional games of Elektronik, Starwars, NYC and Fox Mountain like Simulacra to hold you, particularly in 2-player mode!

Now that I look this letter over I realize I should have said - processed it, so I'll sign off with an apology to everybody's editing Mailbag this time - sorry!

↑ It's okay, Graeme, thanks for taking the time to write.

FINALLY ... WRITE!

Long time supporter Joel Goodwin writes almost inevitably he received issue 83 and had this to say: "I'd like to open this letter by offering my sympathies to Les in light of his recent loss. Les has always 'been there' for the UK Atari community. I'm sure that has lost many of the letters that he has devoted in Page 6/View Atari User, especially those days when the Atari news is more of a village than a metropolis and it is a lot harder to scrape together a full issue. Now would be the right time to 'be there' for Les. I imagine the pressure would be less if Les had a few more articles or letters to print. I'd like to ask someone to try and write a letter or an article for NAWI, because without contributions the UK's longest running Atari magazine will fold rather than it should. I'm guessing that I'm not the only one who'd like to see the 100th issue!

Koopool has something unique to say or contribute. I'm sure that even your experience on other computers is constant in that on your own Atari would be welcome. Did you enjoy any articles you read? If so, why? Did you not

enjoy any articles? There's plenty of room for feedback in Mailbag. I'm surprised we don't see more. However, I know that a lot of readers don't have much time to spare. Believe me, I really know how little "quality time" is usually available for the Atari computer that often cut for attention in the corner of your front room. A letter won't take long and, as Les has previously stated, it doesn't have to be a work of art, as long as it's got a point behind you. There might be some feasibility here! Ask your handwriting if you're! Oh yes, write it and send it to NAWI.

We can all agree about the price or delays between issues, but View Atari User is put together by, essentially, just two people: Les and Sarah Ellingham. No-one likes to blow their own trumpet, so I'll do it for them. It's no easy task to put together something which looks so professional on a regular basis. If anything, we should be surprised by the fact that we get so much to return for our subscriptions. This isn't First Street. The magazine is only as good as its contributors. If you don't contribute then don't complain. There aren't many Atarians left, if you see NAWI then we have a

John Hull's TOP TEN

BEST GAMES

- 1 F-15 Strike Eagle
- 2 Silent Service
- 3 Gato
- 4 Tank Commander
- 5 Final Legacy
- 6 Battalion Commander
- 7 Star Raiders II
- 8 Rescue on Fractalus
- 9 Zyxax
- 10 Mr Do

real line of communication within the UK Atari community. None of us can stand back and blame others for dwindling support. We can find support!

↑ Many thanks, Joel. No further comment needed.

That's it for this issue. If you have read this far, you know what to do. The address is

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ST16 1DR

OBJET D'ART

Joel Goodwin begins a new series of articles for programmers which will attempt to persuade you to take a whole new approach to programming

1: Old Dogs, New Tricks

Programming can be a pain as much as a joy and even modest projects can involve substantial complexity. Pen and paper are useful allies but sometimes it can take several attempts to break down a difficult problem into a comprehensible programming plan.

This three-part article will introduce you to Object-Oriented Programming (OOP), a technique used extensively in modern software development. OOP handles complexity very well and anyone with a serious interest in programming should certainly read on.

JUST FOLLOWING PROCEDURE

Still readers may know of the programming approach known as "procedural" programming (also referred to as "functional" or "structural" programming). The idea is to break up a program into one or more important subroutines. This makes the program easier to write. We can concentrate on individual sections of our program, test them separately and reuse them in other programs. It avoids the so-called "spaghetti" programming where the program flow intertwines chaotically making debugging and reuse of code very difficult. The procedural approach has been extremely successful and is supported by any language you happen to mention. For example, Basic has `DECLARE` and Turbo Basic has `PROC`. Subroutines work best if you have some way of passing them data so that they are flexible. For example, if we have a "Draw Circle" subroutine, we would like to pass it the centre and radius of the circle we wish to draw. Even if you don't follow procedural program-

ming religiously, it is hard to deny that this approach is fruitful. When some structure dominates a program, the development is faster due to a reduction in complexity. However, procedural programming doesn't go far enough. It is normally difficult to appreciate this without tackling something complex or seeing what is possible through a different approach. I shall try to demonstrate where the procedural approach fails.

WHERE IT GOES WRONG

As we break a program into separate units which can be tested and reused independently, however a situation may arise where several procedures need to be interdependent. If, for example, we had a collection of graphics routines they will need to share data - like "screen size" and "graphics mode number". This is necessary. To completely avoid inter-dependence makes programming a great deal more difficult and could result in a slower loss of efficiency. A line does need to be drawn, though, between how much of this sharing of substantive handlers is good and how much is bad. Too much gets us back to spaghetti programming, simply breaking up the program into subroutines does not solve every programming dilemma. Something more is needed to formalise substantive interdependencies.

Another problem with the procedural approach is that it does not do enough to dissuade the programmer from over-optimisation. A fast program is the primary goal for many programmers but optimisation can have serious consequences to be strongly dependent on one another and, even worse, cause several subroutines to reexecute time over. Despite the obvious structural difficulties this introduces,

optimisation is usually very tempting.

Suppose we were writing a game with a monitor and a player moving around the screen. Now we might write a `MONSTER_MOVE` and a `PLAYER_MOVE` routine, with a supporting `PLOT` routine. After a while, it appears that it would be better to write dedicated `MONSTER_MOVE_PLOT` and `PLAYER_MOVE_PLOT` routines, dissolving the idea of a separate `PLOT` routine. This way performance is improved and the program will run faster. This doesn't sound like a bad thing immediately, but look at what we've done. Firstly, we end up writing the `PLOT` routine twice which also causes there to be no such opportunity for errors. Secondly, the resulting `MONSTER/PLAYER` routines are more complicated and will be harder to debug. Previously we could have tested the `PLOT` and `MOVE` routines separately but now larger chunks of code need to be tested. Thirdly, we might find that the game is actually boring with just one monitor and need to add several more. For each routine, we now have to rewrite the `PLOT` routine because we have lost the flexibility offered by maintaining an independent `PLOT` routine. It is better to keep our options open; we may even find that the `PLOT` routine is good enough to use in future programs.

This example highlights the dangers of optimisation and interdependence in general:

- ❖ Longer development time
- ❖ Debugging is more difficult
- ❖ High inflexibility/reusability

Speed should not be the top priority - a working program should be. Actively speed may become an issue, especially when using Basic, but for a fast language or machine language itself, speed should always be a secondary consideration. Modern software development is extremely complex and in another structure in favour of performance is potentially disastrous. Of course, there is

only so much complexity that can be implemented on the humble 8-bit Atari but the design methodologies of modern programming can be just as beneficial.

A MATTER OF PERSPECTIVE

Generally, programming is a process which leaves the programmer to think like the computer. Subroutines are a handy way of reducing complexity but the whole thing is still very abstract. It makes little difference to the psychology of the process. People do not think naturally in terms of subroutines.

To demonstrate this, think of the television. It has inputs - power, channel, volume and so on. It has outputs - the screen and the speaker. There is also lots of electronic stuff which we need to know nothing about to operate a television correctly. In fact, if we had to learn about electronics to use a television, we might give up Casablanca altogether and read the latest-Jilly Cooper novel. Or maybe not. The point is that we perceive the world in terms of objects of which we only learn what we need to. To learn about the detailed ins and outs of the television, the

teletext, the dishwasher, or even the molecular composition of foodstuff is normally non-irrelevant.

Now consider an example based totally the Atari. While the programmer might like to think of the screen display as a single entity, the reality of the computer environment is very different. Various resources related to the screen are scattered about the computer memory and behave in different ways. For example, the shadow and hardware colour registers are located in "opposite ends" of the memory and the distinction between the two may not be clear at first. Of course, the screen handler "G" can be used to overcome the graphics capabilities in some extent. This gives the display a strong identity. We can set up a graphics mode and interact with it using a relatively simple interface (using IOCB calls in ML or PLOT/PRINT/LOCATE in BASIC). Through the screen handler, the display looks like a concrete object which has various inputs, outputs and things of stuff going in the background which we are blissfully unaware of.

If we can model the human perception of the world (i.e. in terms of distinct objects) within a programming environment then programming might become a far more natural process. We have now arrived at the concept of Object-Oriented Programming or OOP for short. The emphasis is on objects controlled by the programmer, rather than any structures dictated by the computer.

This idea sounds very natural but to program this way means reversing some of the bad habits of old ways as the tendency to operate ad-hoc methods. OOP also requires a lot of careful planning before going near the computer, while the procedural approach can tempt the programmer to start hacking at the keyboard without thinking out the program first. To properly understand OOP, great reading is required but once you get there you

might realize, like I did, that you've been thinking this way all along.

Four key concepts lie at the heart of the OOP approach: Data Abstraction, Encapsulation, Inheritance and Polymorphism. We'll go through them one by one.

DATA ABSTRACTION

Put simply, data abstraction is the ability to develop new types of variables, which we shall call 'datatypes'. While Atari Basic supports floating point numbers and strings, we could easily come up with some useful ones of our own. As a lot of programs involve screen positions, we might want to create a POSITION datatype which holds both the X and Y coordinates. If you were able to use this new datatype, then all of your subroutines could simply refer to a POSITION variable (say, POSH) instead of X and Y separately. Clearly, more complicated datatypes could be devised. Examples are given in figure 1.

This is not just superfluous packaging; it is a way of enforcing structure. With a language such as Atari Basic, it is convenient to plan a program with datatypes to start even though Basic will not support them. Think of the database RECORD example: all databases are written with this type of structure included but they may not be programmed in a language which can create a RECORD datatype. It doesn't matter - the structure is more important. As far as I am aware, there is only a version of C, C++, which supports data abstraction on the 8-bit Atari.

Before we proceed to the next concept, the distinction between datatype and variable must be made clear. If we consider Atari Basic strings, then STRING is the datatype and AB, BB2 and NBER are all examples of STRING variables. The datatype is the structure, while the variables are actual instances

PLAYER

X
Y
DIRECTION
COLOUR
SHAPE
INITIALISE subroutine
STAND subroutine
WALK subroutine
JUMP subroutine
PLOT subroutine

Figure 2. Basic encapsulation

of the structure.

ENCAPSULATION

Suppose, now, that a datatype could be extended to contain subroutines. Moreover, suppose a datatype could also hide some of its internal data so that only its own subroutines could access it. This is the idea of "encapsulation". Look at figure 2. We have extended the PLAYER datatype to include subroutines which refer to PLAYER variables. This means that if we reused this datatype in another program we would not have to worry about whether it would need adapting: all of the relevant code is "encapsulated" within the datatype.

We can go further than this: look at figure 3.

POINT				
X	Y			
RECORD				
NAME	AGE	ADDRESS	OCCUPATION	
PLAYER				
X	Y	DIRECTION	COLOUR	SHAPE

Figure 1. Examples of datatypes

Now we have divided up the normal structure of the **PLAYER** datatype into a "public" section and a "private" section. The public data/subroutines are available to an external program. The private data/subroutines, however, can only be accessed by the datatype's own subroutines. This means that when we use this datatype, we are automatically barred from using certain data and subroutines. Consequently, we do not need to worry so much about what we should not alter or modify with.

We are no longer dealing with an ordinary datatype; to make the distinction clear, a datatype with encapsulation will be called a **CLASS**. Also, instances of a class will not be called variables - they will be called **OBJECTS**. Now we have reached our original goal, to retain the human perception of individual objects in a programming framework. A programmer's object will contain data and subroutines, private data and subroutines are the abilities/weaknesses which an external program does not need to know about.

INHERITANCE

Suppose we had the **PLAYER** class as shown in figure 3. In a later program, the **PLAYER** class might not be as perfect as it was for the original program. Maybe we'd like to add a

PLAYER	
Public	Private
COLOUR	X
SHAPE	Y
INITIALISE subroutine	DIRECTION
STAND subroutine	PLOTT subroutine
WALK subroutine	
JUMP subroutine	

Figure 3. String encapsulation

PLAYERPLUS	
Public	Private
PLAYER object	AMMUNITION
SCORE	
LIVES	
SHOOT subroutine	
RELOAD subroutine	

Figure 4. Extending **PLAYER** by nesting it in a new class

few bits. A **LIVES** counter? A **SHOOT** sub-routine? The difficulty is that classes are intended to be self-contained: to go back and pull the code in pieces to make new subroutines deflates the whole point.

One approach is shown in figure 4. We could simply make a new class **PLAYERPLUS** and put a **PLAYER** object inside it. In this way **PLAYERPLUS** is just like the **PLAYER** class with some bits added on. However, this is structurally clumsy: in order to original elements of **PLAYER** access we have to go through two "inheritance" - once through **PLAYERPLUS**, they again through **PLAYER**.

Figure 5 shows what we really want. We want **PLAYERPLUS** to be nearly **PLAYER** plus some other data/subroutines without having

to re-invent the wheel. The capacity to do this is called "inheritance". **PLAYERPLUS** is said to have inherited data and subroutines from **PLAYER**; such a class is sometimes known as "subclass" of **PLAYER** or a "derived class". Extending old code is natural and safe when done through an inheritance mechanism.

POLYMORPHISM

Some consider a program not to be object-oriented at all unless it implements what is known as "polymorphism". This idea is important when you build a class which is to be extended in the future.

Suppose I had several different **PLAYER** classes in mind, say **RED**, **GREEN** and **BLUE**. Each one has a different **SHOOT** subroutine. What I would do is create a **PLAYER** class with a **SHOOT** subroutine, and arrange it so that any classes that inherit **PLAYER** can have their own **SHOOT** subroutine - they do not necessarily inherit the original. So I go ahead and derive the **RED**, **BLUE** and **GREEN** class-

es from **PLAYER**, giving each one its own **SHOOT** subroutine. Why is this a good thing? Well, when your program tells an object to **SHOOT** it does not need to know whether it is dealing with a **RED**, **BLUE** or **GREEN** object. The correct subroutine would be called automatically. In fact, your whole program could be based on **PLAYER** objects and it would behave correctly when faced with **RED**, **BLUE** or **GREEN** objects. This is an extremely powerful aspect of OOP. You could even go back in this program later and add a new **PLAYER** subclass called **YELLOW** with its own **SHOOT** subroutine - and it would be incorporated without problems!

Within the Atari Operating System comes an excellent example of object-oriented design (including polymorphism) - the Control Input/Output (CIO) mechanism. Many functions are run through CIO, ranging from manipulation of the screen display to interacting with a modem. CIO manages 8 KOCBs (Input/Output Control Block) which act as channels for the CIO operations. An KOCB has a variety of inputs and outputs of its own command number, header address, auxiliary numbers etc. An KOCB can be linked to different handlers (such as C). The effects of a command sent to it are dependent on what handler it is play.

In the CIO example, we can label various elements with OOP terms. The handlers are classes which can be considered to have been derived from some abstract class; the KOCBs are objects of these handler classes. There are many subroutines which each KOCB object recognizes, such as **OPEN**, **READ** or **WRITE**.

PLAYERPLUS	
Public	Private
COLOUR	X
SHAPE	Y
SCORE	DIRECTION
LIVES	AMMUNITION
INITIALISE subroutine	PLOTT subroutine
STAND subroutine	
WALK subroutine	
JUMP subroutine	
SHOOT subroutine	
RELOAD subroutine	

Figure 5. Extending **PLAYER** by inheritance

but, crucially, the effect of each a call depends on which handler class the OOP belongs to - see figure 6. This is a complex system of polymorphism which can be extended further by user-defined handlers.

FINE IN THEORY

What does this all mean when it comes to down to programming? The best way to use OOP is get an OOP language which supports class creation, inheritance and polymorphism. There are many such languages on modern computing platforms. C++ is an extension of the popular low-level language C, which is gaining in own popularity as a widely-used OOP language. Java is receiving a lot of attention currently as it was devised for the purpose of increasing the capabilities of the World Wide Web. Unfortunately, there is no OOP language for the Atari but, as was noted earlier, the importance of OOP is to the structure which the programmer creates.

If we develop a program based on OOP principles then our program will be better for it. For example, if we think of the **PLAYER** class shown in figure 2, we could write our program providing ourselves **NEXT** to reference any of the private data/subroutines. We could put **MOVE** or constants near them to mark them

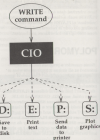


Figure 6. CIO as an example of polymorphism

as private, keeping this kind of structure alive in the planning stage assists that the program supports it implicitly. Hence all such code will be far easier as it can fitted out cleanly with little dependence on the external program. So where do we go from here? I could discuss many more applications in detail based on an OOP structure, but I'm not going to. There is actually a way to create a primitive OOP interface for machine language programming, if you have a means assembler. This is what we shall explore next time, using the MACROS macro assembler. See you then. ☐

DISK BONUS SPACE FIGHTER

A machine code game by John Foksett

An alien race is attacking the Earth and your mission is to defeat the alien fleet and to defend the Earth. You must use your space craft's weapon systems wisely because they all consume fuel which may last for the duration of your battle.

THE WEAPON SYSTEMS....

LASER CANNON The laser cannon is used to destroy the alien fleet and is controlled by using a joystick in part 1, use a joystick with diagonal movement otherwise you will be severely restricted. The laser may be fired using the trigger in the normal way or by using the autofire facility described below.

AUTOFIRE «AUTO» The autofire facility is used to fire the laser automatically when on target and is toggled on/off by pressing the 'W' key.

FORCE FIELD SHIELDS «SHLD» The force field shields are used for protection against the alien fleet and are toggled on/off by pressing the 'I' key. When the shields are in use, space takes on a bluish hue. The shields do not give complete protection against the alien fleet but they greatly reduce the chances of being hit.

ENGINES «ENGN» The engines are toggled on/off by using the 'O' key, but they must be on in order to chase the alien fleet around the stars.

COMMUNICATIONS «COMM» All relevant information is displayed on screen as necessary for a short period of time before being blanked out, but the 'L' key may be pressed at any time to redisplay the last major message shown.

FUEL Displays the amount of fuel remaining which begins at 9999.

HITS Records the number of alien space craft destroyed.

RECEIVING HITS During battle you will receive many hits, some will be major causing damage to your space craft, you may even receive a direct hit. You will be kept informed of all hits received and of any damage inflicted, unless of course your communications have been damaged in which case your communications may be blanked out or may display rubbish.

This great program is the BONUS on this issue's disk. If you are not a disk subscriber you can still obtain a copy for £2.99 from NEW STAFF USERS, P.O. BOX 94, STAFFORD, ST16 1TB. Please make cheques payable to PANGLOSS PUBLISHING or order by telephone with your Visa or Access card on 01785 261183.

NOTE: THE ISSUE DISK OFTEN CONTAINS ADDITIONAL BONUS PROGRAMS NOT MENTIONED IN THE MAGAZINE

DID YOU HEAR ANYONE SAY GOODBYE?

This article was posted on the Internet some eighteen months ago but strangely two readers sent it in to us within a week of each other after the last issue. Perhaps it has only just reached its intended audience? Although much of this is now history, the article gives some fascinating insights into the demise of Atari and reflects the feelings of many of us.

by
Donald A. Thomas Jr.

It is odd to imagine an instruction which was so big and so powerful as Atari once was to have been shut down in recent days. The real amazement for me is that it was all accomplished without a measurable blip from within or outside the gaming industry. I can understand that gamers wanted to push Frog out the door early in the new line. I can appreciate that the classics such as Missile Command and Asteroids do not push 22-bit and 64-bit systems in any technological sense. I know all these things instinctively, but the heart cannot take the truth that the world and the corporate machine knows as Atari could not find an amicable way to coexist.

On Tuesday July 30, 1986, Atari Corporation took each and every share of its company (ATC), swapped them all to a tight bundle and presented them to JTS Corporation, a maker and distributor of hard disk drives. On Wednesday, the shares were traded under the symbol of JTS. Within a few weeks, the remaining staff of Atari that were not dismissed or did not resign, moved to JTS's headquarters in San Jose, California. The three people

were assigned to different areas of the building and all that really remains of the Atari storeroom is a Sears Roebuck warehouse full of second Jaguar and Lynx products.

THE PROMISE OF RICHES

It was only so long ago as mid '86 that Atari executives and staff believed things were finally taking a better turn. Wal-Mart had agreed to place Jaguar game systems in 400 of their Supercenters across the country. Largely based on this promise of new hope and opportunities that open when such deals are made, Atari invested heavily in the product and mechanisms required to serve the Wal-Mart chain. But the philosophical beliefs of the Atari decision makers that great products were best advertised as promotions, got the Wal-Mart deal straight into a tailspin. With money tied up in the product on shelves as well as the costs to distribute them to get there, real money was left to subsidize any marketing with advertising. While parents rushed into stores to get their kids Saturns or Playstations, the line that picked up the Jaguar was abandoned by disappointed children on Christmas Day.

In an effort to salvage the pending Wal-Mart situation, desperate attempts to raise intellectuals across the country were activated. The programs were professionally produced by experts in the intellectual industry and designed to present Atari to new, slightly different offers in different markets. In spite of the relatively low cost of raising intellectuals, the cost to produce them and support them is very high. The results were disappointing. Of the few thousand people who actually placed orders, many of them returned their purchases after the Holidays. The kids wanted what

they saw on TV during the day! They wanted what their friends had! They wanted what the magazines were raving about!

In early 1986, Wal-Mart began returning all remaining inventory of Jaguar products. After reviewing an "advertising allowance" Atari was obligated to accept, the net result: Atari lost out was an overflowing warehouse of inventory in some-crashed boxes and with freely fixed prices and security tags. Unable to find a retailer willing to help distribute the numbers required to stay afloat, Atari eventually downgraded operations and traded any remaining cash to JTS in exchange for a grateful way to exit the industry's back door.

Now that JTS has "absorbed" Atari, it really doesn't know what to do with the bulk of machines Atari hoped to sell. It's difficult to liquidate them. Even at liquidation prices, consumers expect a minimal level of support which JTS has no means to offer. The hundreds of units they receive from consumers that track them down each week are assessed to the best ability of one person, frequently with regard to locating Atari classic favorites for other applications such as handheld games are handled by Mr. John Skorski who was with Atari for over 10 years.

ATARI WAS FIRST

In spite of Nintendo's claim that their newest game system is the first 64-bit game system on the market, Atari Corporation actually introduced the first 64 bit system just before Christmas in 1983. Since Atari couldn't afford to launch the system nationwide, the system was introduced in the New York and San Francisco markets first. Beating the 32-bit systems to the punch (Saturn,PlayStation), Atari enjoyed moderate success with the Jaguar system and managed to lure shadow producers from third-party companies to rep-

PROFITABLE GROWTH

port the system. Unfortunately, programmers grossly underestimated the time required to develop 64-bit games. The jump from 16-bit and 32-bit was wider than anticipated. In addition, Atari was already spread thin financially, but was required to finance almost every title that was in development.

After the initial launch, it took Atari almost a year before an assortment of games began to hit the store shelves. Even then, having missed the '84 Holiday Season, many of the planned titles were de-accelerated to minimize problems caused by missing things too fast. Consumers were not happy and retailers were equally disappointed. The few ads that Atari was able to place in magazines were often starting incorrect release dates because that information changed almost every day although magazines double their issues up to 120 days in advance.

JACK TAKES OVER

It was in 1983 that Warner Communications handed Jack Tramiel the reins of Atari. By this time, Atari was often categorized as a household name, but few householders wanted to spend much money on new software and the system was lacking power. No one wanted to buy new ones. That, combined with Warner's obsessive spending amounted to a steady loss of over \$2 million. Atari was physically spread all over the Silicon Valley with personnel and equipment in literally 80 separate buildings, not considering international offices and manufacturing facilities. Mr. Tramiel took only the home consumer branch of Atari and forced Warner to deal with the arcade divisions separately. Within a few years, Jack took the company public, introduced an innovative new line of affordable 16-bit computers and released the 7800 video game system.

To accomplish these miracles for Atari, Jack

implemented his "business is war" policies. While people who publicly quoted his statements often felt that policy meant being ruthlessly aggressive in the marketplace, the meaning actually had closer ties to Tramiel's experience as a construction camp owner. Of the 60 buildings in Rosewayville, Santa Clara and Milpitas, almost every one of them was completed from Atari's body of facilities. The people, the work, the feelings, the history were fired or liquidated. Those who survived were categorically required to fill in the gaps and while most tried, few actually found a way to successfully do what a decent people believe their job. Stop the manufacture, Jack pressed with an iron thumb. All Poly/Hex meetings were required to be pre-approved by one of a handful of people. "Misaligned" purchases meant unpaid regardless of the urgency that inspired their creation. Employees found themselves spending valuable time trying to find ways around the system to accomplish their jobs. Many of them lost their jobs for bending the rules or never finding a way to make things work. An hourfile as it all sounds, it actually was the only way to protect Atari as a company and give it a chance to survive as it did and did very well.

EUROPE BECKONS

Jack's introduction of the 16-bit computer was initially heavy in the United States but it went extremely well in Europe. Europeans were not accustomed to "affordable" technology and although the Atari computers were not IBM compatible, it didn't matter because people could afford them. Jack's private laugh was that the computers were sold at prices much higher in Europe than Americans were willing to pay. As a result, most of the machines made were being shipped to European destinations to capture the higher margin. This enraged the people of the United

FEARFUL AND CONFUSED

States that had been Atari loyalists. While waiting months for stores to take delivery domestically, international magazines were testing ample supplies. Those in the know within the U.S. became outraged. The remainder never knew Atari was slowly abandoning the value of Atari's name recognition as it became easier and easier to target, since announcing Atari had long fled for bankruptcy.

On a technical level, Atari 16-bit computers were designed beyond their time. For less than \$1,000, consumers could enjoy "real-time" before the phrase was really widely used. The then based working environment provided Windows popularity although the essential attributes of the two environments were very similar. MIDI was built in and became an instant hit in the high-end music industry. Tanks were activated and manipulated with a mouse and the system accepted industry standard peripherals such as printers, modems and disk drives.

A WHOLE NEW WORLD

With all the games that went into the technology of the machines, very little computerized games went into processing and marketing the machines. Mr. Tramiel was the founder of Commodore Business Machines, when he introduced the PET computer in 1977. Jack discovered he didn't have to call a single publisher, instead they all flocked to his door demanding an opportunity to see the product. News magazines, Science journals, Business newsletters, Newspaper reporters, They were all there with a microphone, camera and pen in hand. And they kept coming back. Adding a switch, announcing a new 48 application or signing a new retailer were all big stories the press wanted to handle. Today, a new video game announcement

may generate a request from any of the dozens of gaming magazines for a press release, but a lot of costly work has to be done to assure fair or better coverage. Editorial people are literally swamped with individual news. Samples are mailed regularly to their attention. Parents fly in through the phone lines and e-mail jump up their head drives. It takes a lot to grab their attention.

While Atari retained hopes to be successful with the Jaguar, Atari's marketing people were fighting established standards in the industry with seven handings. Since cartridges (the Jaguar may be primarily a cartridge-based system) were so expensive, editorial people were required to return them before any news could be sent. Editorial people like to assign review projects. In finding cartridges they sent out was not always easy to do. Additionally reviewers love their work because they get to keep what they write about. Regardless, the few magazines willing to cover Atari products were more often turned away because of a lack of programmable cartridges or any number of other subjective factors. In-store signs and posters were sometimes created, but many retail chains charge premiums to manufacturers that want to display them. Some direct mail campaigns were implemented, but Atari often would not allow to keep those things being advertised on schedule. Therefore, the advertisements were published and distributed, but the product was not available.

Clearly, Jack's experience with the world beating a path to the door of a company making a better mousetrap no longer applied. The world had evolved a few times beyond him and he never noticed. The tactics used to successfully sell Commodore computers were simply antiquated notions from the past. Meanwhile, Sony launches the PlayStation with over 8000 titles in marketing funds. Today, the PlayStation is considered the most successful next-generation gaming machine throughout the world. Sony bought the mar-

let, Thomson's Atari never learned how to do that. Actually they could never afford it anyway.

PC POWER

After the 1980s got underway, Europe as well as the rest of the world, discovered that IBM-compatible computers were becoming more powerful and more affordable. The world always did want computers at home, just like in the office and companies like Dell and Gateway exemplified the industry's trend toward home-based office computers. As a result, companies like Commodore, Atari and Next couldn't compete any longer. While the dedicated user base of each of them lets them stand by these computers having to leave the computer market, the inevitable prevailed. Commodore jumped ship. Next changed business goals completely and Atari invented what they had left in the Jaguar game system. Even today, Apple is talking and orienting its goal as Apple was at creating a huge niche for themselves. They focused more heavily on education. Where kids grow up and get jobs, they want business machines. IBM was always the business standard.

UNANSWERED QUESTIONS

When we examine the history of Atari, an appreciation can grow for how many locations and people were a part of the game over the years. Chuck E. Cheese Pizza was started by Atari's founder Mr. Nolan Bushnell. Apple Computer was born in a garage by ex-Atari employees. Attention was drawn by Joe Atari programmers. The list goes on and on.
But for some pathetic reason Atari's final

days came and went with no tribute, no farewell and no dignified burials. Why? Where did all the talent go? Where are all the authors? Where are all the readers? Where are the unpublished games and where are the originals of those that were? Why has no company stepped forward to adopt the remaining attributes Atari has to offer? Where are the readers? What has happened to all the properties and sites? Where are the databases, warranty cards, promotional items, notes on meetings, unanswered mail? Who owns P.O. Box 91807? Who goes to work to Atari's old offices? Where do businessmen have their systems fixed? Who is publishing new games? Who will sell Atari products? Why are there still a lot of people talking about Atari on-line?

I'm an ex-Atari employee and proud to have been. I'm still an Atari devotee and proud to be. To me, these are questions which all deserve an answer, but who will ask them? The best people to ask these questions are those who have exposure to the public. If you believe Atari left us without saying goodbye, contact Debbie at debbie@wdr.com. If you REALLY believe, email this article to 50 of your friends to e-mail. AND if you REALLY, REALLY believe, mail a few to newspapers or other mass programs. A letter in your own words would be great!
I'd spend money for a thorough reprint on Atari. Wouldn't you?
Wouldn't it at least be nice to say "Goodbye"?

Don Thomson

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The author has given permission for this article to appear in *Next Atari Issue*. It is printed in its original form except for the paragraph headings which have been added to improve presentation in the printed form. Our thanks go to Jeff Goodwin and Steven Durbin for sporting it on the Internet and creating it in

Features and OPINIONS

ATARI AT THE MOVIES

by Dean Garraghty

I have been keeping an eye out, for my Atari 8-bitte popping up in films and TV, and I've found a FEW, but I'm sure there must be MANY more. Back in the early 80's when I had computers in general most all I had, film makers wanting a computer in the background or as part of the main film had to choose from a range of computers, and sometimes they chose the Atari 8-bit. Here is my list of films in which an Atari 8-bit appears.

D.A.R.Y.L. (1983) - You ALL should know about this one. An 800XL appears more than the asteroid! The 800XL is used extensively, and Mike Posters appears for quite some time also. Later in the film a large bank of TV's show a myriad of Atari games being played.

VIDEOPHONE (1982) - Not easy to spot this one, but if you have a chance to see this film, keep a look out when they are in the small TV station lab. On a bench at the back of the room is an 808 with an 815 disk drive next to it.

AIRPLANE! (1980) - A bit of a cheat this one, because the computer itself doesn't appear, but a game does. Near the end when they are in the air traffic control center, one of the screens is showing *Basketball* being played, which is one of the Atari's very first cartridges from 1979.

As far as TV programmes are concerned, it is extremely difficult to check because it is almost impossible to get to see any programmes of this sort of vintage.

We'll have to wait for repeats and all keep a look out! However, I have spotted an Atari 8-bit in a couple of programmes.

TRIUMPH OF THE NERDS (1990) Channel 4 - I hope you all watched this fascinating look at the history of computers. Although many computers featured in this, the Atari never did. However, if you look closely there is an 860 with an 815 disk drive on one of the shelves in the garage!

4 COMPUTER BUFFS (1985) Channel 4 - This short-lived computer programme from Channel 4 was an attempt to compete against the excellent and much missed "Micro Livv" from BBC2. An 800XL with programmer appeared on the first programme, because the guy had created new opening titles for the programme using an Atari. Anybody know who this guy was?

As I said earlier, there must be LOADS more examples of the Atari popping up in films and TV. As a guess, I would say they are likely to be exclusively American, because most British films and TV programmes just used the old BBC Micro. They are also likely to have been made between 1979 and 1986/87. Now here's the challenge: keep a look out and make a note of any films or TV programmes that have an Atari 8-bit in them somewhere, even if it's just part of the background. If you find any please send them directly to me and I'll produce an updated article for a future issue.

Dean Garraghty, 82 Thomson Ave,
Bally, Droichead, D94 0N1

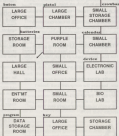
HEY, HEY!

It's The TIPSTER

This issue is given over to James Madrick's help on a couple of Public Domain adventures you will find in the **PAGE 6** library. If you have not played these games before, or indeed never tried an adventure, now is the time to boot up the disk and have a go. When you get hooked, go on to play some more and send us in your own hints, tips and maps.

OPERATION SABOTAGE

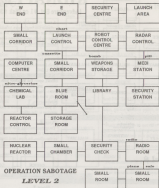
LEVEL 1



Here are some hints for playing this PD adventure together with a map to find your way around.

There are a few ways to finish this game - you can fail, you can escape from the spaceship with or without the secret plans, and you can do any of the previous and blow the spaceship up. The following hints should help you escape with maximum points:

- 1. **DO NOT** press the red button in the bio lab - it will release an alien monster.
- 2. Blast the control computer in the robot control centre - it will stop the patrol attacks on you. Don't



OPERATION SABOTAGE LEVEL 2

shoot the computer in the nuclear reactor - you will destroy the base, but you won't escape.

- 1. Open the large desk in the office to get the electronic control button - it can be used to open the safe, where you will find the secret plans.
- 2. The silver pill will increase your hit points.
- 3. Open the desk in launch control to get the launch system cassette - you will need it to open the launchgate when you need to

1. The fastest and safest way to destroy the base is to insert the computer destruction program (ask helpfully in the data storage room in the computer centre).

- 2. To move between levels, press the blue button in the purple room, and the red button in the blue room.
- 3. Use the crowbar to open the cabinet in the large chamber to get a laser pistol.

MORE TIPSTER

KIDNAPPED

(Adventure Set, #1 or Disk #30)

Level 9



A very enjoyable game this one, very suitable for beginners to adventures. Here are some pointers for each floor, to help you escape from the office building. Check out the map!

Floor 9

At the blackout, provided you have the keys (found in the cabinet), just use the verb LIGHT.

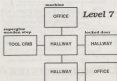
In the lift, climb chair (taken from the office), open the trapdoor with the long brown, and soon you will find some wires. Tape the wires (after the power-cut), then get into the lift and push the button.

If you need a key, have a look at the window in the office.

Floor 8

Drag the parrotfish with the sleeping pill, and use one to get rid of the dog. Listen in the office, be quiet, and then go rope.

Level 8



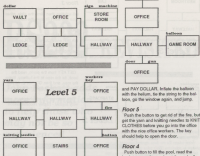
Floor 7

Put the thick copper sheet in the key making machine - this should help you open the door. Close shop before you go visit, however.

Floor 6

Get the gun and go to the ledge. Move along to the next office. Steer the kidnapper with the gun, and take the dollar. Go to the vending machine.

Level 6



Level 4

Level 5

and PAY DOLLAR. Inside the bathroom with the button, tie the string to the toilet, go to the window again, and jump.

Floor 5

Push the button to get rid of the fire, but get the yarn and knitting needles to KNOT CLOTHES before you go into the office with the nice office workers. The key should help to open the door.

Floor 4

Push button to fill the pool, read the book to cross the pool, get the umbrella, open the umbrella, and jump when in the dining room.



Floor 3

Drink the fluid to open the door. Drink the solution, then climb the slide, where you won't fit down the hole.

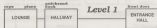
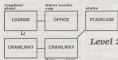
Floor 2

GET the PAPER out, then GET WATER and POUR WATER on the plant - then should help you get through the trapdoor. Play the hole in the usual way, then GO ROPE.

Floor 1

GET KEY from the plants, read the book, tie the rope in the hallway, throw the rope, and then GO ROPE. At you have to do that is open the door.

This is a very "text" adventure, and very logical - highly recommended for those starting out in adventures.



HELP!

Finally a couple of questions from John Hall up on Microbyte. Firstly he asks to MEMORANDUM, at the end of the game it says "Always Use Old App Warning (SCAFED) Because as this will give you historical copy to MEMORANDUM". That is what it says on my game, or should it say "Memorandum"? Well, John, the old Tipster seems to remember that there was originally going to be a Memorandum II but the original was omitted because it took a long, long time to update and during that time the author decided to change the name to Second City, it's the same reason.

John also wants help with FLIGHT SIMULATOR II. He has the disk and was having difficulties

but we managed and he went right on how to play. I doubt if we can solve the problem with a few hints and tips on these pages but if anyone has a spare manual they could send it direct to John Hall at 43, France Road, Sevenoaks, Kent, TN39 3JQ, telephone 7650 442.

That's all for this column, John. DON'T FORGET - we still need contributions for future columns so please please write something these days and send it to

**THE TIPSTER
NEW ATARI USER
P.O. BOX 54
STAFFORD
ST16 1DR**

Hardware PROJECTS

RS232 REVISITED

John Foskett adds more information to help those who may not be so experienced

DAMAGE

Damage most certainly CAN be done to your computer despite what the article states. We are all human beings and we all make mistakes. It may only take ONE mistake, a wrong connection, a wrongly positioned component and that's it, damage done. Check and double check the main, even for the experienced.

CUTTING THE TRACKS

You should NEVER use a file to cut the copper tracks of Veroboard as the article states, that is positively dangerous, the blade could easily slip. There is a special tool available for this purpose from Maplin, a "Spot Face Cutter" made PLASIC. Alternatively a twist drill bit of about 4mm could be used by hand to effectively remove the appropriate holes on the copper side of the board and therefore cutting the tracks.

As an experienced constructor of electronic projects, I was afraid to say that I was not impressed by the article by Edward Baker describing how to build an RS232 interface in issue 91 of New Atari User. I was even less impressed with the circuit diagrams if that's what it's supposed to be on the Atk Cosmos disk (D10), the diagram is about the most in-depth possible load of chip logic I'd ever seen before, but I must congratulate Edward for overwriting the Robin Cole's circuit diagrams. Because of Edward's obvious lack of electronic experience, the article left a lot to be desired and hopefully the following information will go some way towards helping the lesser experienced constructor successfully complete this project.

CONNECTING WIRE

The jumper connections on Veroboard should be made with an insulated single strand 1.0/0.6 wire which is available from Maplin and is referred to as "Bell Wire". The wire is available in various colours and is supplied in 10m packs or 100m rolls. For this project the colour of the wire is unimportant, but for chosen white (or particular colour) for which the Maplin codes are, 1 for pink 3L040 and 100m red F4025. If you wish to use a different colour other than white then you may choose from black, blue, green, orange, red or yellow for which the Maplin codes will obviously be different. Note that you only need a short length of wire for this project as an all-rod of telephone cable could be stripped and the individual wires used. You often find odd bits of wire lying around after telephone engineers have worked on the road side connection boxes so why buy when you can scrounge?

ELECTROLYTIC CAPACITORS

Note that the 220µF axial electrolytic capacitors (Maplin code P3020) are rated at 25V DC (50V AC) and not 25V as stated on the original circuit diagram. Note also that these electrolytic capacitors are polarised and must be connected the right way round and note that it is the NEGATIVE connection that is marked with a minus sign which may confuse an inexperienced constructor who may be looking for a plus sign.

If you wish, the 100µF capacitor (Maplin code

P3027) on the original circuit diagram may be replaced with another 220µF capacitor. This capacitor is being used to decouple the supply line and its actual value is less important. This would enable you to use five 220µF capacitors instead of four 220µF and one 100µF which would mean less chance of error during construction by picking up and using the wrong one. (Automating component values in this way is normal practice in industry in order to reduce production errors, etc.

INTEGRATED CIRCUITS

Note that the MAX232 IC is referred to in the Maplin catalogue as MAX232C-PE which may confuse an inexperienced constructor. The main part of this code is of course MAX232, the CPE part of the code refers to packaging codes etc.

When inserting the MAX232 IC into its socket and the relay into its socket, be careful not to bend the pins since they will be weakened when straightened and could easily break off altogether. Also if a pin or several pins get bent underneath the component body, then the lead may not be obvious when the unit fails to work. When handling ICs, it is good practice NOT to touch the pins with your fingers, but any other bodily part for that matter since static electricity generated by your body can damage them. This is particularly important when handling CMOS ICs and note that the MAX232 uses CMOS technology. If necessary, to avoid the possibility of damage, there is a special IC instruction leaf available from Maplin, code P329C. And finally always insert ICs into their sockets last of all, after

all the wiring has been completed and checked and do make sure that the ICs are fitted the right way round even if the sockets are not.

SOLDERING

The article explains the principle of soldering quite well but I would advise the inexperienced constructor to practice first with an off-cut of veroboard. Do not overheat components by taking too long when soldering because the heat can do damage. Prolonged heat can damage the Veroboard by lifting the copper tracks to lift off and break away. The secret of good soldering is to make a joint quickly with a hot iron and using a limited amount of solder. The inexperienced constructor tends to use far too much solder which on Veroboard can easily result in a blob of solder covering several tracks. Once adjacent tracks get obscured by a blob of solder, it can be very difficult to remove so take care and practice first.

When soldering the flexible wires from the I/O cable to the Veroboard, strip about 3-4mm of insulation from the end of the wires, twist the conductors and tin them as described in the article. Pass the twisted conductors through the appropriate holes from the top side of the Veroboard and solder to the tracks underneath.

A good tip when soldering flexible wire to Veroboard is to pass the individual wires (insulation as well) through an adjacent hole before soldering the wire into position. It is important to pass the wires through adjacent holes in the same track in which the wire is to be soldered or to an unused track to prevent

the possibility of short circuits. This provides good mechanical strength for the wires and prevents any strain from being applied to the soldered joints should the wires accidentally get pulled. To clarify the principle, it could be seen as inserting the wires through the holes.

BITS AND BOBS

The original diagram shows two 3K resistors and references to D7H and D8H (incorrectly stated as D80H) which may be ignored since they are not required for this project. Incidentally D7H and D8H refer to the right hand connections of the resistors (view on the diagram) which has been omitted. The diagrams also shows optional connections to pins 5 (IC1S TTL) and 9 (IC1S 555) of the MAX232, these may also be ignored.

THE CIRCUIT

Regarding the circuit of the interface itself, there is no need to use a relay to isolate the interface from other equipment (such as disk drives), all you really need is a diode (a 1N4148 will suffice) in series with pin 15 of the MAX232 which is the output of the data receiver. The object of the diode (and of course the relay) is to prevent data from being fed into the data receiver's output terminal because, basically, you cannot drive an output. Why use an expensive double pole relay costing about £5 to isolate a single line when you could use a cheaper single pole relay, but then why use a relay at all when a diode will do which will only cost a few pence? ■

COMPUTER INTELLIGENCE

*Ann O'Driscoll
continues her
exploration into the
thinking power of
computers with an
exploration of
language programs*

Way back in the early days of computing, British computer scientist Alan Turing proposed a test designed to see if computers were intelligent. In the test, a person would sit in a room and type questions into a computer terminal. As answers to the questions appeared on his screen, the questioner would try to guess whether they were typed by another human or generated by a computer. If the person could not work out whether he or she was talking to a machine or

a computer then we would have to say that the computer was "intelligent". As it turned out, computers weren't able to pass the Turing Test, but we have come on they get better and better, particularly if the range of discussion subjects was limited at the outset.

This article looks at some programs involved in getting computers to understand ordinary everyday words typed in at the keyboard.

TRANSLATION PROGRAMS

Work on language understanding by computers began as far back as the 1950s, when computers first began to work more or less reliably. One famous cold war project involved creating a program that could translate scientific papers from Russian to English and English to Russian. The idea was straightforward enough - a parsing program would analyse sentences and identify each word according to whether it was a noun, a verb, and so on; the word would then be looked up in a translation dictionary and substituted. However, scientists finally abandoned the

project after spending 15 years and millions of dollars on research. It seems that the machine translator couldn't compete with people in terms of accuracy - on average, only about 80% of the text was processed correctly!

TALKING TO THE COMPUTER

The problem with the machine translation program was that it was written at a time when knowledge about many aspects of language was in its infancy. For instance, it wasn't until the 1970s that serious consideration was given to structure according to opposed to word meaning to the analysis of language. It is obvious to us now of course that the meaning of a sentence is more than the sum of the meaning of its words - for instance, a "Russian bird" is not the same as a "bird Russian".

As time went on, a few programs began to emerge which acknowledged that there was more to language than just a big vocabulary. For instance, a few question answering systems in the 1960s recognised that you'd have to get your questions in some sort of context if you expected the computer to understand them.

One early attempt along these lines was an American program called *Shardul*, developed at MIT, which could search its database to answer questions like "where did such and such play in July?". The program worked because words like "play" and "team" had only one meaning, while words like "such" and "in" were ignored. Another program called *Student* solved similar problems input by the user by working along the same principles.

THE COMPUTER ANSWERS BACK

The next logical step was to get the computer to appear to talk back by means of the screen display. In the mid 1960s, Joseph Weizenbaum created a famous program called *Eliza* which seemed to do just that. The program had a language analyzer and a script. Different scripts would allow *Eliza* to play different conversational roles. By far the most well known script was one in which *Eliza* played the role of a psychoanalyst. *Eliza* was programmed to understand key words like mother, father. It could identify categories for certain words and repeat some of the "patient's" words in its responses. It could also repeat sentences from earlier in the conversation, and use stock phrases like "Can you say that again?". While all of these tricks gave the impression of understanding, *Eliza* couldn't communicate in any real sense.

A huge number of language programs similar to *Eliza* were subsequently produced. Like *Eliza*, these could all produce grammatically correct text without really understanding it. One of the most famous was a program called *Bacter* - the first computer ever to write a book! The title of the book - *The Pollockman's Head in Mid-Constantine* - gives us a strong hint that the content is pure nonsense, even if the word order is beautiful!

CONVERSATION WITH COMMUNICATION

One attempt to get computers to really communicate was a system begun in the early

COMPUTER

1976 by a person called Terry Winograd. Called *Shardis*, this is in a different league altogether to *Eliza* and company, although probably not as much fun for the casual computer user who wants his or her computer to "talk back". *Shardis*'s set up consisted of a the surface (the "table"), a box and a number of blocks of varying shapes, sizes and colors. An imaginary robot arm could pick up a block and move it to another position, while a graphics display would show the current state of the blocks on the screen. The "robot" would respond to instructions (e.g. "Pick up the red block"), answer questions about the blocks or attend its past actions. The program could also be told simple facts which were added to its store of knowledge, and it had a whole bank of information about rules for the blocks (the lexicon, a grammar model for put on a cube, but not vice versa). *Shardis* was important from a language understanding point of view because it could cope with words like "that", "this" or "it" and it could respond to a wide range of requests. It was, of course, limited to its own little mini world of colored blocks.

WHAT ABOUT
THE ATARI?

Of course, anyone who has ever played *DOS* or any of brilliant adventure games made by people like Level 5 will realize that the Atari can be programmed to accept complex sentence structures and "understand" a huge range of keyboard input on certain keys. There's even a very simple "conventional computer" program called *ANALYST* on one of the early Page 5 Public Domain disks (number 14). While this routine uses input

to a small number of keywords and gives predetermined responses to the questions, it does show how the Atari can be used to simulate conversation. Another program worth looking at, on the same disk, is called *MAULER*. This asks you to input a number of nouns, adjectives, and so on and builds up stories using the words you lay in. This idea can easily be used in conversational programs to get the computer to appear to know what you're talking about. Producing random strings of grammatically correct sentences can also be done easily using *DATS* statements. Just get the Atari to read nouns, verbs, prepositions and so on according to some random number and then string them all together to a sentence. A typing tutor program called "Flinthe Flingers" which was published several years ago in Page 5 (issue 20 of the magazine) shows this technique in action.

CONCLUSION

It seems then, that where it comes to language understanding, we can use a number of simple tricks to get the Atari to seem intelligent - the next article expands this idea further with a single program to get the Atari to appear to learn as it's going along! In the meantime, anyone who feels this subject interesting might like to check out a book called *Computer Power and Human Reason* (1979, W.H. Freeman & Co.). This was written by Joseph Weizenbaum, the author of the *ELIZA* program. Apparently many people took *Eliza* seriously and believed that they were actually talking to an analysis. Weizenbaum was displeased by this and wrote the book to show exactly what the program was all about and also to make the case that some things should not be done by computers at all.

The CLASSIC
PD ZONE

by
Austin Hillman

Welcome to The Classic PD Zone Austin! I'm sure it will stop raining soon. In the meantime let us dip into the letter link and see what we can find.

DO IT YOURSELF

HARDWARE UPGRADES (1985) is a double sided collection of articles and programs that was put together by the CHARGE Bulletin Board in 1985. It will assist the more technically minded of you to upgrade the memory of your 600, 512 or 256 computer.

Side one of the disk contains files which, among other things allows you to create a *DOS* compatible *EMM386*, includes information on how to use and configure your system after the modifications is installed, gives you the Assembly code for the construction of a single double density ramdisk or two single density ramdisks and the code for constructing a single density ramdisk which is useful for running software designed to use the 128k in the *EMM386*. There are a number of object code files ready to use which give you the following options: a double-density ramdisk numbered as "D4", two ramdisks, both single density, numbered "D1" and "D4", one single density ramdisk numbered "D4" that stays out of the way of much *DOS* software, one single density ramdisk

numbered "D4" that stays out of the way of much *DOS* software, a double density 500 sector ramdisk called "D4" that will work with *DOS* 2.0 and *EMM386*. You can also set up a *DOS* sector ramdisk with *OptimaDOS* or sector ramdisk drivers set up as you want from menu choices.

To get you started there is a quick basic routine to check out bank selection. Other programs load your ramdisks with files copied off prepared disks automatically and set up *DOS* 2.0 for ramdisk use of the extended memory.

Apart from the first upgrade mentioned above there are details of several other options. Michael Andrews gives instructions on how to upgrade a *EMM386* to 512K while Scott Peterson suggests a much simpler upgrade to *EMM386*. If that is not enough memory for you he goes on to explain how to upgrade to 1270K or more (1986).

Side two of this disk is aimed at owners of the original 600 computer. It contains full instructions by David Byrd, aided by Eric Johnson files, for the construction of a 208K machine. Control of the expanded memory is achieved with the Extended Memory Disk Emulator Operating System, created by H T Tracy.

Other programs include *DOS* 2.0 FD and ramdisk functions. There is a patch program for *MyDOS*, modifications for *Acorn* compatible software, a maintenance, and a pair of copy programs for disk duplication. The last reader or



picture display utility is provided with this disk.

As usual, there is a health warning for those who do not wish to follow these articles: IF IN DOUBT, DON'T DO IT. LEAVE IT TO THE EXPERTS. I am not an expert, and have not attempted any of these modifications, so evaluating this disk is difficult. I'll leave to you to decide if it is useful or not.

THE WIZARD OF AUS

SUPERMAX v8.0 (#3488) by Australian Paul Nicholls is yet another disk operating system, but it is one that lives up to its name. It really is a super DOS. It works with all classic Atari computers from the 400 command and can make good use of extra memory and upgraded disk drives.

It supports single, enhanced, double density and double sided double density (DDDD) formats. It will copy files between different density disks with only one drive. It automatically sets up the largest RAMdisk possible. It supports 1600K compatible 12MS, 15MS, and 32MS RAMdisks and Ados compatible 12MS and 32MS RAMdisks. It will automatically copy files with a .RAM extender to the RAM-disk or you may hold [Esc] while booting to reserve the 1600K banks for programs.

It has about DOS-87S (85 sectors) and SCMP-87S (40 sectors) files to leave maximum space for you. It can restore files which have been deleted or left open. The directory can display all deleted and open files. An

automatic trace and patch facility can recover damaged files. It has a single keystroke menu, no screens are needed. It has color prompts and a concise double column display that lists 48 files at once. A full screen scroll won't wipe out a filename you want to edit as it does in DOS 2.0.

You can use upper and lower case, letters and numbers in filenames. You can adjust the key delay and repeat rate for the 81/33E keyboard. Write with or without verify, toggle direct from the menu. It has a binary form that even saves cartridges. High speed transfers are possible with SUPERMAX, US Doubler, and XPS-1 drives. Slowed sectors are selectable for even higher speed. You may format disks in any density. With DOS-87S and SCMP-87S or DOS-87S only. Copy all 87S files except DOS-87S using wild cards. The trace sector copier copies boot disks and strips empty sectors.

You can format a destination disk during disk copy. Copy sectors and display bad sector numbers. Copy to and from contents using long or short IMG. Display the composition block settings of double density drives. Enter sector numbers and addresses in hexadecimal or decimal. Handle up to eight double density files open concurrently. Handle up to four double density drives plus a RAMdisk. Change file buffers and drive buffers without using FORKs. Copy from DOS 2.0 files using one or two drives and wild cards.

Also included is SUPERREP, a compact boot program which displays a menu of binary files and runs them. SUPERBAS, a compact ALTPROG-87S program which displays a menu of BASIC files and runs them.

NEW PD LIBRARY ADDITIONS

The SUPERDOS disk contains seven files: DOS-87S, SCMP-87S, AUS-87S, SMAX-87S, DOS-87S, ALTPROG-87S, DDDCV-87S. DOS-87S and SCMP-87S is the file management system, and is similar to approximat 250 operations in Atari DOS 2.0 for ease of use.

AUS-87S when loaded gives you another menu and access to the extra functions that are used less often.

SMAX-87S is a special program for running BASIC programs from a menu when DOS is not required.

DDCV-87S is the comprehensive test routine manual which runs to fillers pages. ALTPROG-87S is the routine which prints out the manual. DDDCV-87S is a short description of the changes and new features of the v8.0 upgrade and also contains some hints on using SUPERDOS with an XPS-1, a RAMdisk, or a DD-800.

The loading process differs from that of DOS 2.0 as follows. After 5 sectors have loaded, a test is made for a SUPERMAX, US Doubler, or XPS-1 drive. If one is found, the loading speed is increased. If there is 84K (or more) of memory, or if SCMP is set to "resident", SCMP-87S is loaded. If RAMDISK ENABLE is set ON, the largest available RAMdisk is initialized. If Esc is being held down, the four 1600K memory banks are reserved for your program to use and a smaller RAMdisk is initialized. If a RAMdisk is present, all files on drive one with the extender .RAM are copied to the RAMdisk. The progress of this operation is reported on the screen, so no errors. You may stop this operation by pressing [Break]. ALTPROG-87S (if present) is loaded

and ran.

The SUPERDOS menu can also be called from a program. The most common example of this is typing "DOS" while in BASIC. The following then occurs. A check is made to see if SCMP-87S is present under the OS or at the bottom of memory. If it is found under the OS, it is swapped with the data on the bottom of memory and the SCMP-87S menu appears almost instantly. If it is found at the bottom of memory, the SCMP-87S menu appears instantaneously. If it is not found in RAM, DOS searches for it on drive one. If found, it is loaded. This may destroy part of the program area. If it is not found, you are returned to the calling program.

At the top of the screen is the disk drive Status line. It shows the numbers and densities of the available disk drives. 1 through 4 are disk drives. 5a is the RAMdisk. Any reference to DS: DS: 07: or DS: is directed to the RAMdisk. This provides compatibility with a large variety of programs.

The densities are indicated by initials. Sing is Enhanced, Double, 2 sided/Double format, or 2 sided density. If no density is indicated, the drive is not available. Note that the densities reflect the format of the disk currently installed, not the capability of the drive. The density automatically changes as different disks are accessed.

The screen border colour indicates the type of operation about to be performed. Green means read, red means write, purple means format, yellow means respond to prompt.

Well, that should give you some idea of the capabilities of this great program. Why not try it, you might like it. I know I do.

GONE FISHING

SCANDISK (#287) is a collection of simple tape and disk utilities, together with a few menu programs which were intended to demonstrate the capabilities of the Programmers Utility Pack and Sound FX Designer, which are not on this disk.

The programs are installed on a Memorizer menu program. This is a neat self-replicating menu system for up to ten binary files that do not need BASIC to run. It has just three functions, make a new menu, delete the last entry or load a new entry from a best disk.

The copies available from this menu are varied and include a tape to tape copier which handles one or two load files with short or long record gaps and a single stage tape to disk transfer utility. A single stage disk to tape transfer is also offered. The disk utility program has a sub-menu that offers a disk zipper, a disk formatter, a menu copier, and a hard sector creator. There is also a disk sector changer and editor which comes with some brief documentation. Finally there is a BASIC cassette autoloader program which acts as an autoloader for BASIC programs on tape.

Apart from the utilities you also get some demos and a couple of games. The Merry Xmas demo features a tree decorated with twinkling fairy lights, falling snow, and a swirling musical greeting, but strangely has no music as you might expect. Scotch is a non-scoring, but otherwise working, demo of a vertically scrolling shoot-em-up. You see the flying boat being two deadly alien craft. It's a

good demo. I wonder if the game was ever finished?

The main attraction on this disk has to be Tight Lines, a fully functional game that is a bit different from the ones featuring a fly fishing movement.

You are on the river bank watching the fish come upples on the surface of the water. You must cast your line at the upples, by pressing the joystick forward, in order to hook a fish. When you catch one you must quickly reel it in, by moving the joystick back and forth. If your line is crossed by the passing water in the happyfish house you will lose your hook and your fish if you have caught one. Another house is the jinx landing in the opposite bank waiting to grab your fish from your line, one is big and slow, the other small and fast. You have five hooks with which to catch the highest percentage. The big fish lie on the far bank of course. The only thing I am not so keen on is the music, which can thankfully be silenced by the space bar.

Entertrainer is another game and is the final entry on the menu, but it will not run. I suspect the disk was full up.

RATINGS

HARDWARE UPGRADES (D555)	71%
SUPERDOS v5.0 (#169)	90%
SCANDISK (#287)	60%

I'm sorry about the rain. I hope it did not spoil your enjoyment too much, and that you will be back again next issue. ■

THE ACCESSORY SHOP

NEW PD LIBRARY ADDITIONS

This issue we have a veritable bounty of new PD disks for your enjoyment, the best selection we have had for some time. Enjoy some excellent programs that prove your Atari Classic is very much alive.

D5#133 - JOYRIDE

Another superb drive from Poland, the title of which we haven't seen for a while. If you have bought drives before, you know what is unique in style but some of the effects in this one will blow your mind. The main loading screen shows a set of floating pencils like a starfield above the title and this rotates each time a demo loads. First up is a widely used freeware in its English followed by a "Hot Transit" which has never been done on the Atari Classic before. An atmospheric single line scroll follows but then the background comes alive with a digital juggler taken from the ST for Amiga and the scroll continues, a great combination. A "Hot Landscaper" is next which looks like an automated version of one of those gadgets where you can push your foot against pins to leave a landscape. Three spinning globes with ever changing patterns complete side 1.

Side 2 introduces members of the programming team with a scoring starfield on the left and digitized photos on the right which morph into each other. Detailed details of each of the three programmers appear over the starfield. After this there follows a huge photo jerry shoot of the three of them which is over twice the size of the screen so becomes and scrolls around so you can see it all. What many Atariers have said is the best effect so far on the Atari is the Col Flashes which is like a series of colourwash effects in the centre of the screen which can be altered using

numeric keys. Mighty impressed Next, some flicks the best form of the screen before going on to a set of digitized photos of girls that are subject to all sorts of trick effects. A set of scrolling dots now handle an unscrolling set of 32 moving squares which seem to go right back into the screen - a bit like those Magic Eye pictures. Several more effects follow before the closing greetings and credits. This last is very impressive with a sense of "film stills" of all the demos you have seen.

This is only a couple of years old and there may not be many more of these to come. Give it a view, it really is a cracker.

D5#134 - BOSTERN

Here is one of the best scenic programs available for the Atari Classic. If you have kept up to date with S&W in recent years you will know that Gordon Hooper in Canada successfully used this program for a couple of years to send E-mail using his Atari. If you want to join the Internet revolution (subject to limitations of course) or just communicate with other computers, this could be the program you need. A very easy to use program but extensive documentation is included on Side 2 to tell everything you need to know.

D5#135 - RIF SPARTADOS UTILITIES 1.1

A new set of SpartaDOS utilities sent in by reader Jonathan Hattley. Instead a disk set a utilities include an SDD Search file loader, binary file decompressor, SPS cursor flash utility, Conditional branch file statement, a FVMS utility, File mover, Quick Directory changer, SKEY Keyboard

THE ACCESSORY SHOP

mouse editor and a keyboard mouse and type-ahead buffer system. All of these programs have associated documentation files to explain how to use them. There is even to be something of use here to regular Spectra/600 users.

DS#136 - ATARI CAD

A brand new computer aided design program from John Pooker which, judging from the printed results looks to be a real gem. Although primarily designed for drawing circuit diagrams, the Atari CAD program may be used to draw just about anything at all. The Atari CAD program contains a wide range of electronic symbols, a cross between the good old literature, the British Standard BS3000 recommended symbols and those which look good on the screen and when printed out. To allow for the maximum drawing space, a mode 8 screen has been used with single

line resolution. An information screen is available at most times when using the program, which gives brief details of all the commands available and is accessed by pressing the **HELP** key.

Most of the drawing commands are available as a combination of joystick and keyboard controls and there are numerous green electronic symbols to help you on your way. To help you along there are eight drawing files included which show a couple of single transistor receivers, a coil for single valve receiver, an ELIVE replacement power supply, a multivibrator with LED driver, a 4 way sequential lamp-flasher, a sound triggered body coil and a square wave generator. Also included are 15 master blank drawing files each with a special feature around which wiring layout drawings may be produced. Examples are included to show how these may be used. The program is too comprehensive to

plain more fully here but full documentation for its use is included on the disk. If you have more designed, or needed, a circuit diagram then this program is a must. It can also be used for many similar design and layout applications due the great deal of care and thought that has gone into its design. This is probably the best CAD program ever written for the Atari Classic.

FUTURA

With the final issue of Futura being recently released, Stuart Murray has given permission for all issues of Futura to be included in the Page 8 Library. The first 6 issues are already available and the remainder are listed below. All Futura issues are £1.50 except those noted which are double disk issues.

- DS#72 - FUTURA 1
- DS#75 - FUTURA 2
- DS#76 - FUTURA 3
- DS#79 - FUTURA 4
- DS#87 - FUTURA 5
- DS#88 - FUTURA 6
- DS#127 - FUTURA 7
- DS#136 - FUTURA 8
- DS#139 - FUTURA 9
- DS#140 - FUTURA 10
- DS#141 - FUTURA 11
- DS#142 - FUTURA 12
- DS#143 - FUTURA 13
- DS#144 - FUTURA 14
- DS#145 - FUTURA 15
- DS#146 - FUTURA 16
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ST PUBLIC DOMAIN



ROUNDUP

For the next few issues the ST PD review panel has been pleased to go on Italy. I was supposed to start last issue but owing to commitments and unfortunately timing I was unable to do so.

This issue I have the privilege of reviewing three titles from the results of Page 8. On the menu today, two Lloyd Christmas dialogues! First we start with an early 1990s magazine by coders PULANSI called the Overdrive magazine. Slightly following this delivery is a generous serving of science fiction with *Sold Show*. Finally to top it off we have a few leading PD sample acquisition ST, *Hexastar 1.5* in a rich classic sense. So without further ado to the red kitchen.....

⊕ = score out of 10

by
**Daniel
Baverstock**

OVERDRIVE MEGADEMO (ST556)

In these anything goes appearing from the thought of Lloyd Christmas led to a huge boaster at the bottom of a bank infested with bad started piranha? Well, surprisingly there is, *Knaps!* A decent magazine springs to mind. Don Christmas surely my glorious appetite? Read on.....

The advantage with a magazine is that it at least guarantees you a few gems amongst all that programming. Overdrive boasts 39 demos although only 12 worked, one deciding that my ST was too grand for it, while the others presented me with blank screens. Nevertheless out of the 18 available there are some decent ones to be seen.

The majority of the demos are one screen test scrolls with additional graphics and special effects. Unfortunately the majority of them are also accompanied by music of the scratchy chip variety that is frustratingly out of place of decent sample-equipped

music found in most ST demos and software.

The disk boots through to the Amiga head/disk into Amiga 500 owners will be familiar with, which is then shut off the screen by a pin testing blinks as a few lipped animal, in his like Lyle Skywalker to The Empire Strikes Back.

The loading screen are an on-screen jumble of unmarked text scrolls and another screen with credit for the demo currently loading. The accompanying chip music could be described as a cross between a snuffed nose and polite stave.

The screen for choosing to view the 18 demos in the screen lists in the excellent Unity magazine on the 8 bit - a 2-D horizontal side scrolling platform style level using some unmarked space themed graphics and sprites provides an interface for these selections. You visited a small test space craft as it navigates through a level comprised of metal panels and pipe structures, gun barrels and so forth. You pilot the craft to the named doors visiting it by landing on a platform and entering a doorway or hole in the wall.

The demos available are: *Biggy Sprint 3*, *Tuffy Screens*, *Dragon*, *Dist Dts*, *Oh No*, *D.L.S* (lots in space, also seen by pressing reset), *Starbed (don't work on my ST)*, *Wobblewaker (some result as target demo)*, *Spax*, *Overlander*, *Tines*, *Disney*, *Mania*, *Starbed*, *Fullscreen* (ST only), *Mania (no and finally* *Overdrive* *Ball*.

As mentioned, the most common element throughout the demos is the test scrollies. I often wonder why this is the case. I don't know about you but I don't particularly collect demos to read their results. This is a shame really as I would like to see more graphics and music effects tested.

Biggy Sprint 3 is the first scrollie featured. Three identical white horizontal tests on a black background with the letters spelling VECTORS in a large blue font. Visiting each other around the screen, and a large PULANSI logo moving steadily up and down the screen. Well draws graphics here with an average chip music.

Make ⊕ **Graphics** ⊕ **Effects** ⊕
Originality ⊕ **Overall** ⊕

Tuffy screens has some only hearing chip music with an impressive 30-sec color PULANSI logo in shades of red being superimposed in the various blurring, and

wobbling effects. A green/yellow shaded horizontal text scrollies at the bottom of the screen shifts its way along, while a mouse cursor twists itself around like a ribbon over a rotating VECTORS graphic. The letters of a small test scrolls the way around the screen. I liked the draw for its effects-displays although the music can become a little annoying very quickly.

Make ⊕ **Graphics** ⊕ **Effects** ⊕
Originality ⊕ **Overall** ⊕

Dragon is one of the most graphically disappointing demos with a segmented spherical dragon, jumping in and out of a red and white speckled laser screen. Over the top a single colour red scrollie moves. Lots less consistent style over the screen. Use of colour is very poor here and again the music is very average.

Make ⊕ **Graphics** ⊕ **Effects** ⊕
Originality ⊕ **Overall** ⊕

Dist Dts picks the standard back up again with a nicely musical collaboration of a dig sample like an echoing stamp and chip music playing while an image waves and flips out screen. A nice colour change text scrollie moves along the bottom.

Make ⊕ **Graphics** ⊕ **Effects** ⊕
Originality ⊕ **Overall** ⊕

Oh No is described as a disk filler. It requires you to

hold the mouse button to view it. Chip music plays while three graphics equators pulsate over a blank screen and starfield. A large scrollie, a small graphics logo and letter moves over and around the screen. Graphics are average and unexciting in shades of grey.

Make ⊕ **Graphics** ⊕ **Effects** ⊕
Originality ⊕ **Overall** ⊕

I thought *D.L.S* (Dots in Space), had crashed until I pressed reset and was told I'd found the magic button. The screen is a black background upon which a starfield moves head on towards you. A visually impressive holding test scrollie moves over the top of a scrolling 3D bubble screen, while a 3D rectangle revolves formed with the outer names and greetings at the bottom of the screen.

Good effects here with dramatic chip music.

Make ⊕ **Graphics** ⊕ **Effects** ⊕
Originality ⊕ **Overall** ⊕

Starbed and *Wobblewaker* both seem to display blank screens for all eternity. This may have something to do with my AMN 10400T. Pressing reset simply runs the D.L.S demo again.

Sigm is an evaluation of a dig-sample sequencer called *Audio Sculpture* that links in after around 15-20 seconds of a blank screen. The music isn't really remembered since

the automatically played track appears to be partially corrupted. Still, it seems a very comprehensive sequencer with a graphics tool drives interface controlled via the mouse. I wonder if it was ever released?

Overlanders is an impressively rich demo comprising of in-one colorful vertical text windows on either side of the screen, a pulsating scrollbar below, and a variety of different 3D pixel objects from globes to triangles in mid screen. This demo is one of the better ones and the chip music isn't too bad either. **Music** ● **Graphics** ● **Effects** ● **Originality** ● **Overall** ●

Times starts off with a newspaper unrolling top to bottom in black and white. Scrolling about the covers is detailed text. Pressing space moves to a screen with a scrolling grey pixelated background and two pink spherical shapes interacting in mid screen over a hard core/rock logo graphic. There is also a small one letter text scroller top right of the screen. Don't even try to read this one. Average chip music. **Music** ● **Graphics** ● **Effects** ● **Originality** ● **Overall** ●

Blomup Mezzio is a word reader ball, with several text windows moving in many directions simultaneously. A colorful array is used but not scroll readers be warned

you may lose your sight and easily open viewing this demo. **Music** ● **Graphics** ● **Effects** ● **Originality** ● **Overall** ●

Scrolled is the first demo with a really decent clip music track, even if it is a little repetitive. Pink balls swirl toward the screen with a yellow wavy text scroller that you can control via left/right cursor and the insert and alt/home keys. Another video letter on the higher settings. **Music** ● **Graphics** ● **Effects** ● **Originality** ● **Overall** ●

Master base is quite odd. It is simply a screen of disks in which various instruments are assigned, though no samples are apparent when chip music from previous demos is used. The disk jigger about and three animated speakers point to the beats. Wiggling the mouse a little seems to change the song played with the subtlety of a dinky sound player. I didn't think much of the graphics either and won't list interest. **Music** ● **Graphics** ● **Effects** ● **Originality** ● **Overall** ●

The last demo is **Bouncing Red's**, which has two lines of red and blue balls cover the screen on they bounce off the screen's borders. As soon as a ball up, the demo kicks in with a 2D ball text floating mid screen over a yellow star

field, reflecting to a blue shaded lower screen in good effect. The same music as in the DLS demo plays. **Music** ● **Graphics** ● **Effects** ● **Originality** ● **Overall** ●

Overall the **Overdrive** magazine has its pros and cons, but in the end despite the numerous text scrollers and the average chip music tracks, it is worth hunting for the few good demos. The innovative menu interface, and clip music track.

Final Score ●

SCI-FI SHOW (ST-193)

This PD disk is simply a collection of DDMG format art pictures of TV science fiction shows, either based on or occurred and in color or grey scale. Most were created between 1986 and 1990.

The disk loads to a personalized desktop with a grey scale picture of what I assume to be the Enterprise from Star Trek with the various addition of a small screen of pictures of the programmer who appears to have given this disk a touch. What's even his name is PD-D.

You have two programs at your disposal. The first is called **LEATHRDS.TOS**, which simply adds chip music to

the desktop, while the **Degas** screen itself is 510x490px.

The options given when you use the letter allow you to view the pictures, show blocks, I didn't get to find out what this actually did, and view the picture list-screen. You can select art or save before viewing the pictures. You can also choose the drive from which the picture loads from, drive A to F. Useful if you have a hard drive with many images.

The pictures load on screen in a slide show format allowing you to control the slide before the next loads with the function keys. PD seemed to be the right speed giving around eight seconds of viewing, while F10 seems to delay loading for a day or two! Other functions during the slide show include space to pause, help to return to the options screen, and ctrl to return to the desktop.

The pictures themselves come an assortment of different TV shows, with a total of around 25 to view. Star Trek, Star Trek: The Next Generation, Thunderbirds, Dr Who, and Star Wars feature prominently with occasional appearances from 20's shows like *Blakers 7* and comic book characters like Judge Dredd.

The quality of the pictures varies drama-tically. The hard drive program can't have to be up, applying for an ST. The wanted images, especially

the Thunderbird grey scales are probably the best of the collection. Obviously the picture format isn't that flexible since the number of colours seems very restricted. It's just say less than 50 at times, so if you are looking for dream ST images by **Phosphorus**, some of the images have even been tampered with. In one picture the one and only WOD features inside Star Trek's Dr Spock!

If it shows up't really as detailed as **Science Fiction** as it could have been. It is simply the creation of a rather average programmer. Not enough Star Wars and too much hard drive art to interest me. However, the personalized desktop and the **Degas** slide show program itself is probably worth the cost of the disk anyway. The background music feature is also a novelty. The hard 2-diskies are dead!

Final Score ●

ST NOISETRACKER 1.5 (ST-4-1-0)

This PD sample sequence is for the essentially included ST users who like to listen to samples rather than spend time making things. I won't go into much detail about the detailed functions of this sequence since it's obvious

understand it and b) I haven't enough time to learn before this article's deadline.

Noisetracker is a comprehensive four track sequencer. A sequencer simply allows you to create your own musical arrangements using pre-sampled sounds with four samples playing at the same time.

Sample software is included in the package, which requires a hardware sampler on the target device. It supports ST-Display, Pro-sound Design, and MV18 Cartridge hardware products both inputs and outputs and plays via FM2146. Well, that is what the on-screen credits claim. I am not sure if the last is a hardware or software product.

The disk loads to a Page 5 personalized desktop from which two programs are immediately available: **Menu**, **Help** and **Intro**. The latter is a small demo of the potential of the sequencer, simply a one screen text scrolling demo with a nice 3D rotating balls display and a track created using **Noisetracker** playing in the background. How nice.

Noisetracker itself uses a clear four drive screen interface all on one easily accessible screen. There are and by **Noisetracker** are saved in the familiar DDMG format. Information for music modules. These were

AMS VIDEO

I never expected to be reviewing a video in these pages but these are different days and with so little software being released, why not?

The video in question has been produced by Dean Garmagly as a record of the AMS show in 1990 or as a sort of nostalgia trip for those who go for used to go along to the Bingley Hall in Stafford for the only remaining Mart celebrations. In many ways the video reflects the content and style of AMS, a sort of being a few things together on the day and make the best of it. In this case being a Commodore in the car and start timing when you turn up. Don't expect a major production here but don't dismiss it out of hand either. If you see the nostalgia sort then you might well get a buzz out of this.

The video starts as the 'Dean Garmagly guys' turn up at The Bingley Hall and check in and then follows the setting up before the show opens. As the doors open and the crowds arrive we see shots of various Mart enthusiasts and a wander round the show. You might even find yourself a star of the show - there were certainly one or two faces I recognised! After the doors close we see the packing up and departure with another show come and gone. In total we have about 22 minutes of footage.

This is really a nostalgia trip and on this basis I have to admit it works. When the camera wanders round in the corner we used to occupy (this was the first AMS we had missed) I certainly had pang of nostalgia for the enjoyable shows of past years. My see also realised how much he missed these shows.

The video suffers from a lack of pre-planning and could certainly do with an over-dubbed commentary (although there is some sound) but these are my criticisms to make and not such easy things to address. I suspect Dean thought at the last minute that it would be fun to record the event, and why not?

The AMS Video is available from Dean Garmagly for £4.99 including p.p.h. A first is not bad for a novel record of a little part of your passion. It is 37 Minite the cheque payable to Dean Garmagly and send it to: **Dean Garmagly, 90 Thomas Ave., Bally, Co. Down, DA8 9WE.** Overseas readers note that this is PAL VHS and may not work on your systems. *Lee Ellington*

both the samples and arrangement in one file, which can be quickly saved and loaded from disk, as our separate samples.

The screen displays the four track details, sample and read file details, track position, length, a various other details which are needed when editing. Tempo, position, pattern, length, and the sample played can be finely tuned to your requirements.

You can browse the disk directory for results and samples, edit the interface and sound preferences, record

samples and play back tracks.

When playing tracks four multi-coloured graphic equalisers are activated. You also have the option of cutting out or in some of the tracks as they play, thus tailoring each one individually for editing purposes. For a non-commercial PD program it is very accomplished.

The disk comes with an assortment of samples and four very good MOD songs including the restored New Order sequencer favourite Blue Monday.

I found NoteTracker to be a very easy to use and fast application, though I haven't as yet tried the editing or sampling facilities. A cheap beginner alternative to more serious sequencers which comes highly recommended.

Final Score

As you can see the clear favourite this time round is ST NoteTracker. Will next issue I promise to not mention Mr Crossman for fear of repetition. How where did I put that toolbar?



JOURNEY INFO CYBERSPACE

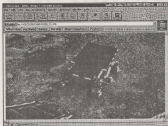
EMULATING THE ATARI

**This issue
John S Davison
 marvels at
pictures from
Mars while
Pete Davison
explores**



I can't help but marvel at the extraordinary communications technology we now have available to us in our homes. Even since I began writing this series of articles about 18 months ago, the facilities available to internet users have improved almost beyond recognition. This however very apparent recently when using the internet to follow one of the most remarkable voyages of exploration ever made. I'm referring, of course, to the Mars Pathfinder mission.

A fantastic amount of material on Pathfinder has been made available on the internet, with the best coming direct from NASA's Jet Propulsion Laboratory as you'd expect. NASA have really made the World Wide Web live up to its name, by using it to publish to the whole world the latest news about the mission as it happens. And it's not just to text files. Stunning photographs from the surface of Mars have been put on the Web almost as fast as they arrived from Viking Memorial Station (the name now goes to the landing site). In fact, I saw the first Mars pictures on my computer screen before I saw them on TV. In the first three days alone NASA's Web site received a staggering 100 million visits from internet users all over the world. The load was so high that NASA had copies of the data



set up on about two dozen "server" sites around the globe, to spread the load and reduce response time to users.

NOT JUST PICTURES

Pictures aren't the end of it either. There are live audio and video feeds across the Internet direct from NASA mission control, so you can see and hear the action as it happens. There's also a live chat channel so you can actually chat (via your keyboard) directly with members of the Mars Pathfinder team in real time. And, there are virtual reality models, panoramic pictures, and occasional webcam photos (viewable using red/blue glasses) if they're available for download. In short, it's one of the finest explorations of Internet technology I've ever seen.

Another amazing fact about the above is that

owing to the Internet marketing strategies prevalent in the PC world, most of the software needed to access all these wonderful facilities is available free of charge! The two giants of the Web browser world, Netscape Navigator/Communicator and Microsoft Internet Explorer, are available free of charge on PC magazine cover disks, amongst many other sources. The latest webbing audio, video, and graphical facilities are provided via new "plug-in" software formats. These integrate directly into the Web browser, usually available via free download from the Internet using the Web browser itself.

So what's all this got to do with Atari? Well, to be honest, not a lot, as most of the above is only available using IBM PC-based systems. However, this column is as much about the Internet as it is about Atari, so I felt I just had to include the above to indicate the current state of the art. I can only look hopefully at my old Atari PC and CDROM and think, "if only..."



ATARI EMULATION

You may not expect it, but there is a positive link between the Atari and PC worlds. I recently received an e-mail note from Paulo Rodrigues of Portugal. He has two CDROM systems which no longer work, so decided to use an Atari emulator on his IBM PC to run his old 8-bit software. Then, my younger son and wife (in of both Atari and PC computers, became fascinated by this idea, so decided to investigate it himself. Pete also wanted to write something for NIBB, so I'll now hand over the rest of this article to him to tell you about his findings. All yours, Pete...

The Atari Classic never may have showed down in recent years, especially with the advent of more powerful machines such as the PC, but the popularity of Atari's original video-machines remains strong on the Internet. One of the most popular topics under discussion seems to be emulation, i.e. running non-Atari 8-bit software on non-Atari machines such as the IBM PC, and with the ever-increasing power of PCs, software emulators can finally do justice to the original Atari systems. The emulators I looked at were: "PC Monitor" is PC version of an older 8-bit emulator, and "XL-1F" (written by a German computer science student, who sadly no longer appears to support the program). You can download free versions of them from the Internet as compressed (zipped) packages of files in a .tar archive. Both emulators require a minimum of a 386 processor, but a Pentium (the faster the better) is recommended. Both run under MS-DOS and require VGA graphics. XL-1F needs a Sound Blaster compatible sound card for sound emulation.

As well as the emulator programs (tell you also need the Atari "ROM images"). Basically, everything which was "built-in" to the Atari's ROM - such as BASIC - has been somehow "yanked out" of the machine and loaded into files. Only PC Monitor includes these files in



The famous Atari working robot always running under XL-1F on an IBM PC.

its archive - XL-1F is supplied "bare" - you have to find and install the ROMs yourself (or get them from the PC Monitor archive).

PC Monitor comes in a 50MB zip file, which includes an MS-DOS version of Monitor version 2.00, seven "disk images" (more on these later), and the Atari ROM files. XL-1F comes in a 300K zip file and only includes an MS-DOS version of the program (its early version, but fully functional).

Emulators can work in two different ways. By using a special cable you can connect your Atari disk drive to the PC and run programs on the PC directly from the original Atari disks. Or, if like me, you don't have the cable, you can run programs (loaded from specially created "disk images", which you load into your PC's disk drive). These are relatively small files which, in turn, emulate all the bits originally on a particular 8-bit cartridge. For example, PC Monitor includes a file called ANIMON21.SPT. This file is an "image" of an old Atari disk from Animaprogger (see N1). By telling the emulator to load this image from the PC disk drive into a "virtual disk drive" and then switching on your "virtual Atari", the programs within the disk image can be run. Disk images tend to be in one of two formats - either SFD files or .ATR files. Both of the emulators I looked at support both formats.

XL-It!

XL-It was the first emulator I tried. Upon startup, you are presented with a basic user interface. This feature causes to load disk images and lists files as present. Having chosen a disk

image, you click the "Start" option in the "System" menu. At this point, there is a pause, and then... the familiar blue Atari screen appears! Everything works as it should - typing "DOH" launches DOH 0.0; doing something silly launches you into the "Red-Tux" screen and load disks fill the screen with the immortal words "DOOT BROWN".

XL-It's major selling point is its excellent sound support. It offers excellent simulation of the Atari's POKEY sound chip through the use of digitized samples from the original system. Anyone with a sound blaster sound card in their PC can hear the sounds in all their glory. To test this-out, I experimented with the SOUND statements in BASIC. Sure enough, it made the expected notes.

XL-It also handles all the GTIA modes. Player-Missile graphics, Display-List Intercepts - in other words, almost anything the original system could do. The author writes that 90-95% of all Atari Classic software should run on the system - and most of the software I tried worked perfectly. All the BASIC programs on Alexander's Amazing Disk Images worked fine, as did the classic Atari Demos browser (did I mention the waiting editor, the flying spaceship... impossible word).

Unfortunately, the author of XL-It is no longer supporting the program, and it has now become difficult to find. This is a great shame, because from what I've seen XL-It is a good emulator - it runs at high speed and has an excellent success rate. For example, every BASIC program I tried worked perfectly. Most

machine-made programs I tried ran perfectly too - or nearly so. For instance, the classic "Honey On Fractalus" came close to working correctly. Amazingly, everything except the keyboard commands worked. This means you couldn't load your ship and so on

and thus deflated the object of the game! Most unfortunately, "Fractalus" however, worked wonderfully.

PC Xformer

PC Xformer is the latest incarnation of a well-known and respected emulator. It has been around for several years on various platforms. Version 3.00 is available as freeware and is the last MS-DOS version of the emulator. More recent versions are shareware (requiring a registration fee) and only work under Windows 95. Xformer's list of features is almost as impressive as XL-It's. It handles all the sound features - DADs, Player-Missiles and apparently has limited sound support. However, I had great problems getting any sounds to play. Experimenting with SOUND statements didn't work, for example.

Xformer comes with some disk images. They



Atari BASIC running via XL-It - loading a program

include two test disks from Amazing magazine, two disks of demos, a DOH 2.0 disk, a MyPC80 disk, and a disk of three straight Star Trek games. All the disks provided worked perfectly, albeit without sound. Apparently this is being corrected in a later version. However, "Honey On Fractalus" didn't work properly - there was severe colour corruption and the 3D graphics didn't display properly. "Fractalus" worked fine, but again without sound.

Xformer is well-respected, but isn't as feature-packed as XL-It. The latter would be the ideal choice, but unfortunately the internet site from where it could originally be obtained now seems to have closed down. If you can find a copy, go for it. If not, point your WWW browser at <http://www.emulators.com/> to download Xformer.

Site References

Yahoo Search Engine

NASA Jet Propulsion Laboratory

Mars Pathfinder Mirror Site

Emulators Online

Emulator Review

Emulators FAQ

Disk Image Archive

<http://www.yahoo.com>

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<http://www.ukraret.com/~astrobit/starbit>

<http://zippy.sosoma.edu/~kerdrick/>

[mars/new_and_rims.html](http://mars_new_and_rims.html)

ip.hackers.com

EMULATOR LINKS

Try <http://www.ukraret.com/~astrobit/starbit> for reviews of the major emulators. It also contains links to their WWW homepages, and to downloadable files.

For a FAQ (Frequently Asked Questions) for an Atari emulator, go to http://zippy.sosoma.edu/~kerdrick/new_and_rims.html.

Finally, an extensive archive of Atari software in disk image format is available for all at FTP site <http://ip.hackers.com/>. The real value of the copyright status of the games present there, but they are available for any internet user to access.

