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PAGE 6 PUBLISHING'S

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ISSUE 38 June/July

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# PAGE 6

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from Marlin Games

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David Wright has been writing adventures on other platforms for many years. He's highly regarded in the Adventure and RPG world. Many of his games have been reviewed in CIBASH and other magazines. His most recent game THE BEAST earned a FIVE STAR rating in a world distributed by trade outlets. David brings a refreshing new approach to many of his adventures.

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Author Jack Lockesby has written over a dozen adventures on the spectrum and Commodore and is a highly regarded figure in Adventure circles. Many of his games have received praise from Alan Bennett, writing in Your Choice, and several of his games have been favourably mentioned by the magazine. Jack is a retired Army Regiment where writing letters have brought in to thousands of adventures over the past 2 years.

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See PAGE 14 magazine issue 27 page 28 for further details of this super program. This version has all the facilities and has of the old version except that the number of horse databases is limited. **AVAILABLE EXCLUSIVELY FROM PAGE 1**

**ORDER FORM** on page 49

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for the Dedicated  
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Issue 38 June/July 1989



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Hunt the aliens in this  
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## SUBMISSIONS

PODZ It encourages and welcomes to read are to submit articles, programs and listings for publication. Programs must be submitted on disk or cassette; articles should wherever possible be submitted on text files on disk. We aim to encourage your participation and do not have any rules for submissions. It is completely irrelevant just what a program or article and listing is. Permission to publish what is made for all published programs and articles.

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**NEW ATARI USER**  
will be on sale 27th July  
Editorial copy date is 12th June

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Editorial address: P.O. Box 34, BOSTON, 07108, ENGLAND. Tel. 0783 27008  
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## JOHN SWEENEY FINDS THE HOLY GRAIL!



We always know our reviewers were good, but little did we realize that we had the best in the whole of the UK! We were delighted to receive an announcement from Mandarin Software that the winner of their recent £3000 Computer 'Holy Grail' competition was none other than John Sweeney who has been gracing these pages with his adventure wisdom for a number of years. John worked his way through some obscure files in the early rounds of the competition to join 40 finalists who had to battle it out with some really difficult questions which involved the Ordnance Survey grid reference of a location at which the Grail was supposedly buried. In typical fashion, John not only answered the questions, but provided lots of additional information to support his answers and even came up with one or two facts that the questions themselves had not thought of!

John thoroughly researched the legends of King Arthur and went around 30 reference works including out of print works and references obtained from Universities to pose a set of questions which were set by Peter Jacobs from Level 8 and are difficult enough to solve, even with an answer sheet! The hardest part was trying to solve one question that the organizers had worded incorrectly so that it could not be answered! But John nevertheless got the most questions right within the allotted time and worked out that the Grail was buried at the Corny Abbey Glass in Dorset. And he ... John Sweeney became the proud owner of a 25 cover gold-plated 'replika' of the Holy Grail accompanied with certificates, games and disks.

There is still a few things come full circle. They was your editor interviewing Peter Jacobs sometime last year when he came through with the initial design for the Holy Grail. I was invited to make some suggestions on the final design and then (totally forget about it), until John Sweeney completed the circle by ending up with the finished Grail. He didn't even know he had gone in for the competition! Well done, John, well done!

## ENCOUNTER WITH ATLANTIS

Budget software company Atlantis, a major supporter of the Atari 8-bit machines, has secured the rights to release Nintendo's ENCOUNTER in budget format. ENCOUNTER was a breakthrough in Atari 8 bit games of the time of its first release and is one of the best games to have been written for the Atari in this country. Indeed, it influenced several later U.S. games and was the first game to have turned the tables by leading the U.S. programmers in game design.

ENCOUNTER remains a superb game and of course should be getting everybody's Atari. The budget rights for the game were not cheap and Atlantis need it to sell well but managing director Michael Cole is confident that it will succeed getting the Atari 8 bit market as being "very forward of its time". We don't like to hype games at PAGE 6 but we can honestly say that this one is a classic and Atlantis deserves your support for bringing it to a new audience. Rush down to your local shop or give your mail order supplier a ring and demand a copy of ENCOUNTER. It will be one of the best £19.95 you have spent on your Atari.

## DON'T FORGET THE SHOW

This is our last issue before the Area Five Show so this is a timely reminder to come along to Alexandra Palace between 23rd and 26th June to see the show. No price at present as to just how well the exhibiting but it will probably be the usual fare. There are rumours that there may be a special 'Meet the Authors' forum and a competition to find the best use of an AT so it looks as if there may be a slight change to the format. Come along and see, or at least see us!

# YES, THERE IS NEW SOFTWARE

Consumers are dipping into the Atari 8 bit market with two new releases promised over the coming months. The first is **FRUIT MACHINE SIMULATOR** which, as you might have guessed, is another fruit machine game. Not exactly novel on the Atari but welcome nevertheless as a new release in a market currently sparse on new software. This is to be followed by an, as yet, untitled new racing game that combines the traditional race track with fantasy borders as each car is armed with a number of wild and wonderful weapons. Price and release details are not confirmed as yet but these are certain to be budget releases. Atari is also keeping up their Atari support with 'a number of new releases planned' although their present efforts are going into supporting **ENCOUNTER**.

Scandal will know for their cassette board of diles, are pushing the Building line has in a revolutionary new word process-

ing ability that will combine graphics with conventional word processing thus enabling you to print out decorative letterheads on the same time as your words. This promises lots of exciting uses and we will bring you a review as soon as the program is completed.

System1, once a major supporter of the 8 bit, are now moving into the high flying ST market but are still working on **THE LAST QUEENSLANDER** with a release date still some time away. At least they have something in the pipeline, although they have no other releases planned.

There are rumours of a new one from Area called **CRUISED XI** which is as a 'Back Street' theme with a careful balance required between using fuel and shooting. Background graphics are said to be extremely colourful with some excellent intro music. Nothing more is known at present. Keep your eyes open and let us hear if you hear of any other new releases.



Atari's great new game **TWISTER** ATARI ACE reviewed this issue

## WORLDWIDE SUPPORT

Over in the U.S.A. they are having similar troubles in finding support for their Atari machines and one enterprising one has set up the Federation of Atari Computer Enthusiasts (F.A.C.E.) which aims to bring together the resources of Atari 8 bit users worldwide. Primary aim is to provide support for those who don't have access to a local user group by providing a regular newsletter and disk containing selected public domain software and game files. Also planned is a supply support group which will find sources for spares and accessories for Atari hardware that are rapidly becoming hard to get hold of. There is a Bulletin Board and the Federation hope to attract commercial advertisers both on the Bulletin Board and in the newsletter.

All of this is dependent on gaining enough support from Atari users worldwide. Annual membership outside the U.S.A. is \$18 (US in the U.S.) but before putting in any cash we suggest interested users drop F.A.C.E. a line to check that they have got off the ground and requesting further details. You should write to F.A.C.E. c/o Eric Lankford, 1008 Westview Drive, Springfield, MD 48807, U.S.A. Enclose a couple of International Reply Coupons.

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8:16 is a quarterly newsletter supporting the complete range of Atari computers, with an in-depth look at all aspects of computing. If you love your Atari, then subscribe to 8:16. Subscription - £5.00 for 4 issues / Sample copy - £1. FREE Turbo Basic & DOS 2.5 to 8 bit subscribers.

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# MAILBAG

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## DVORAK KEYBOARD

Like a lot of other people the speed and accuracy of my typing seems to have deteriorated especially when word processing. I can see that some of these problems are caused by the idiosyncratic standard QWERTY keyboard layout. The alternative DVORAK layout has many advantages and has been approved by the American National Standards Institute so I can't be to try it unless this just improves my QWERTY skills.

I have found references to Dvorak and keyboard tables in *Mopping the Aton* and in *Compu!*'s Third Book of Aton and experiments with Desktop Keys from issue 36 but the information disappeared when I loaded *Spoozscript*, is it actually possible on an 8088 to run an initial program to redefine the keyboard layout within any other program such as a word processor?

Isoreyne Smith,  
Sheffield

It is certainly possible to redefine the AT or XT keyboard but you would have problems if using a commercial word processor that boots up. Programs such as *Spoozscript* however, which is a type in doing out for which the Atari code is available, should be

capable of being adopted. The *Atari* public domain program *Keygen* may also support this facility, does anyone know? Sometimes may have already done this, it is certainly quite feasible for any competent programmer. Any answers?

## LOOKING FOR BIRDS

This might seem rather strange but I am very interested in bird-watching (the feathered kind) and spend many hours recording species and numbers of birds seen, along with areas visited. At the moment I record my findings in loose leaf folders but I wondered if any of your readers have a successful program which they use and are willing to give me any ideas how to go about recording things like this on my ST?

D.J. West  
St. Neots

There are several public domain databases that you might be able to adapt but it is difficult to recommend one without knowing your precise requirements. Something like *MAP-CARD*, available from the PAGE 6 Library, might be suitable. This is just like a set of index record cards held in memory and the format is fairly free. There again there may well be readers with a similar type of

'recording' hobby who have used other programs. We will gladly post on any recommendations providing they are addressed to: *At Mailbag*.

## THE DREAM MAGAZINE?

Here is a rundown of what I want of *PAGE 6* Magazine in future.

1. I require 120 pages devoted to the ST in full colour. As there are a few dozen 8 bit users among you a reader and not wanting to be a spoilsport, you may devote two pages to 8 bit material.
1. No Top 100 Top 20 tables, please, readability testing. Who really cares what is the 11th best selling game?
3. A series of articles on programming in machine code, C, COB, C++, FORTRAN and other languages.
4. A readers question and answer page (I only of course)
5. Add on projects such as speech synthesis, hard drives, build your own printer, coffee machine etc.
6. Writing diagrams to create a variety of monitors.
7. Complete circuit diagrams of the ST2 and 1048 monitors and also both internal and external drives. Also a course in fault finding with a computer.

## FINDING A GOOD SHOP

Referring to *Atari Games Centres* in the last issue, I would like to say that just all the centres who advertise in the computer press are not. I am writing to praise my local centre which is MISS BITTER SOFTWARE. This is an excellent example of a dealer who supports Atari whether it is 8 bit or 16 bit. They have an Atari's case of both software and hardware, games, education or business.

The staff are excellent in all ways in helping you and they have an excellent mail order facility. This is the sort of centre that deserves off prize than can

be given. It is also nice to know that we Atari 8 bit users have still got centres like this who give us all the support that we desperately need. It is also up to us users to keep on buying from centres such as this to let them know how much we value their support.

I would like to close by saying that the magazine gets from strength to strength and we thank you for all your hard work and hope that we may continue to have an excellent magazine for years to come.

C.D. Wood,  
Canterbury, Staffs.

Also to know that you can find a good local dealer but isn't it strange that those retailers who are supporting the Atari never tell anybody about it? Miss Bitter have been advertising for years, mostly in the old Atari User, but their advertising has never given away the fact that they have a shop. I never knew this, assuming that they were just mail order, and Cancom is only a dozen miles down the road! We also had a letter from Carol Mackintosh, who recently contacted the *Atari* before they were ever *Atari* 8 bit sites in their shops which include two Computer Centres out-



benzene leak finding chart. I look forward to your "new look" PAGE 6 ALIAS II USER magazine.

#### Les Howarth, Preston

With my sense of humour dulled by too many late nights I can't wait out how much of the letter is serious. The only thing we are writing on at the moment is the add on our/for machine that we are having problems with the multi tasking software. Trouble is, every time I sit down to work on the program, I have to pop over for another cup of coffee.

#### BIGGER PRINTING PLEASE

I am writing to you like many others here close to ask you if you could please do something about the printing in your magazine, Alias. It used to be the just Alias User, I had no trouble typing in the letters because the print was quite bold. I used to have your PAGE 6 magazine where it was just that, but controlled it because of the print on the letters. Dear since I have had the computer back in 1987 I have typed in every game out of Alias User and I miss it very much. I don't want to control my order as I like typing in the

games, so could you please do something about the print?

#### A.A. Betts, Birmingham

All the people have mentioned this problem but we are caught between keeping all of the letters in large print or cluttering some of them out. We have only a limited number of pages and like to give you as much as we can in each issue so some of the longer letters have to be reduced in size. If we didn't do this some of the longer letters might take up a or 8 pages and other letters or articles would have to be cut out. Let's be fair though, in the last issue BANCROFT, ENVOY, the-Best programs in the MACRO CODE DYNAMIC SLANPLOTTER, AAZAZIC, TUTORIAL SER-ROTHNES, and one of the TURBO BASIC programs were all in print even 60 as large as the old Alias User and the only small print was for SCORPION TEST ONE SOE and one of the TURBO BASICs. We could have made Jerry Test Father much bigger and then you would have had one or two of the other letters. With this balance is the complete package? The typical use we use is also smaller than many but that again is so that you get more to read. Many of the other magazines fill up their "extra" pages by using a larger typeface and thereby make the same material go further.

should we do the same? Is the "small" printing really a problem? My own Alan user has been mentioned in a or more about but then isn't getting old now?

#### SOME SENSIBLE COMMENTS

I would like to respond to some of the items from Issue 37, firstly as to the matter of letters on tape, a definite yes to this suggestion. I would go further by offering a tape subscription similar to your present disk scheme.

Secondly could you thank Ian Parkinson for his Constructive criticism. I would like to comment on R. BEE's idea of program challenges, he suggested that PAGE 6 sets the challenge but could I suggest that the readers set the challenges for your own programmers or readers. Could I start the ball rolling by challenging anyone to write a mind word program?

Thirdly to the critics from the old Alias User, Doubtless would never have dropped Alias User if it had been as popular as they think it was. I find that of the magazines writing for the R. BEE Alias, PAGE 6 has been the best, as for Get It Right versus TYPO 3, both have their advantages and disadvantages. TYPO 3 is quick and simple to use while G.I.R. allows abbreviated commands to be used.

Finally on games reviews, who needs them when PAGE 6 gives us such good games for the price of the magazine?

#### David McLaren Kestrew, Scotland

We have put together a boot tape version of UNDER 3 DARTING ORDER which uses the disk format but issue, and will quite likely be a compilation of five of the best games from previous issues on tape. Whether we do any more is up to you. (Ink disks, where we can copy as many, or as few as we need, tapes have to be duplicated in bulk by an outside firm.) If we get left with a lot, we lose money and we can't afford to do that. Much as we would like to provide full support we can't if it is not economic. Say these tapes and we will guarantee more Programming challenges on a

new starter, people will just not respond. Last issue we called for scrolling text messages using Scrolly Test Father and so far have only had about half a dozen. If that were not I expect to something that needs simple English words there is no chance of responding to complicated programming challenges. Thanks for the letter anyway, did anyone spot the colour print that all the critics and moaners seem to have totally missed?

#### NESSI PROBLEMS

You asked in the last issue if anyone else has had problems with the 3350 1 disk drive, I have!

It is advertised as being able to format to double density and double sided, yet the DOS 2.0 supplied with it is not capable of this. Furthermore it will not format the reverse side of a disk at all. Would this be something to do with the timing hole of the disk? My old DOS drive will format both sides of a disk provided a notch is cut in the right place.

Unless the 3350 is supplied from the outset with a DOS that justifies the advertising then surely the suppliers are liable under the Trade Description Act?

#### L.L. Mitchell Sofball

You are probably right about the Trade Description Act. There are several reports in the States that DOS 3E, written specifically for this drive, is now available but still no news here. The best DOS you can get at present is BTRDOS which will use all the facilities of the 3350 and is more public domain. We have had a copy on order from our contacts in the U.S.A. but it has been a long time coming. As soon as we receive it we will add it to the library for the benefit of other users. If anyone has the latest version of BTRDOS or DOS 3E package they could let us have a copy.

**MORE  
OVERLEAF**

etc. There have now been added to the Answer File at the back of the magazine but, as far as I am aware, Copy Marketing have never advertised their world in Manchester on site supposed to be good with the it for but, what they have advertised in the past, no one outside Manchester seems to know what they are doing now. When will all these people wake up and realize that with the economy of support for the Alias II bit, people will travel hundreds of miles to visit a shop with a good selection of software or hardware? If I had a shop with a good selection, I would take advantage of the situation and advertise the

fact. There is some details about local attractions and have a special "open day" with music for the kids and you will get families travelling miles for a one day out with the chance of getting some hard to find software for when they get home. Or am I still living in that dreamland of yesterday when people actually cared?

We may worry well as to locate on the "best" shops selling the BEE and if you have a local shop that you can recommend (including the ones mentioned) then write and let us know. If the answer, maybe one or two retailers may even be allowed to enter and let us know they are there.

## THOSE OLD ATARI USER LISTINGS

Last issue we said we could not help out with old Atari User listings but we have found from a couple of people who are willing to help. To begin with, Mike Parlin provided an answer to the problem raised by Simon Sawyer concerning the "Customized Default Screen" listing. Several bits of data were missing and the line should read:

```
2000 DATA 240, 8, 200, 120,
240, 8, 200, 120, 200, 21,
172, 43, 2, 200, 24, 170, 24,
200, 24, 7
```

That's the last correction we are going to print from Atari User but the following two folks are willing to help you out.

Finally J. L. Robinson of Lady Hill, Millers, Colorado, LA20 418 says that if anyone cares to send problem programs to him he will try to affect a cure out. Mr. Robinson prefers disks but can work with cassettes and cots that sufficient return postage is enclosed. No guarantees but he is willing to give a try. The other reader is L.D. Hughes of 34, Moorfield Road, Penarth, South Glamorgan, CF6 1SE who is prepared to make copies of all games and certain other programs that he has typed in. He will let you have a full list of all the games he has typed in from Atari User and other magazines upon receipt of a stamped addressed envelope. He is willing to make copies of whatever games you need for a cost of 1) to cover postage, duplicating lists etc. plus a blank tape.

Way back someone offered a similar service to this through the Contact column and just kept all the money but I am sure, judging from his letter, that Mr. Hughes is trustworthy and Mr. Robinson has been known to us as a correspondent for many years. The fellow mentioned, one James Threves, ended up in prison if you have any problems here in mind that these two folks could get involved! Perhaps the parties on both sides would let us know how they get on?

# THE SURVEY WHAT DID IT ALL MEAN?

We've finally finished entering all the information from the survey back in issue 18 and would finally like to thank all of the 483 readers who took the trouble to fill in the form and send us their ideas, often with lengthy additional comments and suggestions. Several readers have asked us to publish the results of the survey so here's a summary of the findings.

We split the survey into two sections, for SL/SE and SE, so that answers from one set of users didn't cloud the answers from the other. For instance, Turbo Basic is not available on the SE so every SE owner who asked for less coverage would have distorted the actual response from those who are able to use it. Where appropriate we combined figures to get an overall view. First thing to emerge is that 32% of our readers are SE owners, of which about half take our \$244 magazine, and that's quite a high percentage. Next time any SE owner feels like writing to complain about the SE coverage, perhaps they would stop and think, if we lose 32% of our sales and about half of the advertising that would not only ensure there was no SE coverage but also no magazine! Likewise SE owners who ask us to drop the SE list should think about the 38% who form the backbone of the magazine.

Of the SE40 owners 71% have disk drives and 19% are cassette based (some didn't give this info as they only answered in both SE and SE40), so there is obviously a good percentage who still need cassette based programs and articles.

What about your preferences? There's not room to give all the details and there are many ways of interpreting things so we'll just state those that got 'majority' votes. We'd start first with SL/SE owners. These folks wanted MORE Type-In Utilities (52%), Review Articles (47%), Programming articles (51%), Tutorials (40%) and Hardware Projects (41%, just a majority). The most overwhelming vote came in the category that people wanted to see the DEMO and there were 60% for it, better 62%. Type-In Games (47%), Short Demos (41%, just beating those who want more), Hardware Reviews (47%, again close), Adventure Columns (44%), Games Reviews (44%), Turbo Basic (43%), Interviews (39%), First Steps (39%) and Contact (37%).

There were no items that receive a majority vote for SE40 but those that came close included Type-In Games (39%), Adventure Columns (36%) and Interviews (31%).

Over to the SE and the same categories. Here we have MORE News (47%, tying with news), Type-In Utilities (46%), Type-In Games (43%), Hardware Reviews (36%), Review Articles (39%), Programming Articles (41%), Tutorials (40%) and Hardware Projects (40%, fairly evenly split). Those of you that wanted the SAME were better (44%), Adventure Columns (31%, another close one), Games Reviews (40%), Turbo Basic (40%), Interviews (40%), First Steps (41%) and Contact (40%). There were more votes for DEMO amongst SE users with a majority wanting DEMO Type-In Games (47% and high percentages for less Type-In Utilities, Type-In Games, Adventure Columns, Games Reviews, Hardware Projects, Turbo Basic and Interviews). The votes on the SE were much more widely spread overall giving some idea of the difficulty of covering this machine. One interesting thing was that a majority want to keep the same coverage on Turbo Basic and it's not available on the SE! What's more two people actually asked for more!

Listings in the mag? Quite evenly split, with 32% wanting them in the magazine and 44% wanting them on disk. Almost all the cassette owners pointed out that they would lose out if the listings were cut in the magazine. Fair point.

A Top Twenty? Close again. 41% saying NO and 41% saying YES (some didn't vote), so this is a close decision, do we or don't we?

The votes about having more or less coverage of each machine were fairly predictably in favour of whatever machine the reader named except for the new SE owner who stated that there should be NO SE coverage! What was more interesting was that 49% read both sections of the magazine, whichever machine they own, and the vote was exactly the same for both sets of users.

The most overwhelming response was whether you want a regular column covering the Public Domain scene with over 90% of both SL/SE and SE owners wanting one. This is something we are quite keen on and we already have one possible writer lined up but would welcome some other contributors. We would need one contributor covering 4-800 and one covering the SE. You have to be a good, interesting writer and be able to write a column of about 800 words each issue. Send us a sample review if you want to have a go. We don't want professional journalists here, you won't get paid much! but people who love their Atari and can write. We can supply bits of PD software for history columns if you become our regular PD writer.

That's about it really except to say that the actual readability of the magazine came out at 100% of those that say it is. If we sell 20,000 then 10,000 read the magazine. If those extra 10,000 would also buy a copy we could put in a load of extra pages to keep everyone happy!

## HOW TO TYPE IN YOUR LISTINGS and get them right!

The program listings in NEW ATARI USER are prepared carefully to ensure that they can be typed in as easily as possible before typing any listings ensure that you are familiar with the use of the SHIFT and CONTROL and DELETE keys as outlined in your computer manual.

The listings are prepared to match exactly what you see on screen. Every character that you may see in a listing is included in the chart below for cross reference. By using TYPO I you can ensure that you type in the programs EXACTLY as they are printed. Remember, a single typing mistake may mean a program will not run.

### WHAT ARE THOSE CODES?

Each line of a program printed in NEW ATARI USER begins with a special two letter code. TYPO I uses 12 bits of TYPED IN. They are used for the program TYPO I to check that you have typed each line correctly. If you have any difficulties typed in the TYPO I LISTING, PLEASE DO NOT WORRY. The program can be used on any tape to check lines of a program or to check an already typed program. The code for each line will match but if you have problems check the listing once more before carefully, you may want to carefully retype a CONTROL character incorrectly. TYPO I cannot check whether a line has been entered so if you have problems in entering a listing read the lines in the program and always make sure nothing. If the TYPO code matches and the program will show not run, LIST IN TO CHECKS ON this using DEL, C, or DEL (Delimiters) with it on the computer or print out then ENTER the program using ENTER, C, or ENTER (Delimiters), have this enter in the manual way.

### HOW TO USE TYPO I

- Type in the listing carefully for although you can use TYPO I to check itself (see a below) it may not work if you have made mistakes.
- SAVE or SAVE II a copy of the program.
- Each time you want to type in a program listing RUN TYPO I first. The program will load a non-line code routine to memory and then delete itself. Now type in a line of code in the magazine including the two letter code and press RETURN.
- If a two letter code will appear at the top left of your screen. If this code matches the one in the magazine every one and type the next line. Note, the code will match if you use any delimiters. If you prefer to use delimiters LIST the line you have (and typed), move the cursor to that line and press RETURN. The code should now match.
- If the code does not match, use the editing keys to correct the line and press RETURN again. Repeat if necessary until the codes match.
- To check a line you have already typed (SEE the list), place the cursor on that line and press DEL (DELETE).
- When you have finished a listing (and SAVE or SAVE II in the manual way).

You can type in a program without using TYPO I and then check it by SAVING or SAVING II a copy of the program, running TYPO I and then loading or CLIPPING your program and proceeding as to step 4 above.

Always SAVE or SAVING II a program before running it and always use TYPO before listing in that a program will not run.

## OUR UNIQUE LINE BY LINE CHECKER WORKS ON ALL ATARI XL/XE and earlier 8-bit machines

```

01 1 000 *****
02 3 004 * 1700 111 00 000 00000 *
          - June 1988 *
03 2 008 * * *****000 100 0000 000 *
          * PAGE 5 based on 1700 111 *
          * published by ATARI magazine *
04 4 000 *****
05 000 *****
06 110 700 001000 10 12010000 000000+01
      P000 1 0 00000 1
07 120 00 0010000 7000 + "Error in data
      statements - Check Typing"0000
08 120 0000000000
09 140 7 17 "1700 111 is up and running"
      0004
10 0000 0070 100,000,0,000,00,1,000,07
11 0010 0070 100,0,0,000,000,070,00,000
12 0020 0070 100,70,000,000,00,101,00,1
13 0030 0070 100,000,000,0,000,00,1,002,0
14 0040 0070 100,0,0,00,000,70,0,0,01,004
15 0050 0070 100,000,000,000,00,100,01,0
16 0060 0070 100,0,101,00,0,0,0,0,0
17 0070 0070 100,0,101,00,0,0,0,0,0
18 0080 0070 100,0,0,0,0,0,0,0,0
19 0090 0070 100,0,0,0,0,0,0,0,0
20 0100 0070 100,0,0,0,0,0,0,0,0
21 0110 0070 0,0,0,0,0,0,0,0,0
22 0120 0070 0,0,0,0,0,0,0,0,0
23 0130 0070 000,100,000,000,70,100,0,100
24 0140 0070 000,100,0,100,00,000,0,000
25 0150 0070 000,7,0,100,000,0,0,0,0
26 0160 0070 000,100,000,0,0,0,100,0,1
      00
27 0170 0070 000,100,000,0,0,0,000,000,
      001
28 0180 0070 000,100,000,000,000,100,0,1
      0
29 0190 0070 000,100,000,000,00,0,0,0,0
30 0200 0070 000,70,100,0,100,007,100,000
31 0210 0070 100,0,0,0,100,00,000,000
32 0220 0070 00,000,00,000,00,000,000,000
33 0230 0070 100,100,000,000,000,0,100,0
34 0240 0070 100,000,100,000,100,000,000,
      000
35 0250 0070 0,000,000,000,000,000,0
36 0260 0070 000,00,000,00,100,0,000,0
37 0270 0070 100,000,000,000,0,100,000,
      000
38 0280 0070 100,100,00,000,000,00,000,0
      0
39 0290 0070 000,00,000,00,000,000,0
40 0300 0070 000,00,000,00,000,000,000,0
41 0310 0070 100,000,000,000,000,000,000,
      0
42 0320 0070 00,000,0,000,000,70,000,0
  
```

Symbol	Name	DEL	Typing	Control	Typing	Control	Name	DEL	Typing	Control	Typing	Control	Name
+	ADD	[ ]	[ ]	[ ]	[ ]	[ ]	+	[ ]	[ ]	[ ]	[ ]	[ ]	000 CTRL
*	MULT	[ ]	[ ]	[ ]	[ ]	[ ]	*	[ ]	[ ]	[ ]	[ ]	[ ]	000 CTRL -
^	EXP	[ ]	[ ]	[ ]	[ ]	[ ]	^	[ ]	[ ]	[ ]	[ ]	[ ]	000 CTRL 0
%	MOD	[ ]	[ ]	[ ]	[ ]	[ ]	%	[ ]	[ ]	[ ]	[ ]	[ ]	000 CTRL *
<	LT	[ ]	[ ]	[ ]	[ ]	[ ]	<	[ ]	[ ]	[ ]	[ ]	[ ]	000 CTRL *
>	GT	[ ]	[ ]	[ ]	[ ]	[ ]	>	[ ]	[ ]	[ ]	[ ]	[ ]	000 SHIFT CLEAR
~	NOT	[ ]	[ ]	[ ]	[ ]	[ ]	~	[ ]	[ ]	[ ]	[ ]	[ ]	000 DELETE
!@#	PRINT	[ ]	[ ]	[ ]	[ ]	[ ]	!@#	[ ]	[ ]	[ ]	[ ]	[ ]	000 TAB
~	END	[ ]	[ ]	[ ]	[ ]	[ ]	~	[ ]	[ ]	[ ]	[ ]	[ ]	000 SHIFT DELETE
~	END	[ ]	[ ]	[ ]	[ ]	[ ]	~	[ ]	[ ]	[ ]	[ ]	[ ]	000 SHIFT INVERT
~	END	[ ]	[ ]	[ ]	[ ]	[ ]	~	[ ]	[ ]	[ ]	[ ]	[ ]	000 CTRL TAB
~	END	[ ]	[ ]	[ ]	[ ]	[ ]	~	[ ]	[ ]	[ ]	[ ]	[ ]	000 SHIFT TAB
~	END	[ ]	[ ]	[ ]	[ ]	[ ]	~	[ ]	[ ]	[ ]	[ ]	[ ]	000 CTRL 0
~	END	[ ]	[ ]	[ ]	[ ]	[ ]	~	[ ]	[ ]	[ ]	[ ]	[ ]	000 CTRL DELETE
~	END	[ ]	[ ]	[ ]	[ ]	[ ]	~	[ ]	[ ]	[ ]	[ ]	[ ]	000 CTRL INVERT
~	END	[ ]	[ ]	[ ]	[ ]	[ ]	~	[ ]	[ ]	[ ]	[ ]	[ ]	INVERSE SPACE





switching off the disk drive motor when CIO is finished - the CIO routine takes care of all this. Finally the device channel (lines 340 to 385) must be closed by setting a value of 12 in the COMMAND byte (Listing 1). It is important to close the device channel. If you try to open a channel that is already open then an error will result.

Listing 1 saves whatever is written on a text screen to a disk file, but can be adapted to save any block of memory. To customize the listing alter the values of START and LENGTH (lines 140 and 170) or the filename of line 290.

### LOADING MEMORY

Listing 2 is used to load the file into memory. The open device channel routine (lines 210-220) are identical to Listing 1 apart from taking a value of 4 (=read) instead of 1 (=write).

To load the data, the starting address of where the data is to be loaded is stored in the BUFFER bytes of IOCB (lines 280 - 400). This does not have to be the same location from where the original data was saved. By storing a value of 100 in both BUFFER bytes (lines 440 to 470), a maximum record length of 65536 (256\*256) is set. The exact length of the data file could be specified or a smaller value could be used so that only part of the data is loaded but by setting a maximum length the CIO system loads the file until it reaches an end-of-file marker on the record. This marker was automatically added to the file by the CIO system when saving.

Line 48 sets CIO to perform a load routine and as in listing 1 the final section (lines 340 to 380) close the device channel.

### ROUTINES FOR CASSETTE

Listings 3 and 4 are similar to the first two routines, but for cassette. The filename used is "C:\Listing 3 (line 300). When the CIO finds this as a file name the two loops are automatically changed by the CIO system to prompt the user to press PLAY and RECORD on the cassette player. The data is recorded to cassette in tracks or blocks of 128 bytes each. In order to make the gap between each track short, a value of 128 must be stored at the AUX1 bytes in IOCB and also in location 62 (see lines 470 to 490). This reduces the length of time taken to save a record.

### ERROR TRAPPING

The source code listings will work correctly providing your equipment is OK. But what happens if there is a fault? Maybe the disk drive is not switched on, the disk may be write protected, or the disk may be full. In BASIC whenever such things happen an error number between 105 and 175 is returned. In the routines as they stand any error will result in the program ending without the save or load operation being performed.

BYTE	NAME	USE
0	INDEX	Index to the device name for currently open file. Usually not used
1	DEVICE	Device number e.g. 1 for disk, 1 or 2 for disk 2. This is set by the operating system
2	COMMAND	Designates the type of operation. Values that can be used here are shown in Table 2
3	STATUS	Stores status of device. A value found here is equivalent to BASIC error numbers 100 to 175
4-5	BUFFER	Two bytes that store the address of the file name or the address where the data is to be transferred to bytes 5/7
6-7	PUT BUFFER	Stores address of routine to put one byte. Not used by the Operating system except in BASIC
8-9	BUFFER	Sets maximum number of bytes to save or load. This address decreases by 1 each time a read or write operation is performed, so BUFFER can be used to check on how many bytes have been transferred
10	MODE	Used to specify type of file. Values stored here include 4=Read, 5=Write, 6=Full disk directory, 8=Append to old disk file, 12=Read and write
11	AGE	The value held here depends on which device is being used
12,13	AUX1/2	Stores current disk sector number when using BASIC command MOVE and POINT
14	AUX3	Stores current within a sector when using MOVE and POINT
15	AUX 4	Spare auxiliary byte

TABLE 1 - BYTES USED IN EACH CONTROL BLOCK

# MACHINE CODE

An error trapping routine would be useful. By examining the STATUS byte (byte 3) of the IOCB, we can find the type of error that has occurred. The number found here will be the equivalent of the BASIC program error number (see the Alan writers manual for a list of error types). Errors can occur at more than one point. After trying to open a write-only file errors such as write protected disk or device disconnect may occur. When attempting to move the data the disk may be full, or the device may become disconnected. When loading data, especially from tape, errors occur when the expected number of bytes in a block does not reach the computer due to tape error, dirty heads, etc.

A typical error trapping routine is

```
LDI STA790,X
CMF #0
ERR:ERROR
```

which is written after an open operation and after a save or load attempt.

In this example, whenever an error occurs, an ERROR routine would display an error message on the screen. I have not included error trapping routines in the list-

ings as it is impossible to provide a routine to suit all applications. The type of routine needed depends on many factors - what type of error message is needed? What graphic screen is the message to be displayed on? What message do you wish to display?

### THE ROUTINES IN BASIC

Listings 1 and 4 save and load memory blocks from BASIC. When using the CIO from BASIC, a full implementation of listing 1 to 4 is not necessary as the machine code routines would not save any significant memory or work much faster.

The only machine code that is needed is a short routine to access the CIO. The data for this is found in line 270 of listing 5. In assembly language this reads

```
PLA
LDI #10
JNB 08404,(CIO)
RTN
```

If using a channel other than 1 then alter the value of 10 to another multiple of 16 in line 270 (or line 280 in listing 6).





Hi, I'm the Tipster, here to help you out with all those little problems you have with Atari software. Like when you get stuck! Although I'll throw in a few hints and tips of my own, this column is really yours and will be packed with all YOUR original tips, hints, cheats, tricks, maps and playing guides for Atari specific entertainment software covering arcade, adventure, strategy, music, simulations and war games. It's a two-way affair so if you need help let us know and we'll do our utmost to provide the answers or put out an "all-gamers bulletin" right here!

If you have any information that will assist other Atari folk, and you wish to see your name in print, then send it on in! We'll be giving special awards to the best contributions received and published and they won't be the usual computer fodder, all sorts of wind and wonderful things will be an offer! Well, that's enough intro, let's get on with helping a few of you out.

## Are you stuck?

Most of the sites for help received over the past couple of months have been for **CLOAK OF DEATH** which many of you have listed as your first taste of Atari adventuring so our first set of hints and a map comes from Bruce Newbery of Preston. Let's hope this little lot will get you a bit further on. You've even got a map so you can't get lost but if there are still some of you wondering around we'll try and publish a full solution to this oddie, later on in this column.

### CLOAK OF DEATH

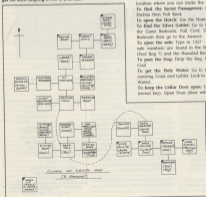
- To pass the Rat, Carry milk
- To go upstairs, Carry the Bible
- To open the Chest, Kick Chest (press a key)
- To make Cross, Get Hammer, Remove nails from hatch, Get wire, and use Go in the Workshop and Cut Bar. This is the only location where you can make the cross
- To find the Secret Passageway, Go to the Library and Look Shelves then Pull Book.
- To open the Hatch, Use the Hammer
- To find the Silver Gabbler, Go to the Cellar and get iron. Go to the Guest Bedroom, Pull Coat, Drop Iron. Go to the Master Bedroom then go to the Annex
- To open the safe, Type in 1117 - no spaces or comma's! The safe numbers are found in the Study (Letter 1-1), Book Room (Phil's log 7) and the Haunted Bed (Painting - 3)
- To pass the Trap, Drop the Bag, Drop the Coal then Light the Coal
- To get the Holy Water, Go to the Kitchen. Be sure you are carrying Cross and Gabbler. Look in the Sink. Get the Water (Holy Water)
- To keep the Cellar Door open: Drop the Chest, Kick the Chest (press key), Open Door (now will now stay open)

To get into the Haunted Bedroom, You must have the Bible, Silver Gabbler (with Holy Water) and the Cross

To kill the Clerk in the Haunted Bedroom, Carry the above items and type 'SHOOT CLOSE'

Red Herring's are half-way out of Bristol. Grandfather clock, Bottle of Wine, Sewing Room and Dressing Room.

Thanks Bruce





Another slide from the new deckset for *Star Trek: Star Trek* English software is **MEDIATOR**, but James Boardman of Stafford has been playing it recently and offers the following hints. You'll need to refer to diagram 1. Are you having trouble killing the robots? Well, after getting the bonuses do the following:

Robot	First	Second
Cray	4	2
Yellow	2	5
Pink	5	4
Purple	4	3
Blue	2	3
Green	3	2



Play the notes in sequence!  
On the fourth screen, push each into the pool to evaporate the water, then head for the hidden door.

## FLYING AROUND

Anyone do a lot of flying with **FLIGHT SIMULATOR 2?** Christopher Smith of Welling, Kent wishes he's an ace pilot and suggests some fun things to do and has come up with a couple of good tips for this issue.

Have you ever wondered how they got the screen shot on the [52] box - like Piper Cherokee in the World War I setting? Christopher says it's easy, and you can do it too! With accumulated technical know-how (he loaded the WWI game) and checked the options menu, he discovered the co-ordinates. Load [52] as normal and go to the parameter option screen and then enter the following:

North position 17000  
East Position 7318  
Altitude 800

Now return to the simulator and you will be in the [52] scenario in the Piper. **NOT** the fighter, and nothing will attack you! You can't bomb either but at least you can fly longest! Another thing to try is select New York (La Guardia) and fly to Manhattan Bridge. Those with natural tendencies might try flying under the bridge. Good fun, until you reach Colorado can land by the bridge (on the gate side), line up with it and taxi over onto Manhattan Island. Remember, turn left as the lights and that Henry's Burger Bar!

## LAS VEGAS CASINO (Zappelin Games)

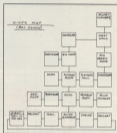
A great cheat from Christopher Smith.

Bounced by Blackjack? Buffed by Baccarat? Stuffed by Roulette? Having difficulty with Craps? Be confused no more! You can beat the Bank in about three sets. **FEARIT's** game due to a bug in the roulette game! To be a sure winner select the odds at craps, put a chip on the **EVEN** numbers to win and bet all your money. Then, roll an even odd, place the remaining chips on the other square in the even category. You will not be able to bet any money but must the journal as if making a bet. You should hear a cue in response to the journal movement. When you have finished, spin the wheel. You can't stop! When the ball lands, the winning chips will float out (this is the good bet) you will win the equivalent as if you had placed all your money on those chips as well. Do this a couple of more times and you will have beaten the Bank! (By the way, does it work in real life?)

## NINJA

Ben Oswald from Rothbury, Northumberland faces himself in the mental arts and has mapped out **NINJA**. Now it's map to play, but

go around the Palace and collect all 6 tiles, then you will be able to enter Akuma Chamber. Kill all of the men inside and collect the tiles. Go back to the start. The map will help you find your way around the Palace. Good luck!



That's all the hints we've got time for this time around but let's build up this issue with a couple of places for help from fellow Atarians who are stuck too. Simon Ashby from Inverkeithing wants some help with **BEACONS**. How do you kill the Tyrant threat and how do you get the spells? Also how do you get the Necromancer's staff?

James Boardman needs some help on **BARK CRYSTAL**, especially the location of Archaia the Myths and he also needs any help at all with **SPIN HOUSE**.

This is where **YOU** come in. Your answers to the above and hints and tips on all sorts of Atari games may be featured in the next issue so send them in. Individual addresses and telephone numbers will **NOT** be published unless specifically requested!

This issue's mystery prize (a mystery because we haven't quite decided yet what it's going to be!) goes to Brian Sweeney because his map of Clock of Death has helped dozens of folks who have written in for help. On our next time are **TWO SECRETS** for **ALTON TOWERS**, worth nearly £20, as you can really reduce yourself to a quivering wreck on the Black Hole, instead of just playing those computer games where you're only pretending! Drop **TWO TOPSETS** a line to **NOV: ATARI USER**, P.O. Box 34, Stafford, ST16 1DN and help you follow Atarians out, who know you may well find the answers to your problems next time! Get those maps and hints covering in!

# IS THIS THE WAY AHEAD?

Colin Hunt paid a visit to a very different show and came away impressed with the whole thing

I have been attending computer shows, be it major events like PCW or local fairs, for about six years, on both sides of the fence as an exhibitor and visitor. For the first time, in nearly as many years, I've come away from a show with a real buzz of excitement. In why was the London Alternative Micro Show (LAMS) better than PCW and most of the Atari User Shows? There is no simple answer to this but hopefully this show review will portray the atmosphere and excitement the show produced and show Atari 8 bit users that their niche is far from dead.



LAMS was held at the New International Centre in London. The show, which was not fully advertised, aims to support those users that no longer grace the support of their original suppliers or are no longer 'large' enough to merit shows of their own. For the first time the Atari 8 bit has been deemed to fall within these criteria, though in the opinion of many users this has been the case for several years. Belonging to a user group that has grown up through the birth of the ST without losing its 8 bit heritage there was no way we would not be there, so on April 1 we dutifully turned up and with 40 other groups and retailers waited for the doors to open.

During the seven hours the show was open about 2,000 people, from all walks of life, wandered around the hall talking to the exhibitors behind their 120 tables. No fancy toped up displays here, just dedicated users of micro.

The exhibition of major interest were of course those who were supporting the Atari 8 bit. These included Calisto Computers, Cores Marketing, Computech, Frontier Software and the Bournemouth and Poole Atari User Group. Computech were selling a large range of 8 bit software which they have recently imported from the USA and there were many other games that have not been available in this country for a long time. Frontier Software were selling their usual range of CDROMS products and had on display the new Aquatone 5 cartridge, although they only had one copy! Also, among the items available, were the I.R. Connection interface, the programming language Action and BASIC XL and a great stereo machine, the SuperModem 2400 from Inpro Corporation in the USA.

The only other dedicated Atari stand was ours. Along with the latest issue of 8 bit, our newsletter, we had a disk of the 8 bit Mouse, which has been written by members of our group. The disk includes a program called IBM Draw which allows you to produce drawings using the ST mouse on your 8 bit computer in response to mouse requests at the last Atari User Show we launched the Atari User's Register. The aim of the register is to get Atari users talking to and helping each other and ultimately setting up local groups in areas where groups do not exist.

The stands mentioned made the show well worth a visit but on top of this excellent support there was also the pleasure in seeing how other groups of 'unsupported' micros have overcome their

supply problems. The Atari 8 bit is still available in the shops, even though it is currently being sold on a game console, yet it does not get the after sales support it deserves, although there is always the possibility on the horizon. Because of this Atari user groups tend to wait and go without, an attitude that will have to change. The other user groups at the show, supporting micros such as the MSX, S and Z, QL, Adams, Samaris, Jupiter ACE, Lynx, Enterprise, TR9 and Cric, have been through this period of no main line and are supporting their micros in the way we all wish Atari would support ours. Seeing how these user groups for dead, yet still alive, micros have overcome their difficulties should be an inspiration to us all.

Stand of particular interest included the one started by the Reading Lynx User Group. Along with their most recent story they also had on display a CDROM for the M4E Lynx, written by members of the group, a took over Computer loaded in. Both the British user groups at the show produce a monthly magazine and the UK Amateur User Group, which claims 2000 members, also organise the National Amateur Exhibition, which this year was held at the National Motorcycle Museum in Birmingham. The Ingher Ave User Group organised an open invitation to the other micros, to be held to head nose running the PCW benchmark tests. Sadly no one was brave enough to take up the challenge, thus removing the opportunity of the group to show how fast both on the ACE is.

Another well supported micro was the T199/MS which was represented by three user groups and one retailer. One of the user groups, Dorset IT Group (DORITG), had a standard T199 with a full expansion box. This included a disk drive interface, serial card and a battery backed RAM disk. The unit also had an 80 column card plugged into the side. An interesting point, especially after the release of Aquatone 5, was the DMS which is run from a 8000 cartridge, which was also battery backed.

All in all, the London Alternative Micro Show was well worth the wait for those Atari 8 bit users that attended. We were surprised at the large number of 8 bit users, who, as well as attending the show, still believe that the Atari 8 bit is the best micro available. There is no reason why support for Atari at the next show, to be held at the Blingie Hall, Bedford on Saturday 10th November, should not exceed the CD support at this show. The main reason why we should support this show is that the Atari User Shows are now dominated by the ST but do you then whether you are a retailer or a user.

Do you believe there should be an Atari 8 bit show? If yes, where would be the best place to hold it, London or Birmingham? How much would you pay to get in? Send us your views and if there is enough interest we will organise one. Write to Colin Hunt, Bournemouth and Poole Atari User Group, 248 Windward Road, Durdley, Poole, Dorset BH13 1JF

*Kenny  
Dalglish*

# SOCCER MANAGER



Cognito, the full-priced gem of award-winning sports Dalglish Games, brings you the ultimate football manager (series), the most respected name in the game and the professional's choice - Kenny Dalglish.

Kenny Dalglish has brought all the Liverpool Dalglish and the best of his playing days to the most demanding managerial post in soccer - Liverpool Football Club Manager.

Now it is your turn to rise on this most prestigious post.

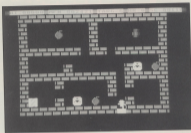


AVAILABLE ON ATARI, AMIGA,  
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AMSTRAD, COMMODORE

- ATTRACTIVE ICON-DRIVEN PLAY
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- FULL F.A. CUP AND LEAGUE CUP COMPETITION

*Cognito*

# THE



**I**t's time to save the world again. Well, your street of local Alien body snatchers, the 'Podz', are being deposited in the houses, waiting to take human form when the occupants fall asleep. You must prevent the Podz from taking over by keeping your neighbours awake and putting the Podz down the disposal unit.

To wake people knock them while they are in bed asleep. The Podz can be picked up by touching them and must be transported quickly to the disposal units which are situated in the bottom left room of each house. Whilst you are carrying one of the Podz you can't pick up another or leave the house. When fully grown the Podz kill off their host humans and jump around from room to room. They cannot be killed in this form and will stay on contact. Hitting the pod truck will also put you out of commission for a while.

There are 20 people to save and the game ends when less than 2 remain. The display at the top shows the highest score, the number of surviving humans in each house, the current house being invaded, houses completed and current points.

## SCORING

Picking up new pod	10 points
Picking up partly formed pod	20 points
Picking up sleeping pod	30 points
Carrying a pod	10 points
Wakening sleeping person	10 points
Money per person still alive (calculated each hour)	100 points

Press the joystick button twice to commence a new game. To abort press START, SELECT or OPTION.

# PODZ

by Bill Halsall

## TYPING IT IN

Cassette and disk users should type in Listing 1, SAVE or CSAVE a copy, then RUN the program. The program will check each line of data and inform you of any errors. Correct any errors and RUN the program again until all errors are eliminated. When this is done answer the cassette/disk questions accordingly to create a load tape or binary disk file. Cassette users should load the load tape created by firstly removing all cartridges and then taping on the computer while holding down the START key (20 and 21 owners should hold down OPTION as well). Press RETURN and the tape will load and run automatically.

Disk users should type in Listing 2 and save it on the same disk as the binary file created by Listing 1. RUN the Listing 2 program with the disk in the drive and the game will load and run automatically.

A special note for disk users - if any other programs have been used prior to Listing 2 being loaded it is recommended that the computer be turned off and on again before the program is run to ensure that the game isn't corrupted by any data left in memory.





# Be part of the action

at the

# ATARI

## COMPUTER SHOW

### MIDI

All the latest hardware and software in the rapidly expanding world of MIDI music will be on display, including keyboards, samplers, sequencers and professional studio software.

With an Atari/MSX setup you can produce top-quality music, quickly and simply - editing out mistakes in a way that's impossible with live recordings. So if you're in any way interested in making music with your micro this is the place to come to find out all about it.

### CAD

Computer Aided Design has grown to become one of the most important uses for modern computers. With a CAD system you can design houses, cars and electronic circuits - in a fraction of the time it would take you with pen and paper.

With the high speed and powerful graphics of Atari micros it's hardly surprising that bigger and better CAD programs are pushing back the frontiers of the time.

And only at the Atari Computer Show can you see all the latest systems under one roof.

### BUSINESS

Many companies will be demonstrating their latest software and hardware, specially designed to release the full business potential of Atari computers.

As well as products for the 8-bit and 512, you'll be able to try out applications for the powerful Atari PC compatible series.

And you'll also be able to get expert advice from professionals.

### DTP

The art of combining text and pictures in big beautiful newspapers has been, with a low-cost DTP program, you can create anything from a club newsletter to a monthly magazine or book.

At the show you'll be able to try out the latest winners, digitisers and super-fast programs, and get a first-hand glimpse of the way DTP is set to develop in the future.

Alexandra Palace, Wood Green,

London N22

Friday to Sunday,

June 23 to 25, 1989

Fri & Sat: 10am - 8pm,

Sun: 10am - 4pm

The Atari Computer Show is back - with many new products and developments. Atari has grown to be one of the major players in the computer world, supported by an incredible wealth of top-quality applications, games and utilities - all on view at this show.



# Business



# GAMES

### GAMES

Atari computers are renowned for their ability to run first-class arcade-quality games.

The range of new software on show will demonstrate how the power of these machines is continually being extended, producing faster and even more addictive games with superb graphics.

The winning entry to the SIDS GameMaker of the Year Award will be revealed, and several new exciting SIDS accessories will be shown for the first time.

If you're a keen game player, you'll find there's as much to offer at the show - you're guaranteed a real treat!

### DON'T MISS IT

So be a great day out - whether you want to see what the latest looks for Atari computer users, take advantage of the bargains on offer or get advice on specific applications - the Atari Computer Show is the place to go.

And if you want to fit in a couple more, you'll save £1 off the price of a single ticket!

### SPECIAL OFFER

For the first time we are now offering a family ticket for just £20, allowing entry for two adults and two children. So you can save up to £8 off the usual entry price!

### How To Get There

Alexandra Palace is so easy to get to by car, rail, underground or bus. It has its own British Rail station, just nine minutes away from King's Cross, and there's a free bus service shuttling between station and show every 10 minutes.

If you're travelling by road, the show is only 17 minutes away from Junction 21 on the M25. Car parking is free.

### DATA-BASE EXHIBITIONS

### ADVANCE TICKET ORDER

POST TO: Atari Computer Show Tickets,  
Business Exhibitions, 1988/1989,  
Alexandra Palace, Wood Green, LONDON N22 7DU

Please supply

- Adult/child: £14 (over £11) ..... £.....  
 Under 16 (includes £2.00 travel V) ..... £.....  
 Family ticket of £11 (over £8) ..... £.....  
 Total £.....

Cheque payable to Database Exhibitions

Please debit my Access/Amex card no: \_\_\_\_\_

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 Postcode \_\_\_\_\_

Expiry date: \_\_\_\_\_

Signature \_\_\_\_\_

Authorisation of order: \_\_\_\_\_

AT&T number: 0800 100000

Advance ticket orders must be received by Wednesday, June 14

AT&T number: 0800 100000  
 Access/Amex card no: \_\_\_\_\_  
 Access/Amex card name: \_\_\_\_\_  
 Access/Amex card expiry date: \_\_\_\_\_

# GAMES THEY NEVER RELEASED

Kirk Ruebottom searches through the American archives to discover some games you may never have heard of

All but 4-bit owners, for the most part, do not have a wide selection of new software to choose from. The British market catered almost exclusively for the Commodore, ST, Spectrum and Amstrad machines and we tend to find titles not neglected along with B.B.C. and MSX owners. Sometimes titles for the SAGE and announced by software houses and never delivered. With the launch and re-launch of the Atari and ZXII respectively, volume availability could and should improve.

Five years ago things were different. Some Atari owners may remember when shiny new titles were being released for their 800X. Many of these games came from the likes of Datasoft, Synapse, Atari, Brainsward and Electronic Arts. Of course we paid through the nose for these American imports, but they were 'state of the art' in 1983 and many of them still stand up well today.

While good software never becoming hard to find means we're intended to hear about games which were never officially released in the U.K. All of the titles below saw the light of day in America but due to such things as licensing problems, quality or the part of distributors and the big mistake of Atari in 1984, were never made available to British users (except on limited import).

Some are classics, some are not. The majority of the games are from the 1983-4 period, but most have not dated in any way. A few are of more recent origin. Say goodbye to how to obtain them are given at the end of this article.

First off the list is a game from Brainsward called **Samurai**. I remember shelling out twenty five pounds for an imported version of this a couple of years ago, thinking it was worth every penny. Super-smooth animation and great gameplay make it the best 'foot em up' ever on the Atari (and that includes Archer McQueen's International Karate). **The Succeeding Hour** from Datasoft also contains some nice graphics. This adventure may lose a few pages and title screens, but the pictures make up for this. There is also some excellent music from maestro Gary (Alexander Bradley's) Gilchrist.

It is surprising how many of the little-known Atari games were officially released in Britain, for the Commodore 64, usually on the



Some of the early American imports for software now being gone

U.S. Gold label. A case in point is **Phantasy II**. The Atari version of this classic grand prix racing game is every bit as good as its Commodore counterpart, but U.S. and U.S. Gold did not see fit to release it over here.

A similar fate befell **Rainbow Walker** and **Scrolls of Avalon** (Synapse and Access Software titles respectively). The former, programmed by Atari veteran Steve Coleman is a mildly colorful variation on

the 'Q\*bert' theme, but with more depth and realism in its gameplay. The latter, a 'Pacman' variant in third perspective 3-D featured four way scrolling and good graphics. **Stardust**, another one-time popular game on the '64 was also written for the Atari. Can anyone tell me why the Atari version of this classic '43 'shoot em up' was not released in Britain at the same time as the '64 version?

**Software Automatic Mouth** or **S.A.M.**, for as I know an Atari-only product is a speech synthesizer supplied on disk. This little corker, originally released back in '82 was way ahead of its time. You'd be hard pressed to find better speech quality on anything released since and it includes keyboard-and-on speech syntax.

Animation, or Mediagenix as they are now known, also has a few Atari games which are U.S. only. One of these is **Master of the Lamps** in which you steer a truck on a magic carpet through winding and clipping terrain. Four view of the game is both behind the carpet, so there are some startling graphic effects in this one.

**Undress** by little-known software house Genetrend cost around seventy or eighty pounds on import about four years ago! This multi disk space extrapolation remains one of the most mysterious and elusive pieces of Atari software ever.

**Mark of the Sun**, a particularly obscure piece of graphic software was once available in some shops on import. This built on laser-type screens, set in Mexico, has you searching pyramids, mending in a jip and negotiating some really ingenious traps and puzzles. With U.S. Gold recently acquiring Genetrend's back catalogue I had hoped that this classic game would make a re-appearance. What chance U.S. Gold?

Another game which I paid a fair amount of money for several years ago is **80 Babes and the 40 Thieves** from Quality Software (who's). It's an old game, one of those requiring a Translator disk to work on 512K, but it remains a terrific little role playing funder. Similar in format to the 'Legend' trilogy and the 'Warriors of Ren' games, but with nice graphics and music, this one is worth hunting down. If you live on Atari 800 (and enough joystick), four people can play it at the same time!

Hopefully you'll find a rainbow of some



## A SELECTION OF AMERICAN GAMES THAT WERE ONLY AVAILABLE ON IMPORT

**Adventure Writer** - a text adventure writing system. Atari 1984. Amstrad/MSX - a scrolling arcade game. Gaffell Software 1982.

**Blas Tintin** - a platform game, which isn't in for the console. CBS 1983.  
**Cred in Vix** - an "avoid the needles" game, set in a maze, with your objective to make money. Adventure International 1983.

**Chessmaster 2000** - a comprehensive chess program with many features, including a 3-D view of the board. Electronic Arts 1984.

**Clipper** - a strategy game of sailing round the world. Program Design Incorporated 1983.

**Countdown** - a problem-solving arcade adventure, set in a nuclear missile base. Synapse Software 1982.

**Crytal Castles** - a revision of the popular arcade game. Atari 1984.

**Dragon Riders of Pern** - a strategy game, with arcade elements. Epic 1983.  
**Earth Views** - an educational piece of software, with thousands of images of the world, at the press of a few keys. Asia Global 1984.

**Fatal Flight** - a flight simulator. M.A.C. Software 1983.

**Firelines** - an arcade game of back and forth. Atari 1984.

**Guardian of the Gods** - an arcade game with elements of "Pac-Man" and "Galaxian". Infotrac Software 1982.

**Holly Project** - guide your spaceship in a journey round the solar system. Nitrotype 1981.

**Infiltrator** - a flight simulator with arcade adventure sequences. Nitrotype 1982.

**Journey to the Planet** - a puzzle-solving arcade adventure. J.P. Software 1982.

**Jupiter Mission** - a multi-stage space arcade adventure. Avalon Hill 1983.

**Lords of Compend** - a "link" like game of board gaming and conquest. Electronic Arts 1984.

**M.Y. Chess 2** - another computer chess game with a 3-D option. Database 1984.

**Miniature Golf** - a "bunny golf" game. Steel Software 1984.

**Paradise** - a thinking man's "shoot 'em up". Activision 1983.

**Piranach's Paradise** - a "D-berg" inspired platform game. Master Control Software 1983.

**Powertime** - probably the only graphic adventure available on cartridge. Paradise Software 1984.

**Quest of the Space Knight** - the sequel to Jupiter Mission. Avalon Hill 1984.

**Sands of Egypt** - a "lost in the desert" graphic adventure. Database 1982.

**Satan's Hollow** - a spooky "shoot 'em up". LRS 1982.

**Seppies' Star** - the sequel to blast of the Sun. Breakhead 1984.

**Sense of Strife** - a fantasy role-playing graphic adventure. Adventure International 1981.

**Ultima I** - the first installment of the award-winning fantasy role-playing series. Origin 1981.

**Ultima 2** - bigger and better - you even get to travel in space. Origin On-Line 1982.

**Wary Navy** - a shoot 'em up featuring scores of planes and helicopters. Steel Software 1983.

**Whisker's Brother** - a large disk-based platform game. Breakhead 1984.

other American titles which never made it to these shores, together with their original publishers and price of release.

This is by no means an exhaustive list. Look through back issues of American Atari magazine, Avalon and Amazing and you are bound to see more.

There are a number of ways you might be able to acquire some of these rare titles. One route, and probably the best, is to enter the help of a computer shop or mail order firm which has an American branch, or will import titles for you. The customer of one firm which might (the keyword being "might") be able to help in this respect is Ludlowe Computing International, 33 Chesford Road, Pexon, Leam, PB1 2QP. Computerhouse, who advertise regularly with Page 6 have also recently imported a number of American titles and you might just find one or two of these titles among them.

You could enquire directly to the software companies involved but bear in mind that some of them are no longer in business. Replying to classified might also yield results, as some people could have acquired these games a few years ago, when it was just possible to pick up imported Atari software. Another avenue would be to contact some User Groups in the U.S.A. or perhaps one of the people in past EDN-FACT columns who advertise for free this to see if they can find out whether these games are still available. If you do find sources for any of these games drop us a line so that we can tell other users about it.

Finally, I hope that someone at U.S. Gold has often the bees and the team of Atari users at another software house with Atari interests is reading this. Could YOU acquire the licenses to release these games in the U.K.?

# DISK BONUS

# GALACTIC CRESTA

by B. Wheaton

A 100% machine  
code all action blast



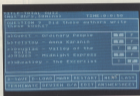
We are proud to present as the FREE BONUS on this issue's disk another 100% machine code program that was previously a commercial release! Galactic Cresta is a vertically scrolling shoot 'em up with hundreds of alien ships attacking you at a fast and furious pace. Similar to the arcade game Galaxian, these evil aliens swirl and dodge at ever increasing pace as you try to blast 'em.

It's fast, it's furious, it's fun. You'll have to be quick on the trigger to survive!

Galactic Cresta is the BONUS on the issue 18 disk, which also contains all the other programs from this issue to save you hours of typing. The disk is just £2.95 and is available from PAGE 6, P.O. Box 24, Hatfield, ST16 5NW, just send a cheque or Postal Order with a written order or see the order form elsewhere in this issue.

# MCQ-TEST

## The Ultimate Examiner



David Rawlings presents a flexible examination or quiz program complete with question maker suitable for all Atari 8-bit machines with disk drive

Computers have been used on many occasions for teaching purposes. There are many examples of programs available for this purpose but very little on examinations. This program was designed to serve as either a simple "test your kids quiz" or as a formal examination tool, and comes complete with a question editor. The program is also helping with useful features and is easy to use.

The program allows the setting up of questions like using a specially devised question editor. The format used is that of many British Universities and consists of a main statement referred to as a 'stem' and following this five statements called 'stems' which refer to the stem, each of which may be either true or false. The examination is marked on a 0-1 for a correct answer and -1 for a wrong answer. No points are given for a question not attempted, whilst it may appear cruel to subtract marks for a wrong answer, it would otherwise be possible for a less than educated monkey to get 50% on average!

### FEATURES

The system is designed to operate in two modes. On entering the program the operator is presented with the phrase "Full use of functions". Selecting 'N' in this raises the 'formal' mode where the program works as a formal examination tool with the user only able to select questions, respond appropriately and view the

'answer sheet' which is a record of all questions answered so far. In order to enter the 'formal' mode the operator types in a three letter password when requested. At the end of the examination or at any time before this it is possible to convert to the 'informal' mode with full functions available by pressing SELECT and re-entering the password. Once the exam has started all selections can be made using the joystick which works similarly to a 'mouse' and moves an arrow on the screen. Moving this over the true or false selectors or the function boxes at the bottom of the screen and pressing the joystick button allows all choices to be made.

The choices available are:

**NEXT** - The computer passes to the next question. Twenty questions per test are allowed and this option will cycle back to question 1 after question 20.

**LAST** - Selects the previous question.

**ANSWERSHEET** - Selecting this option will demonstrate all responses to all questions already attempted. It is easy to see how many have been attempted in an effort to achieve success in the exam. Simply repressing the joystick button returns the computer to the question previously attempted. Alternatively it is possible to move the joystick to any other question before pressing the button to return to any question of your choice.

The three options above are all that is required to perform an exam and is all that is presented in the 'Normal' mode. Several other features are available in 'Informal' mode including:

**MARK** - The computer watches through all your answers and marks them appropriately. The final score is then displayed on the screen.

**REVIEW Q/A** - This option allows the user to review all the questions, see how they were attempted and check the correct answers which will slide in magically from the right side of the screen. Pressing the joystick button will advance through the review. Pressing SELECT at any time will exit this mode without going through all 20 questions.

**D-SAVE** - An interesting feature. In the middle of an 'informal' test it is possible to save all questions responses so far onto disk for continuation later.

**D-LOAD** - This loads the file mode above and continues the quiz at the question last selected. The time on the clock is also reset to its previous value. Obviously it is necessary to have the correct question file already in the computer.

**RESTART** - completely restarts the program. Do not select this option unless you are sure you want to.

**TERMINATE** - Ends the program and returns to BASIC.

**EDIT** - Allows the user to set up questions files or edit any files on disk. Any file presently in memory will be lost and will require to be reloaded from disk if this file is to be edited.

## TYPING IN THE PROGRAM

All three parts of the program should not be REM'ed until checked and saved to disk. Type in Listing 1 and SAVE as MCKQTEST.1. For best test set up an AUTORUN.BAS file from DOS 2.1 or elsewhere to automate this program.

Type in listing 2. This is the main part of the program and must be saved as MCKQTEST.2.

Type in Listing 3. This is the question editor which is called up when required. Save as MCKQTEST.3.

Listing 4 is simply an example of 20 general knowledge questions. It can be seen that the standard of the test is up to the user and can be anything from simple word or English tests to University level exams. Use the question editor to enter this test in set up your own exams for your kids, your friends or your school pupils or students.

## USING THE PROGRAM

As mentioned earlier it is beneficial to set up an AUTORUN.BAS basic file to automatically run MCKQTEST.1 on switching on. Alternatively type RUN "D:\MCKQTEST.1" and the program will load. As already mentioned the first choice on running the program is to select full or limited functions use depending on a 'Normal' or 'Informal' exam. Next you are prompted to enter the name of a question file previously created by the editor and resident on disk. This should be in the form of D:\PROGRAMS\EXT. The computer will respond to any file loading problem. The cursor appears in a little box in the corner, the file is loaded and pressing START will begin the exam and start the clock.

Choose your answers on 'true' or 'false' by placing the arrow on T or F and pressing the button. Moving the arrow to NEXT will allow you to proceed to the next question. The exam stops when the preset time limit expires or the operator chooses to stop.

On the prompt to enter a file on start up it is possible to type EDIT as an alternative and the question editor is loaded without commencing a test.

## USING THE QUESTION EDITOR

The program is fairly self explanatory. Type N to create a new file, A to add or alter a previous file on disk. All options are

```
00 1 REM *****
00 2 REM *
00 3 REM *          MCKQTEST
00 4 REM *          MULTIPLE CHOICE QUESTIONS
00 5 REM *          BY DAVID BOWLING
00 6 REM *          LISTING 2
00 7 REM *
00 8 REM *****
00 9 REM
00 10 REM *****
00 11 REM
00 12 REM *****
00 13 REM
00 14 REM *****
00 15 REM
00 16 REM *****
00 17 REM
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00 90 REM *****
00 91 REM
00 92 REM *****
00 93 REM
00 94 REM *****
00 95 REM
00 96 REM *****
00 97 REM
00 98 REM *****
00 99 REM
01 000 REM "MCKQTEST.1"
```

## Listing 1 above other listings overleaf

explained and whole questions or just parts of questions can be typed in. On the prompt to enter text use the joystick with normal spacing. Try to keep the text on short as possible and the computer will fit the words into the grid. If a correct you will be informed and you can continue the text in a shortened form or with a hyphen inserted in a long word which the computer will try and split onto two lines. The five responses required to the five 'true' are entered as 'TTTT' (or whatever) when prompted.

Once all editing has been completed select 'Y' to save to disk. You are then prompted to enter the quiz name which will appear at the top of the screen when it is run. Following this enter the time limit and then the filename for storage on the disk, again in the form "D:\PROGRAMS\EXT".

## SECURITY

Do not, repeat do not, press SYSTEM RESET. This will abort the whole system. Use TERMINATE to get out of the program. In the 'Normal' mode it is impossible to stop the program and peek inside for clues although again do not press SYSTEM RESET. The use of a password set by the examiner will prevent a keen student breaking into the 'informal' mode. Do not forget the password or it becomes impossible to mark the test.

So there we go. Full of interesting features, this program is still very easy to use on an examination table and would be ideal for schools or colleges. The use of a joystick 'mouse simulator' should persuade the most keyboard fearing student to attempt a computer controlled test. Alternative tests can be set up for students to run informally and mark themselves in preparation for a real examination. The facilities are all here so start typing in your questions and setting up your examination files and get your family, friends or students to work!



1. The first part of the test is a multiple choice section. It consists of 20 questions. Each question has four possible answers. Only one of these is the correct answer. You must choose the correct answer for each question. The questions cover a wide range of topics, including general knowledge, science, history, and current events. The correct answers are as follows:

1. The correct answer is (A).  
 2. The correct answer is (B).  
 3. The correct answer is (C).  
 4. The correct answer is (D).  
 5. The correct answer is (A).  
 6. The correct answer is (B).  
 7. The correct answer is (C).  
 8. The correct answer is (D).  
 9. The correct answer is (A).  
 10. The correct answer is (B).  
 11. The correct answer is (C).  
 12. The correct answer is (D).  
 13. The correct answer is (A).  
 14. The correct answer is (B).  
 15. The correct answer is (C).  
 16. The correct answer is (D).  
 17. The correct answer is (A).  
 18. The correct answer is (B).  
 19. The correct answer is (C).  
 20. The correct answer is (D).

2. The second part of the test is a short answer section. It consists of 10 questions. Each question requires a short, concise answer. The questions are as follows:

1. What is the capital of France?  
 2. What is the largest city in the world?  
 3. What is the name of the planet that is closest to the sun?  
 4. What is the name of the first President of the United States?  
 5. What is the name of the longest river in the world?  
 6. What is the name of the largest ocean on Earth?  
 7. What is the name of the smallest country in the world?  
 8. What is the name of the largest island in the world?  
 9. What is the name of the tallest mountain in the world?  
 10. What is the name of the deepest sea trench in the world?

3. The third part of the test is a multiple choice section. It consists of 20 questions. Each question has four possible answers. Only one of these is the correct answer. You must choose the correct answer for each question. The questions cover a wide range of topics, including general knowledge, science, history, and current events. The correct answers are as follows:

1. The correct answer is (A).  
 2. The correct answer is (B).  
 3. The correct answer is (C).  
 4. The correct answer is (D).  
 5. The correct answer is (A).  
 6. The correct answer is (B).  
 7. The correct answer is (C).  
 8. The correct answer is (D).  
 9. The correct answer is (A).  
 10. The correct answer is (B).  
 11. The correct answer is (C).  
 12. The correct answer is (D).  
 13. The correct answer is (A).  
 14. The correct answer is (B).  
 15. The correct answer is (C).  
 16. The correct answer is (D).  
 17. The correct answer is (A).  
 18. The correct answer is (B).  
 19. The correct answer is (C).  
 20. The correct answer is (D).

# MCQ TEST The Question Maker

1. The first part of the test is a multiple choice section. It consists of 20 questions, each with four possible answers. The correct answer is indicated by a letter (A, B, C, or D). The questions cover a wide range of topics, including general knowledge, science, and history.

2. The second part of the test is a short answer section. It consists of 10 questions, each requiring a brief, concise answer. The questions are designed to test your understanding of the material covered in the first part of the test.

3. The third part of the test is an essay section. It consists of 2 questions, each requiring a longer, more detailed answer. The questions are designed to test your ability to analyze and synthesize information, as well as your ability to communicate your thoughts clearly and effectively.

4. The final part of the test is a multiple choice section. It consists of 20 questions, each with four possible answers. The correct answer is indicated by a letter (A, B, C, or D). The questions cover a wide range of topics, including general knowledge, science, and history.

5. The first part of the test is a multiple choice section. It consists of 20 questions, each with four possible answers. The correct answer is indicated by a letter (A, B, C, or D). The questions cover a wide range of topics, including general knowledge, science, and history.

6. The second part of the test is a short answer section. It consists of 10 questions, each requiring a brief, concise answer. The questions are designed to test your understanding of the material covered in the first part of the test.

7. The third part of the test is an essay section. It consists of 2 questions, each requiring a longer, more detailed answer. The questions are designed to test your ability to analyze and synthesize information, as well as your ability to communicate your thoughts clearly and effectively.

8. The final part of the test is a multiple choice section. It consists of 20 questions, each with four possible answers. The correct answer is indicated by a letter (A, B, C, or D). The questions cover a wide range of topics, including general knowledge, science, and history.

9. The first part of the test is a multiple choice section. It consists of 20 questions, each with four possible answers. The correct answer is indicated by a letter (A, B, C, or D). The questions cover a wide range of topics, including general knowledge, science, and history.

10. The second part of the test is a short answer section. It consists of 10 questions, each requiring a brief, concise answer. The questions are designed to test your understanding of the material covered in the first part of the test.

11. The third part of the test is an essay section. It consists of 2 questions, each requiring a longer, more detailed answer. The questions are designed to test your ability to analyze and synthesize information, as well as your ability to communicate your thoughts clearly and effectively.

12. The final part of the test is a multiple choice section. It consists of 20 questions, each with four possible answers. The correct answer is indicated by a letter (A, B, C, or D). The questions cover a wide range of topics, including general knowledge, science, and history.

## Listing 4 - Sample questions

## MCQ TEST

Sample MCQ TEST questions set. For best results make up your own!

1. The following cities are European capitals:

- a) London
- b) Paris
- c) Washington
- d) Moscow
- e) Havana

FFFF

2. The following card is found on the Shogun Board:

- a) Honour
- b) Unity Force
- c) Loyalty
- d) Honour
- e) Strength Emperor

FFFF

3. Recognised computer languages are:

- a) BASIC
- b) C
- c) Pascal
- d) Visual Basic

FFFF

4. The following are system monitors:

- a) MS-DOS
- b) DOS
- c) VGA
- d) BIOS

FFFF

5. The system game played on an Atari board:

- a) Space Invaders
- b) Grand Theft Auto
- c) Worms (Microsoft)
- d) Super Bomber
- e) The Sims (Electronic Arts)

FFFF

6. These authors wrote these books:

- a) Robinson - The Temple of Mystery
- b) Stevenson - Treasure Island
- c) Shakespeare - Little Women
- d) Twain - The Prince and the Pauper
- e) Twain - Moby Dick

FFFF

7. These are famous astronomers:

- a) Copernicus
- b) Ptolemy & Kepler
- c) Galileo
- d) Newton - Reading
- e) Newton

FFFF

8. These songs are best selling:

- a) I'm a Rebel (Johnny Young)
- b) I'm a Rebel (The Beatles)
- c) I'm a Rebel (The Who)
- d) I'm a Rebel (The Rolling Stones)
- e) I'm a Rebel (The Clash)

FFFF

9. The following authors wrote these books:

- a) Swift - Robinson Crusoe
- b) Tolstoy - Anna Karenina
- c) Orwell - 1984
- d) Orwell - The Catcher in the Rye
- e) Orwell - Animal Farm

FFFF

10. The following are elements in the game:

- a) Water
- b) Stone
- c) Oxygen
- d) Iron
- e) Potassium

FFFF

11. These are best selling artists:

- a) Madonna
- b) Michael Jackson

12. These are authors:

FFFF

13. These are countries:

- a) Spain
- b) Italy
- c) Germany
- d) Mexico

FFFF

14. These are known to the system board:

- a) Commodore
- b) Atari
- c) Apple
- d) Microsoft
- e) Microsoft

FFFF

15. These are all Scottish towns:

- a) Glasgow & London
- b) South Shields & London
- c) East London
- d) Perth
- e) Perth

FFFF

16. To illustrate there are games of:

- a) Chess
- b) Chess
- c) Chess
- d) Chess
- e) Chess

FFFF

17. These composers have played the:

- a) Piano
- b) Violin (Mozart)
- c) Piano (Mozart)
- d) John Walker
- e) Grand Piano

FFFF

18. These countries played in the 1984 England World Cup Final:

- a) Scotland
- b) Scotland
- c) Scotland
- d) Scotland
- e) Scotland

FFFF

19. These countries are prime numbers:

- a) 11
- b) 13
- c) 17
- d) 19

FFFF

20. The following are names of:

- a) Cities
- b) Cities
- c) Cities
- d) Cities

FFFF

21. The following statements refer to:

- a) The following statements refer to:
- b) The following statements refer to:
- c) The following statements refer to:
- d) The following statements refer to:
- e) The following statements refer to:

FFFF

Enter these questions and answers using the Listing 4 - MCQ Test Maker

# Upgrade from Tape to Disk!

with the new Atari XF551 Disk Drive and Transdisk IV



Upgrading from the slow Atari cassette system to a fast, reliable disk set-up is certainly desirable but what do you do with all the games you have on cassette? Wouldn't it be nice if you were able to transfer your collection of tapes to disk for faster, more reliable loading? With the new Atari XF551 disk drive and Transdisk IV you can do it!

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# FLESH ON THE BONES

**Ian Finlayson extends the  
Cassette Database with several  
routines that begin to make a  
usable program, now you can  
start to enter data**

**I**n the last issue, the framework of the address book database was drawn up - this time I will start to put some flesh on the bones. The individual parts of the program are not very complicated but I have certainly found the inter-relationships of the various modules of the program are more intricate than I expected, so I have drawn up another flow chart to show the way the 'Create Database' and 'Add Records' functions work. The listing in this issue will not run on its own, when you have typed it in, load checked it with Type: B LIST it to cassette (or disk), LOAD the first part of the program and then ENTER the new part so the two parts are merged. You will see a few lines in the listing which say 'REM \*\*DELETE THIS LINE\*\*' - they have not been left in by mistake but are there to prevent lines in the previous listing which must be removed as they will disrupt the new program flow. These lines can be deleted completely after the two programs have been merged.

The main functions in the program this time are:

- Create Database
- Add Data to Database
- Save Database to Cassette
- Load Database from Cassette

Other supporting sub-routines are also created:

- Screen Draw
- Field Input
- Fill Fields

## INITIALISING STRINGS

The first requirement is to decide on the size of each field which makes up a record. It is possible to set up a database to use variable length records but string manipulation is simpler with fixed records, although they are not as compact. Names and addresses are difficult to size because of the variety they contain, anything from 'Smith' to 'Fotheringley-Pearce' and from '4 High Street' to 'Millstream Cottage, Hantsdonk Crescent'. Clearly the wasted space in the database will be considerable if each field is made big enough for every possibility and this reduces the number of records that can be used, so I have compromised on the assumption that long entries can be abbreviated if they do not fit. The initialisation is dealt with in lines 12180-12185 and I have allocated sizes to fields as follows:

111	Forename	10
121	Surname	10
131	House and Street	27
141	Town	16
151	County	14
161	Postcode	8
171	Telephone	14
181	Date	6

The House/Street field is deliberately long to give room for houses with names rather than numbers. I did not want to use a separate field for the house name as extra programming would be needed to leave it out of printed records when not needed. The date field is included as a general purpose field which may make the database more useful. It could be used to record birth dates, dates of membership renewal etc.

Other strings are: B1 (Screen) which can hold fields 1 to 8 (114 characters), DATE currently set to 11000 to hold 100 records and B2 for use in input of data from cassette.

Initialise also sets the screen colours and ensures that the number of records (R) is initially zero.

## ADD RECORDS SUBROUTINE

This subroutine, in lines 6000-6100, is used to add records to the end of a database in memory. First the variable R is incremented by 1 to take us from the last record of the current data to the first empty record. Next we go to a subroutine to draw the screen for data entry or display of records (Lines 12180-12195). Screen layout is very much a matter of taste - I have provided a space for each field which is boxed in so that the length of the field is quite clear, and an additional box at top right in which the record number is displayed. There are blank lines available below the table to allow prompts to be given.

The next step is data entry achieved in the 'Field Input' subroutine (Lines 12200-12290). To keep things simple I have not put any error trapping routines on this screen by using cursor keys and any other keys just like using the normal screen editor. Each time RETURN is pressed it is assumed that the end of a field has been reached and the cursor will jump to the start of the next field. The lack of error trapping means that the screen can be left in quite a mess (accidentally or deliberately) as the last field is completed.

If the input is corrupted the user will not know when exactly his text input into the variables 112 to 182, so the next step is to redraw the screen and insert their values into the table by means of the 'Fill Fields' subroutine (Lines 12400-12480). The data can now be extended and if there are any errors they can be corrected by answering 'N' to the prompt to return to the 'Field Input' subroutine. This time the fields are already filled in so you can press RETURN on any field that is correct to skip to the next.



and overtype any field that is not right to correct it. After this the redraw and redisplay sequence is repeated as you have another chance to check the data and go back yet again to change it if required. Once the data is checked and correct, the individual fields are joined up into a continuous string *RS*, the record, and this record is added to the end of the large string *DATE* which is the whole of the data. A prompt is now given to ask if another record is to be added, if so the subroutine is restarted and if not we return to the main program menu.

### CREATE DATABASE SUBROUTINE

The relevant lines are lines 2000-2050. As and you can see from the flow chart, the 'Create Database' subroutine is much the same as the 'Add Records' subroutine, but with a bit more at the front. As we are creating a new database the program first checks to see if there is already some data in memory. If it is not and there is data in memory and the program offers the chance to save before it is lost. Once the save is complete or the decision not to save is made the string *DATE* is cleared out and it is reset to zero. From here the add records routine is used (we can effectively adding a record to an empty database).

### SAVE DATA SUBROUTINE

Saving the database is quite straightforward in lines 7000-7070. First we clear the screen and prompt for a data cassette to be prepared, then we open an output channel to cassette. The first thing to be sent to cassette is ? (or PRINT FILE is the number of records in the database. This is calculated by dividing the total size of the data by the size of a record).

It is possible to send *DATE* to cassette in one big lump, but if we attempt to ENTER a string longer than 244 characters from tape an error results, so the program breaks *DATE* into substrings *R1* (one record) each 115 characters long for both save and load operations. The substrings are printed (using ?) to the tape one after another by the FOR - NEXT loop. Finally, after all the data is sent, the I/O channel must be closed before RETURNing to the main menu. Remember at this point the data is still in memory so more records can be added before saving again or using the other functions.

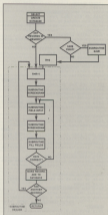
### LOAD DATA SUBROUTINE

The load subroutine in lines 8000-8090 starts in a similar way to the create database subroutine as we again have to think about what is in memory before we input new data. As before the option of saving current data is given, before *DATE* is cleared out.

The load (or INPUT) subroutine is the opposite of the save routine. A channel is opened for tape input and then it is reversed first. This allows the FOR - NEXT loop to be set up to receive the records one by one in the string *R1*. For some reason strings that are INPUT from tape pick up 10 space of the front. These are stripped off to give *R1* which is added to the total data string *DATE*. Again the I/O channel must be closed before returning to the main menu.

### SO WHAT HAVE WE GOT?

We now have the means of creating, saving, loading and adding to a database, other functions are still missing. This means that there is as yet no way of retrieving the data, if you



## PROGRAM LISTING OVERLEAF

want to see your data in the form of a very large string this can be done by pressing the BREAK key to stop the program while you have data in memory, then clearing the screen and typing ? DATE as a clear line. When RETURN is pressed the data string will be printed to your screen.

If you have problems with what has been done so far write to me enclosing a stamped self-addressed envelope and I will try to help. My address is: Ian Hilderson, 68 Broadstone Crescent, East Preston, West Sussex, BN16 1DQ.

# Ian Finlayson's Casette Database Part 2

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## BEST SINCE STAR RAIDERS!

Perhaps for some exciting news Atari have produced a brilliant new game that can only be described as their BEST EVER! Not release since the legendary Star Raiders! **TIGER ATTACK** is a conversion of the one-up arcade game Flying Shark which was along similar lines to the older arcade hit "Frog". If you've experienced Red Hot's screaming Wings then you'll know what this game is all about.

It's a vertically scrolling shoot 'em up set in the closing months of the Second World War. Allied Fighter Command have called upon you - an ace combat pilot - to finish off the remaining Japanese forces from the jungles and islands of the South Pacific. Your mission is to skillfully pilot a small aircraft through the treacherous sea-one-land-pulverize as many of the enemy's fighters, tanks and gun emplacements as possible. The battle is viewed from directly

overhead, with your plane initially located in the center of the display. In addition to the continuous vertical scrolling, there's a small amount of horizontal scrolling too. Your plane can move quickly to any point on the screen, an ability you'll be glad of once the endless waves of Japanese fighter planes commence their relentless attacks!

As in most games of this type, Smart Bombs are available for escaping from those really tricky situations when all else has failed. Bad news for anyone who is hoping to give their catlike joystick a work-out is that the bombs are one-launched by a combination of joystick movement and trigger press, making it all too easy to fire one inadvertently. I suspect that the more traditional space bar approach was avoided so as not to disappoint 3D games system owners who might not have a keyboard. Extra bombs are obtainable by flying over 'F' symbols, and it's also possible to increase your fire power by similarly collecting 'V' capsules. Very useful those!

One of two player modes can be selected from the title screen, as is the number of joysticks to be used in a two player game.



You can also opt for either music or sound effects to accompany the action - both are excellent, although I preferred the music which seemed to add considerable atmosphere to the game. Sharp, detailed graphics are a feature of Tiger Attack that contributes greatly to an overall high standard of presentation. A highlights table is included to record off a list of good features that all add up to form a tremendously enjoyable and addictive piece of software.

Although it's more expensive than many other games currently on the market, I believe the price is fully justified by the repetitive quality of the real product. Remember that if owners are paying £24 for a similar game and you'll realize that Tiger Attack is a bargain (not too good to miss. Highly recommended!

Paul Dixon

## GO AWAY AND FIGHT IT OUT

**NUCLEUS** is the first in a new line of budget priced software from Atari Corporation that is to include both exciting and previously unseen titles under the banner label of 'Atari Action Games'.

Although it's essentially yet another variation of the ever-popular shoot 'em up theme, the design is certainly quite original. We're told that inter-planetary warfare has been prohibited by the ruling Inter-galactic Federation and that all disputes must now be resolved at a distant region of the galaxy known as the DMAC combat arena. Not surprisingly, this arena is the setting for a game in which you attempt to defeat an alien aggressor. If you can't find a suitable human opponent then a computerized alternative is willingly supplied.

The competing space craft are located at opposite ends of a single screen, each accompanied by a firefield on one side and a protective Titanium shield on the other. The craft are restricted to vertical movement only but they can also fire energy bolts at nuclear satellites floating around in the area between them. The general idea is to continuously bombard the satellites with missiles until they eventually begin to disintegrate into several small



lar pieces and, finally, into a nucleus which can be directed at a player's Titanium Shield. The resulting collision causes a small hole to appear in the shield, and if the opponent can direct a satellite through this gap and into the player's firefield, the battle is over.

It may not sound like one of the most exciting games around but in fact it turns out to be a strangely addictive experience where one player can do all the work, only to see the opponent receive all the benefit by a sudden and unexpected turn of fortune. It's simply impossible to predict a winner right up until the very last moment, and when that moment comes, you'll immediately want another go to

prove that it wasn't just a fluke! The controls are reasonably easy to learn on the lower levels but are difficult settings can provide, ensuring a suitable challenge for players of all abilities. Unfortunately, there appears to be no automatic progression onto the higher levels once a battle has been won - the game simply stops, regardless of the victor. One hopes that this is only a characteristic of the pre-release review copy.

Based on somewhat reminiscent of Atari's early 8-bit efforts - rather a disappointment after the super effects of Thunderbolt, **Nucleus** are generally pleasant - mainly thanks to a scrolling starburst background which, together with the nicely colored satellites, forms the bulk of the visual display. **Nucleus** is an original, challenging and above all, immensely addictive game that seems particularly enjoyable in two player mode. It's nice to see something new from Atari and at a sensible price too!

Paul Dixon

**Title:** NUCLEUS  
**Publisher:** Atari Corp.  
**Price:** £2.99 on cassette  
**Players:** 1/2  
**Control:** joystick

## GAME ON ... THROW THEM ARROWS

Quartz 'roids are in for a treat with this newest addition to Zeppelin's budget range - **JOCKY WILSON'S DARTS CHALLENGE** is packed with a host of features and options unsurpassed by any previous simulation of its kind.

First thing to make clear is that it's definitely not aimed at anyone who isn't reasonably adept with a joystick. You don't need to be an ace darts player, but you do need the ability to manipulate a tiny dart symbol that moves continuously in a most erratic fashion - generally in the opposite direction to the one you are trying to click it into! It makes Mosier's '88' seem like a nursery school exercise!

There are basically three modes of play, each with further options that are initiated via a novel team selection screen.

**Title:** JOCKY WILSON'S  
DARTS CHALLENGE  
**Publisher:** Zeppelin Games  
**Price:** £2.99 on cassette  
**Players:** 1/4 with joystick



Transcendent mode enables up to four players (who must share a single joystick) to compete against a variety of computer-generated opponents before a final confrontation between the remaining player and Jocky Wilson himself. Round the Clock mode serves as a useful practice facility as you try to hit each sector of the board in numerical order in the shortest possible time. To complicate matters, you can instruct the computer to accept tenths, doubles, singles or any number on a valid 'hit'. If you simply want a standard game against a human opponent, you can make use of the Head to Head option. A further choice in this section is the number of sets over which you intend the game to last.

up to a maximum of four.

For anyone not too sure about the mathematics involved in determining the quickest or easiest way to finish, there's an optional tutor that informs you of a suitable score to attempt. Whether you can actually get the dart to go anywhere near that recommendation is of course an entirely different matter! Some alternative levels of difficulty might have been a good idea.

Play centres around a high resolution dart board, but when it's the computer's job, the display changes to an overhead view of the proceedings, in a similar colouring to the corresponding screen in '88'. Jocky is an accurate description of the graphics throughout. One aspect of Darts Challenge compensates for its obvious inaccuracy, though! After a brilliant opening competition, an eerie slowest descent upon the game and three isn't so much on a keep until you next return to the title page. Not like a Zeppelin game or still!

A final point to note is that the loading time from cassette is around twenty minutes if you're mad about darts you will surely find it worth the wait but I do think that software of this nature should be available on disk if it's to appeal to game players in general. Are you listening Zeppelin?

Paul Buck



Also are back - after almost three years - with their second release for the Atari 8-bit - **WINTER EVENTS**. Just the thing for a warm summer evening!

It begins in the traditional fashion with an athlete lighting a flame to herald the start of competition. You can choose to either practice or compete in any or all of the available events, by yourself or with up to three other players. Each is required to select a nationality from ten alternatives supplied - a novelty that soon wears off and unfortunately, you can't skip over it but have to wait for the playing of each appropriate national anthem.

There are five events - Inland Skating (the jump, Soles, Soles) and Skislow. Thankfully, there isn't too much of an emphasis on the destructive joystick waggling associated with other sports simulations such as Decathlon. In the Speed Skating event for instance, it's important to

## PLAYING IN THE SNOW

keep the joystick moving at a steady rate rather than a particularly fast one. The objective here is to skate a distance of 500 metres in the quickest possible time, but one of the most amusing experiences this, but animation of the skier is well done and sound is good too - as in all the events, it's super tone plays prior to the start of any action. A similar joystick technique applies to the Skislow. Also concentrating with several screens of snow-bound scenery, you arrive at a shooting range and must aim to hit five small targets with an equal number of shots.

The Soles will appeal to those people who like to exercise their reflexes. As you'd expect, it involves shooting a skier - who is viewed from behind - through a series of gates at break-neck speed. This can be adjusted to suit your steering ability but aim more than three gates and you're disqualified. In the Ski Jump your aim is, obviously, to jump as far as possible but you can points awarded for 'style' too as you try to match your position against an 'ideal' image displayed alongside throughout the jump. Graphics in this section are excellent. Last of all is my personal favourite of the five events - the Solesed.

Here, a split screen depicts an overhead perspective of the winding course plus-on and view of your bob-as it hurtles through the ice at an ever-increasing velocity. It's an enjoyable, but admittedly not too difficult experience.

In case you've developed a feeling of déjà vu, I can assure you that Winter Events is NOT a re-release of Tynesol's Winter Olympics '88, although the two are remarkably similar in content. Tynesol's game beats Anco's in the graphics department, but then it is also more expensive. Winter Events has good music, plenty to keep you occupied and enables the whole family to participate - a splendid effort from Anco!

Paul Buck

**Title:** WINTER EVENTS  
**Publisher:** Anco  
**Price:** £7.95 cass./£8.95 disk  
**Players:** 1/4  
**Controls:** joystick and  
Keyboard

## SIX YEARS WITHOUT A BLAST

"It has been six years since you took on the alien fleet single handed, dominating their asteroid bases, turning their warships into expanding clouds of vapor, probing their pieces of naive hardware for your steady ship. These were the days..."

But just when you thought it was safe to take a breather, the mighty Intergalactic Federation have called you up from retirement and insist that you embark on a new deadly mission. It seems that enemy forces have captured TANIUM - the second most strategically important planet this side of the Solar System (and - yes you guessed it - it's a chance to climb aboard your Quanta Death Fighter and give those meemies hell!

As you might have noticed by now, Paper TANIUM is a fast-paced action shoot 'em up of the horizontally scrolling variety.

**Title:** TANIUM  
**Publisher:** Playtex  
**Price:** £1.99  
**Players:** 1/2  
**Control:** joystick(s)

But don't stop reading yet, as it includes one or two features that you probably won't have encountered before. The main difficulty is the unusual control of your Death's Flight, which is viewed in not one but two alternative perspectives via a split scrolling display. In the upper half there's a kind's eye picture of the action so you can line up with incoming enemy ships by a sideways movement of the joystick. Underneath is a corresponding side-on view and here you control the ship's altitude in order both to intercept the enemies and to avoid various static obstacles - all cunningly devised to make your chances of survival pretty remote. On the higher levels, further obstacles are added in both perspectives, making life very tricky indeed.

It's no simple task trying to simultaneously manage both aspects of your craft's position but mastering the necessary technique is essential if you are to progress any further than the first of the ten pre-selectable levels available, let alone obtain a place in the highscore table!

The author appears to have made every effort to incorporate user friendliness into the game wherever possible - something I



particularly appreciate. For instance, there's a 'demo' mode to show you how it ought to be done and you also have the ability to abort the mission at any time, still retaining your current score. Sound effects throughout are of a very high standard and two pieces of music accompany the title screen and highscore table respectively. Graphics are also very well designed with some clever shading of the kind based in similar about 'em ups such as Missiles From Outer Space. The speed of play is not affected by the large amount of movement on each screen - both scrolling and animation are perfectly smooth.

TANIUM has been around for quite a while now so if you missed it and are 'into' napping things there are sure to make amends at the earliest opportunity. Playtex are offering terrific value for money.

Paul Dixon

## STEP ASIDE MR RUBIK

Here's a challenge for all those single-minded logic fanatics out there whose brains include such things as being able to solve a Rubik's Cube in less time than it takes the rest of us to inhale it from the box! COUNTER-SLOT is the name of a computerized version of a similarly mind-boggling puzzle from a small 'independent' software publisher called Amethyst Software. Amethyst appear to specialise in games of this type and a feature of their budget priced publications is that they all come supplied on a ROM, CD-ROM, cassette, or even if you can't stand the program, you're still bought something useful!

The aim is necessarily straightforward isn't it? Alas! No. You have to do it something which encompasses this into a specified order in as few moves as possible. Each row is labelled with a number, one to five, and each column with a colour - in this case, default. The tiles are similarly numbered and coloured leaving you to do what so to their intended positions. There's also an extra tile to help you get started - at least I think that's what it's for! The top and bottom rows are left fixed so that you can slide the entire column either up or down and additionally move the top or bottom tile in any particular



column into any of the three remaining columns. It's easier to play than it is to explain, but completing it is certainly difficult again!

Should you finally solve the puzzle, you'll be informed that the game was especially designed to push those who attempted it to 'super, frustration and eventually, madness'. Personally I think the 'madness' over-playing the rather lengthy and unrelentingly unrelaxable opening sequence is the only thing likely to do itself also slightly annoying is the light that once you have solved it, you have to re-heat the cassette if you want to play again. On second thoughts, perhaps the choice that you want another go are pretty remote

anyway!

Well, what else can I say about COUNTER-SLOT? It's an interesting puzzle. It's not what you'd call an mind-boggling feat of programming by any stretch of the imagination but then, not everyone likes brain-boggling ideas and this could be the ideal game for them. If you're a fan of those sliding tile picture puzzles or if you're one who usually over-invents from the likes of Mr Rubik then it's definitely up your street. Unlike the famous case, you can't of course 'solve' it by joining the pieces apart with a screwdriver. It takes skill, logic, and above all, patience to crack the Counter-Slot puzzle.

You can contact the final Counter-Slot in the shops but it's available direct from Amethyst Software whose advertisement you will find among the pages of this magazine.

Paul Dixon

**Title:** COUNTER-SLOT  
**Publisher:** Amethyst Software  
**Price:** £4.99  
**Players:** 1  
**Control:** joystick

# 3. MORE POWER TO YOUR GRAPHICS

I'd like to start this issue by thanking all those who write to me in response to the first circles. It's great to know that someone actually bothers to read what I write! It's always interesting to know what you think on, please, continue to write to me, and I'll reply as soon as I can. Many of you have asked where you can get the language. It's available from most PD libraries, but PAGE 6 supply the language, compiler, and cheat guide from their Accessory Shop for the very reasonable price of \$39.95 (see inside front cover). Dennis Ferguson of Saltisbury wrote with his comments and ideas, both of which I appreciated immensely. Mr. Ferguson suggests that I devote some space to modern's quarter-inch issues, and I agree that this is a good idea. I hope to start this when I get a few more questions, so I can bundle them together in one article.

If you remember, I said that it was necessary to reword Turbo Basic after entering DOS. Another reader, John Carter, informs that this is not so. In his own words, "To return to TB after formatting etc, change option 61 and type in 2089". Unfortunately, this doesn't seem to work on my MOSE. Perhaps it does on other machines? (It works on the 1386) but the start address will be a few bytes different on the SI, perhaps someone can work it out? G.I. (anonymously), Mr. Carter tells from The Hague in The Netherlands and informs me that TB is, and has been, for some years, very popular on the continent. Perhaps some other of our foreign friends would like to write, to add to the international flavor?

Anyway, on to the business at hand...

## TURBO BASIC and GRAPHICS

As well as supporting the standard "basic" standard graphics functions, Turbo Basic also supplies us with a more commands to play with. Circles, ellipses and "true" circles can be constructed. A command is supplied to clear the screen, and these instructions are included which can be used to fill in shapes. Text can be displayed on screens in graphics mode, and I think off with an instruction which, although not strictly a graphics one, is ideal for that purpose.

Listings 1 and 2 show the following commands in action. In listing 1, START/SELECT resets the screen, while OPTION and the space bar perform special effects.

### DRAWING CIRCLES, ELLIPSES, AND TRUE CIRCLES

At last - a way of drawing circles easily! The command works in any of the graphics mode, and has the format **CIRCLE X, Y, R** where X and

**In this instalment Gordon Cameron discusses the CIRCLE, FCOLOR, FILLTO and PAINT commands and provides examples of these combined with the powerful MOVE command**

Y are the coordinates of the circle's center, and R is the radius. So, for example, if you chose COLOR 1 in graphics mode 0, then **CIRCLE 50, 50, 15** will draw a circle with radius 15 in the middle of the screen.

If the radius you supply means that part of the circle will be off the screen, then don't worry! Turbo Basic will only draw the portion of the circle which is on visible. So, for example, if you used **CIRCLE 50, 50, 15** in CG 0 only the visible parts of the circle, which is too big for the screen, will be displayed.

The second form of the **CIRCLE** command has a fourth argument, which allows you to choose different horizontal and vertical radii. Obviously, theoretically, a circle has a constant radius, so if you make the radius "cross-the-way" (horizontal) and the radius "down-the-way" (vertical) different, then you get a distorted or "squeezed" circle, which is known as an ellipse. The format of the command is **CIRCLE X, Y, R1, R2** with R1 being the HORIZONTAL radius, and R2 the vertical radius. So, in CG 0 **CIRCLE 150, 70, 45, 20** draws an ellipse in the middle of the screen with radius across 45, and radius down 20, while **CIRCLE 150, 70, 20, 45** is an ellipse with a HORIZONTAL radius of 20, and a vertical one of 45. If you make both the same, then you have a circle, so this is the same as entering all the last argument, i.e. if R1 and R2 are equal, then **CIRCLE X, Y, R1, R2** is the same as **CIRCLE X, Y, R1**.

This leads me on to a bit of a moot point. When you use the circle command to draw circles you may not, in certain modes, get "proper" circles that have a circle that is a circle? Well, the circles that TB draws do indeed have the same radius in PIXELS all the way round. However, there are differing numbers of pixels across the screen and down, so pixels may not have the same width and height, and a distance of 50 pixels horizontally may be different to a distance of 50 pixels vertically. In your circle may appear stretched out of shape, and not a circle at all! In certain modes, this effect is not really noticeable. For example, in CG 0, there are 320 pixels across, and 192 down. The ratio 125:142 is a good approximation to your TB ratio, and is therefore the screen's shape, so circles appear as circles. In CG 0, however, there are 80 pixels across and 192 down. This is



```

01 0 0000
02 0 0000 0 0000 0000 0000 0 0
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100 0 0000

```

```

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```

```

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```

Listing 1

rectangular in the PICOLOG direction as regards the display. In circles seem to be skewed across the way to a very large extent. Try `CIRCLE 40, 90, 10` to see what I mean.

If you may want to display four circles on 'true' circles (i.e., say, inside 9), there's a way to do this: it is to alter either the horizontal or vertical radius, keeping the other the same. If you keep the radius across the way a constant, then you want the vertical radius to be increased to compensate, so the pixels are larger than they can tell. So, you need more vertical pixels. How many more? Well, this depends on the dimensions of your display device. Experiment by multiplying the vertical radius by a number between 1 and 3. `CIRCLE 40, 90, 10, 15` (PICOLOG) is an improvement over the earlier simple circle in GR.S, but I suggest you try for yourself, and take a look at Listing 1, which tries to draw nine circles in that mode.

Other modes may require you to multiply one of the radii by a different number. Fractal makes perfect, it is the only advice I can offer to try it out in different graphics modes.

Never mind if you don't follow all of the advice. The simple `CIRCLE` will work very nicely almost all of the time.

### CLEARING THE SCREEN

At last - a simple way to clear the screen. Personally, this simple command is one of the most welcome commands to be included. In Atari Basic, you had to use `PRINT CHR$(128)` (or `PRINT "spacers"`) to clear the screen. Now you need simply type `CLS`, and hey presto, the screen is cleared.

A refinement is also included, in that if you open the screen in a channel, you can clear it by means of `CLS` followed by a number. For example, tap you have opened the screen in channel 5, then `CLS 5` will clear the screen.

### FILLING ENCLOSED AREAS

Turbo Basic allows you to easily fill in any circles, squares or any other shapes with the colour you want. Many of you may

remember an obscure way of doing this in Atari Basic. You had to position the cursor inside the shape by using `POINT X, Y`. Then, you typed the obscure command `SHO BH, 0, 0, 0, "C"`. This filled the shape alright, but wasn't very descriptive or easy to remember.

In Turbo Basic, you first choose the colour you want to fill with, using `COLOR n`, replacing *n* by the required colour. Then `FILLTO x, y` has the same effect as the Atari Basic `POF` followed by `SHO`, but it is a lot easier to follow. However, this fill is not perfect, as some shapes aren't filled properly. That is, giving a start point inside the shape is not a guarantee that it will completely fill the shape. Even slightly complex shapes present a problem: the `FILLTO`, unless you know which points to choose, so `TR` provides us with another command `PAINT n, x, y` which does the same thing essentially, but uses a different, reverse algorithm. A quick example:

```

10-GR.S
20-COLOR 3
30-CIRCLE 100, 90, 40
40-PAINT 1 1

```

You can now have a line 50 which either reads `PAINT 100, 90` or `FILLTO 100, 90`. Try both. Here you can see the weakness of `FILLTO` - it needs you to specify 'corner' points, otherwise the object won't be filled correctly. `PAINT`, on the other hand, just requires you to choose any point inside the shape. Try experimenting with both on simple, and more complex objects to see their relative strengths and weaknesses, in terms of speed and performance.

A word of warning. Both algorithms work by starting the background colour, and go on to change the start point you choose and consecutive neighbouring points of the same colour as the background with the new fill colour. If a pixel is a different colour from that of the background, it remains unchanged. In different colours set as a boundary. Make sure you make complete the area you want to fill, or the colour may spill/bleed to other parts

of the screen. You have been warned!

## PUTTING TEXT ON THE GRAPHICS SCREEN

In Atari Basic, displaying text messages on GRAPHICS screens was difficult. This was a pity, as it meant that annotating graphs, diagrams and pictures was difficult. Yet any more Turbo Basic allows you to place a string of characters anywhere on the graphics screen. The format is TEXT x, y, text, where (x, y) is the top left corner of where the first character of text will be put. For example, in Graphics mode 0

```
10 GR0
20 COLOR 1
30 PLOT 0, 0: DRAWING 0, 0: DRAWING 0, 0: DRAWING 0, 0: DRAWING 0, 0
40 DRAWING 0, 0: DRAWING 0, 0
50 TEXT 0, 0, "Hello There folks!"
```

Those of you in the know will no doubt realize that the text is "bit-locked" at the screen location given. The size of the text will differ from mode to mode, and some modes give interesting effects when you mix case and include inverse characters in the string to be displayed. Remember, TEXT is meant for graphic modes, as PRINT will do for text modes. It's leave you to experiment yourselves.

## MOVING BITS OF THE SCREEN ABOUT!

The **MOVE** command is more of a general command than a graphics one, though it is very useful in the latter case for many things, including

- \* Moving chunks of the screen around (see Listing 2, and Program 2 from last issue's article)
- \* Replicating bits of memory/graphics (see the screen modes in Listing 1)
- \* Simple animation, including page-flipping to techniques where the screen image is copied to the background, shifted, then switched back to the foreground again, and so on - not within the scope of this article!

I have used **MOVE** in quite a few of my programs without describing it, so I thought I'd better give a brief outline of what it can do, if you don't believe - DON'T WORRY, and just skip past this bit and the next section. It's described fully in a future article - hopefully!

What **MOVE** actually does is take a chunk of memory of a certain length in bytes and copies it to a new location. The actual format is

MOVE source, destination, numberbytes

where source and destination are the addresses in memory where the "chunk" comes from, and where it is going to be copied to, respectively. numberbytes is the length of the "chunk" in bytes.

## SOME TECHNICAL STUFF

In graphics mode, the source and destination addresses are actually places on the screen. To calculate the start of screen memory, use **PEEK0**=DIM\*PEEK00, or **PEEK00** on your tape. You then have to work out how many pixels there are in a byte. This varies from graphic mode to mode - Graphics 0 is what is known as bit-mapped, where each pixel corresponds to 1 bit. Other modes have colour, so it is not enough to say whether or not a point is set - the **COLOR** of the point must be stored. So, in multi-colour modes, perhaps 4 bits are used to store each pixel (this arrangement can handle up to 16 colours). I'll stick with G0 for this example. There are 64 bits in a byte, so this

mode has 8 pixels in a byte. This is the smallest size segment that can be moved, so if you move the screen, it can move only in multiples of 8 pixels. The G0 screen is 320 pixels across, so it is 40 (320/8) BYTES across. So, to move a screen line, the first parameter of the **MOVE** command will be 40. All you have to do now is to work out where your line is coming from, and where it's going to. You can do this very easily in G0 by simply multiplying the row number by 40 (the number of bytes in a row - remember!), and adding this to the start of screen memory. So, to copy line 0 to line 1 in G0, you could do

```
10 START=PEEK000
20 MOVE START, START+40, 40
```

To copy from line 4 to 5:

```
30 MOVE START+(4*40), START+(4*40), 40
```

and so on ...

Now! What am I on about? Well, there is a method in my opinion, in that Listing 1 takes the screen by using the above method to copy a block line (represented by 40 bytes, all with value 0) to different rows, blanking or fading out bits of the picture. This is the same as DRAWING a block line, but it is 100% faster. By changing the program so that the hole procedures erase lines by drawing a block line and you'll see what I mean!

Where does the move command get the block line from though? Well, I've defined a string array of 40 in length, and filled it with zeros. I then use the command **R0** to find where the string is stored. I can treat this as a sequence of 40 bytes so it is, to all intents and purposes, a block G0 line. These 40 bytes are then copied to the screen. Note! The same technique can be applied to different screen modes, but, again, I'll leave this to you as an exercise (I sound like a teacher! Make sure it's handled in an G0!).

The entire screen scrolling effect in Listing 2 was achieved in a similar way. I'll maybe describe exactly how next time, I'm sorry if I've lost some of you with a "technical" description, but there is no other way I could describe the technique.

## BACK TO REALITY

To finish off this issue, some quick general comments. Remember the Atari Basic function **TRAP** - wrong? What this does is, when (or should I say if?) an error occurs, the program will jump to the line number given and continue from there. Turbo Basic also supports **TRAP** labels which will do exactly the same, but jump to a label rather than a line number.

In addition, you can make use of the reserved variables **ERR** and **ERR**. **ERR** contains the **VALUE** of the last error which occurred, whilst **ERR** lets you know of the line where it occurred. So, you could have

```
10 TRAP #ERR0
...
...
2000 #ERR000
2005 GOTO
2010 GOTO PRINT "ERRORS - Number is ",ERR0," at line ",ERR0,"."
2020 STOP 'or whatever you WANT TO DO'
```

That should be enough to be getting on with for this issue! Next time I hope to cover the new arithmetic commands, and some more general ones. Let me know if you want me to try and talk about anything that particularly interests you, and what you think. Write to me London Cannon, c/o 25 Main Bank, Seven, Pottersville P02 002, SCOTLAND.



# REAL-TIME CLOCK

**T**his machine-code program allows your Atari to keep track of the time. You can use it as an ordinary clock, alarm clock, process timer, interval timer and much more. It is a stand-alone program which needs no help from Basic, but it is designed to interface easily with Basic applications software. The routine can be either cassette or disk based, and it will work on all Atari 8-bit computers and can easily be adapted for NTSC compatibility to readers in Europe and the USA who'd feel left out.

The clock loads and runs automatically on power-up, and it's accurate to within 30 seconds per day. It can be started, stopped, set and reset manually from the keyboard, or by simple PEEK and POKE instructions in a Basic program.

The routine creates an extra screen line for the display, so you lose none of your normal programming area. It's intuitive to look and reset, and even changing Graphics modes will not worry it in the slightest. All the action takes place during Stage 1 of the vertical-blank interval, so you can still see Stage 2 (deferral) VIDs in your applications. There are several other features which we'll describe as we go along.

TABLE 1: ADDRESSES USED BY THE CLOCK ROUTINE

1777	Seconds	PEEK these addresses to read the current time, or POKE with new values to change the time setting
1778	Seconds x 10	
1779	Minutes	
1780	Minutes x 10	
1781	Hours	
1782	Hours x 10	
1783	ZEROFLAG	Normally non-zero; changes to 0 when display reaches 00:00:00
1784	LOCKOUT	Normally zero; POKE with any number from 1 to 255 to disable console key setting
1785	MODE	Clock mode - see Table 2
1786	USR1	Entry point for USR call to zero the display
1787	USR2	Entry point for USR call to initialize Countdown

**Len Golding brings you a super machine code utility that lets you use your Atari for any number of counting and timing applications**

## TYPE IN THE PROGRAMS

The first job is to type in the appropriate machine-code routine - Program 1 if you're using a disk system, Program 2 if you're a cassette user. Both programs work in substantially the same way. When you RUN them, they will create an appropriate autoboot file.

Let's look at the disk version first. Start by saving Program 1, then insert a disk which contains DOSKEYS and DUP.DYS, but no other files. Run Program 1 to create an AUTOBUS.SYS file containing the entire clock routine. Now switch off the computer, wait a few seconds and switch back on again. After the usual start-up delay, you'll see the extra line, complete with digital display, appear on screen.

To make the cassette version, type in and save Program 2, then insert a fully re-wound blank tape, type RUN and hit enter. Nothing will appear to happen for about twenty seconds, then you'll hear the familiar double beep. Follow the usual SAVE procedure, and the clock routine will be written to an autoboot file for you. This file is then loaded like any other machine-code cassette - switch on the computer while holding down the START key and proceed as for LOAD. The tape takes about twenty seconds to load, then the clock display will appear.

## SETTING THE TIME

Initially the clock latches into 'stability' mode, with the count frozen at 00:00:00, so our first job is to set the correct time of day. This process is similar to setting a digital watch, with the console keys serving as function buttons.

Hold down SELECT and the message 'Set Seconds' appears. While still holding SELECT, press OFF/ON and the seconds dis-





play will advance rapidly. When the correct setting is reached, release both keys. Repeat the procedure to stop through 'Set Minutes' and 'Set Hours'. If you wish to stop through the phases without altering the time, simply press and release SELECT, which the setting is correct, or at any time during the setting process, the clock can be started.

Press START to set it counting upwards at one-second intervals from your preset time. You can also make it count downwards, provided you're not already at zero, by holding down OPTION and pressing START. While the clock is counting in either direction, an asterisk appears to the right of the display. This asterisk appears when the clock stops counting for any reason.

## YOUR ATARI AS A STOPWATCH

If you want to use the clock as a stopwatch, use START to set it going and SELECT to stop it (ignoring the 'Set Seconds' message). To resume counting, press START again. To zero the display, hold down OPTION, then press SELECT and START together. The count will now freeze at 000000 and you press START again.

The clock contains several features which are not accessible via the console keys, but can easily be controlled by basic PEEK and POKE from inside your own applications software. Table 1 shows the relevant addresses, which are identical for both count-up and clock versions.

The display register (1717 to 1742) contains the current time, in ordinary decimal form - one register for each digit. To set the clock from inside a basic program, simply POKE new values into those registers. The new setting will appear when the clock next changes. If the display is locked (being on, we're getting to that then) the new setting won't appear until you unlock it.

It is possible to POKE higher numbers than are usually acceptable in a clock display - for example 'F' into the Hours & 10<sup>2</sup> address. This may be useful for special purposes, but it's usually best to insert some form of trapping system in your applications software to stop the user doing this. An example can be seen in the alarm clock routine of Program 5, lines 80 to 110.

## COUNTDOWN MODE

In Countdown mode you will usually want to know instantly when zero has been reached. Address 1760 (ZEROFLAG) makes this easy. If the display is non-zero, this address will contain a number between 1 and 15, but as soon as the display reaches zero, the value in ZEROFLAG drops to 0.

Address 1784 (INCREMENT) is used to protect your applications software from accidental alteration (or deliberate tampering) while it's running. If you POKE any value from 1 to 255 into this address, then pressing the console keys will have no effect on the clock. You can then use the console keys as usual in your own basic programs.

## FIFTEEN DIFFERENT MODES

Now we need to explore the various clock modes - there are fifteen of them! Table 2 shows what's available. Every mode has its own unique number, which you can POKE into address 1765.

If you select a 'Display off' mode, then the extra display line will disappear from the screen. This happens automatically during any time-critical I/O transactions, such as loading or saving. And while we're on the subject, console users will notice that the 'key' routine resets the clock! This is because it intervenes with

TABLE 2: CLOCK MODES

MODE	GLIDE DISPLAY	COUNT UP/DOWN	COUNT START/STOP	NOTE
0	ON	UP	COUNTING	CHANGING
1	OFF	UP	COUNTING	CHANGING
2	ON	DOWN	COUNTING	CHANGING
3	OFF	DOWN	COUNTING	CHANGING
4	ON	UP	STOPPED	CHANGING
5	OFF	UP	STOPPED	CHANGING
6	ON	DOWN	STOPPED	CHANGING
7	OFF	DOWN	STOPPED	CHANGING
8	ON	UP	COUNTING	LOCKED
9	OFF	UP	COUNTING	LOCKED
10	ON	DOWN	COUNTING	LOCKED
11	OFF	DOWN	COUNTING	LOCKED
12	ON	UP	STOPPED	LOCKED
13	OFF	UP	STOPPED	LOCKED
14	ON	DOWN	STOPPED	LOCKED
15	OFF	DOWN	STOPPED	LOCKED
>15	REVERTS TO MODE 4			
4 is the normal Standby mode 5 is the Countdown Standby mode				

the CONSOLE register, and you can overcome the problem by POKEing a non-zero number into LOCKOUT before requesting any counts 1/0.

In 'Count up' mode, the display will wrap around from 23:59:59 to 00:00:00 and continue counting, but in 'Countdown' mode the clock freezes at zero.

## JUST A COUNTER

In 'Counting' mode, the clock counts up or down as directed, though you can freeze the display at zero (ensure it from the screen. In 'Stopped' mode, the counting is halted).

The display can be frozen at any time by entering a 'Locked' mode, though counting can continue in the background - rather like a stopwatch 'lap' function (see Mode 6). The asterisk at top-right of the screen is useful here, as presence indicates that counting is continuing, even though the display may be temporarily frozen.

Table 2 is a bit daunting until you get used to it. The easiest way to find the mode you require is to reach them right to left, holding the number of choices at each step. The modes you'll see next will probably be 0, 4, 2 and 8.

Returning to Table 1, there are two addresses we haven't mentioned: 1786 and 1789. These provide stable entry points for two machine-code subroutines which you can use in your application programs. The command 5+156(1786) will zero the display and lock into the 'count-up standby' mode 4. A similar call to address 1789 will set the display to 23:59:59 and select 'count-down standby' mode 6.

The clock as shown is designed to operate with the British PAL TV standard, but it can be easily adapted to suit the NTSC system. Look at line 78 in Program 1, or line 148 in Program 2. To modify the routine, change the first number from 50 to 60, and the third number from 41 to 51. Have the new version then Run: it is made as NTSC-compatible as possible. The original of these numbers - 60 or 52 - is the clock speed's time-tuning

```

00 1 000 *****
01 1 000 *****
02 1 000 *****
03 1 000 *****
04 1 000 *****
05 1 000 *****
06 1 000 *****
07 1 000 *****
08 1 000 *****
09 1 000 *****
10 1 000 *****
11 1 000 *****
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99 1 000 *****

```

Listing 3 - An alarm clock

```

00 1 000 *****
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94 1 000 *****
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96 1 000 *****
97 1 000 *****
98 1 000 *****
99 1 000 *****

```

Listing 4 - A countdown timer

## REAL TIME CLOCK

control. The lower the number, the faster the clock, so you can experiment if you wish.

### SOME REAL APPLICATIONS

Finally, let's look at some applications software - Programs 3 and 4. The machine code routine must fit in memory before you run either of these, or the IBM calls will crash. Both programs are fairly rudimentary, so you'll probably want to add your own bells and whistles. It would be easy, for example, to send or receive signals through the various ports (parallel, serial or printer) at pre-determined times of day, or at pre-set intervals. You may well find additional uses for these routines and could save by using your Atari in applications you never dreamt of.



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See this page and inside front cover for details

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See PAGE 6 Negative Issue ST page 2 for further details of this super program. Your version has all the features and fun of the disk version except that the number of AVAILABLE EXCLUSIVES FROM PAGE 6 have decreased to 1000.

Mark Hutchinson's

# RANDOM NOTES

**T**his issue I had hoped to write about the ST and why some people love it and others loathe it. However, as I received no mail whatsoever on this subject it can be put in the "Black Hole" along with invalid AT&M news (or rather letters from female users), with due apologies to Linda who did respond (yes, I will use your S&B card).

**S** is, what now, Well, I have been in contact with Paul Razon who used to write reviews for me (local, and now dead, and magazine and he does a sterling job for Page 6. He was complaining wholeheartedly about the serious lack of new 4.0 software. More of that soon.

A few days ago I received a letter from Mike Puffin to tell me that the comments made in this column about the so-called "AT&M Users Centre" was quite true - they are a big con. The shop he tried did not even have a 4008 was an AT&M firm. He did give me some good news and recommended a pub on the bank for Lingo Sales of Southgate who told him that they simply could not satisfy the demand from AT&M owners.

**W**ould AT&M even come up to the fact that they are just a computer manufacturer and allow a third party consortium of dealers and user groups to set up a nationwide, single "official" AT&M user group? Would AT&M (UK) Corp help this group with hard cash sponsorship? It seems to me that there are some large groups already halfway there. Each could serve their own area but help each, less privileged areas and could all get together for three days of lectures, reviews, proper hardware and software demonstrations (by the dealers) etc. at a suitable location without the empty promises that we get every year from other places. How about it?

Naturally some dealers would see this as the golden opportunity for the advertisement and a closed, silver market. Not so! The AT&M owner has had his and has very rightly too often by the phrase "We do not have it in stock at the moment", or "Bring our office and we will post it out" for three firms to make a killing of such a venture. We are not naive enough to believe that firms are really altruistic, we know they need to make money to survive, but we do know those firms who are on our side and we can trust.

**A**s for the software problem? Well, the idea of a user completed form at the end of each had only a few responses, all in favour. Mike also mentioned that, although he would not be at the show, he would like to add his name to the form and could PAGE 6 start the ball rolling!

I believe that PAGE 6 is a barometer in the world of computer magazines. It has had to stand on its own against all odds with no support from any firm, but regular advertising. We can therefore be proud that we owe no allegiance to any product or firm and that all our reviews and comments are true and not coloured by association. We stand by the user because of our staff and writers are full time AT&M users themselves. However, I feel that this subject could be better handled if it came from a Users Committee bearing the magazine's endorsement and the support comments from both sides. This is only my personal opinion and has nothing to do with the Editor or PAGE 6 policy. This may seem to be sidestepping the issue but I feel that there are few sides to the argument and we, as a magazine, should be allowed to use both opinions freely.

**B**ack to Paul Razon. I did suggest that he could look at some old, but still available software. This would be hard for him as, certain firms advertise a large stock that seems to vanish when an order is placed. The reason I made this suggestion (and regular readers will note that I usually state this) is that I feel there is enough good software from several years ago to keep new owners happy. What software does he mean, you may well ask. Well, how about some from 1983 for a start?

**INDEX** by Spooky Sharks (Adventure International - All), **HELMANAGER 800** (Synapse), **QS-DORTH** (Quality Software), **ENVE-C** (Envision Software Inc), **INTER-LISP** (Deimos), **Tricky Tutorials** (Dante Cruz), **any of the Scott Adams adventures** (all), **any of the Pacman clones** such as **LAW-BREAKER** (On-Line Systems), **RASTER BLASTER** (Redgate), **THRESHOLD** (On-Line Systems).

That is a good selection to start with and you'll find more in Ed's Bluestone's article about the "never available" software elsewhere in this issue.

All the programs I have mentioned were available in the UK. There are hundreds more, some good some bad, that never made it across the Atlantic. I will think that if a UK dealer were to try to get American software that has run out of copyright that they could make a small fortune even here. Still, that is only my humble opinion!

**F**or some reason disks have always been more expensive than cassettes. I know some disk based programs have had extra graphics and such, but I also know from small scale production myself that disks are costlier, cheaper and quick to produce than tape. They can also more reliable in large production runs. So, Robert O'Hare from Middwich, will PAGE 6 ever produce tapes? This is the Editor's decision and would really depend on demand. Could the magazine support the cost of a high speed tape copier? If enough people wrote in and asked for tape then we would oblige, but then how many of you BT in the office is post operators? By the way Robert, the 8008L is an 8 bit machine.

One last point. I get a lot of mail which I can only answer slowly if you supply me with an S&B. For those who only send a letter that has questions to be answered then you will have to wait for the response to appear here. For instance, if Malcolm Taylor from BPO 112 made this and sends me a disk with about 10p of British stamps then I could include some small demo programs that would help him out. I do not have the time to actually write a full blown program for anyone but I can write some small demos to help out. No questions about syntax please, as I can't read that! Anything I know nothing about is passed on to the relevant person.

That is it for another issue. I contact you if what writing will appear next issue but I hope you will be there to read it.

Don't forget you can always write to me, (and you should!) so that we can get a few more things added to this column. Drop me a line.

**Write to: Mark Hutchinson, 1, Hollymount, Ebbw Vale, Blaenau, Gwent NP23 6GL.**

# The ST FILE

## EDUCATIONAL software comes of age Fun starts on page 54



**BILL** - Masterpieces are bringing the famous board game to the ST



**BATTLE CRISIS** - Palace software's about as up level as it gets



**UDDIN V** - There were rumours that it wouldn't be out on the ST



**ATARI BUDGET SOFTWARE** - Electronics Arts new budget releases for under a tenner

## ST NEWS

Microprocessors have been rather busy lately what with buying up Electronic's and launching new labels but they have found time to release a few ST titles foremost among which is **ELIJAH V**, the eagerly awaited sequel to the star of its predecessor and with the ability to transfer characters from **ELIJAH IV**, and **ALBUQUERQUE RANGER**, an earlier simulation which arrived a couple of days ago and looks to be very good, control next issue. Microprocessors are also into the sports field with **MICROPHONE SOCCER**, Electronic's new **BATTLE CRISIS** has some stunning graphics and combines the traditional chess board with fantasy battle sequences as each piece takes its own character. Don't let the name fool you this is a spin off of French record company owned by a 'playboy millionaire' that expects to release it in 4 weeks time a year. First in **BIG CHALLENGE** with all programming done in-house and nine new pieces of music composed by a professional musician performed from the record company. Microsoft means trouble for a piece of their's too, please and Microsoft's Texas promoter you lots of fun with **UDDIN V** - **MAKER WINGS** in which you not only have stylish birds and jet but also what your abilities and capabilities about as you practice the noble art of flight (that's done the spell checker too). CEO Software are another company strong in the licensing game and will be releasing **IPWAWPWA** **FRANKIE** based on the TV game, you know what it's about don't you, we don't have time to watch the TV Electronic's Arts also have **POPULOUS** with music by Bob Hubbard, which you will no doubt have seen extensively reviewed elsewhere by now, but then we don't get all these pre-release copies on you won't get the system for a while yet. Finally a slowly worded press release from Atari quoted a report that "Atari announced the dominant order of non-compatible PCs in 1988" and goes on to state that shipments of all personal computers in 1988 were 777,990 compared to 552,350 in 1987. Atari's market share improved from 2.1% to 8.4%. Slightly impressive but a quick bit of calculative banking shows that Atari sold around 74,658 copies in 1988 and 80,980 in 1987 that is across all ranges so you can judge for yourself how accurate figures quoted elsewhere of 'around 170,000' ST's in the UK are.

# MINIX-ST

written by Andrew Tanenbaum

**Matthew Jones likes to dabble around with different languages and finds himself a UNIX compatible language ideal for those who want to investigate different Operating Systems or find a new way of using their ST**

**I** think that the best way to start a review of MINIX is to quote two items from the manual. The first paragraph of the "Booting and Installing MINIX-ST" chapter reads: "In this chapter we will describe how to boot and install MINIX-ST. It is assumed that the reader is already familiar with MINIX in general, and has at least some knowledge of UNIX. Readers not at all familiar with UNIX should probably begin by looking at one of the many introductory articles and books about it, as this manual does not contain any tutorial material on UNIX." The third cover shows a gentleman with thought bubbles saying "processes", "input/output", "memory management", "file systems" and "table (0-1) \*0++ \*9+0/". We're talking technical!

MINIX is neither a techno-centric character, nor an application program. It is a complete multi-tasking operating system for the Intel XT and Intego-ST computers, designed as an educational tool, rather than an end in itself. MINIX started life when RST&T (the originators of UNIX) decided that universities would no longer be able to teach students using the UNIX source code. Since this meant that lecture audience Tanenbaum did not have an operating system to use (as an example, he decided to write his own - the result is MINIX - a completely re-written operating system that is compatible with UNIX V7 just the usual up-to-date in fact). The MINIX software is not really a complete package - to get the best from the software, you need the book by Andrew Tanenbaum called "Operating Systems, Design and Implementation" which is a complete tutorial on operating system design, describing all the possible problems and their solutions (if any). If you are interested in learning more about computers and how they work, it is a good read. In addition to discussion of the parts of an operating system, the book describes the actual implementation of the ideas in the form of an operating system - MINIX. A complete listing of the source for the original IBM PC version is included, as is a basic set of instructions for using it. This part of the book (Appendix C) is mirrored in the small (62) page manual supplied with the disk, and the book is an essential component. Since it is so much cheaper, you may like to buy it first to give you a taste.

## INSTALLATION

MINIX-ST comes on eight single-sided disks. Three of them are used in the boot process and consist of the 00.000T disk, the 01.000T disk and the 02.128 disk. The MINIX system, like

MINIX is published by Prentice-Hall, and is available from Bookshops, quote ISBN 013044932-8, price £95.00 inc. VAT. The manual (013044934-7) is also available separately for £30.00. The book "Operating Systems: Design and Implementation" is ISBN 013047183-0 and around £20.

More information can be obtained from Prentice Hall, at Wood Lane Ind, Hemel Hempstead, Hertfordshire HP2 4NS. Telephone 0442 231111.

UNIX, has a hierarchical file system (like the TOS folders, but can only have one "root" directory. Other disk drives are "mounted" into a sub-directory to allow access. The root device is always a RAM disk (which can be changed in size), and the 02.128 disk is mounted in the /usr directory during the start-up. This makes half of the MINIX commands (all UNIX compatible) available. To access the others, you must mount disk 08.000T too. On a single drive system, this is obviously not terribly convenient. Another problem is that the compiler is on another two disks (06.000T and 07.000T). If you have only a single disk drive, then you will have great problems. Obviously twin disked disk drives are better, and a hard disk better still.

The manual covers setting up the system for all possible Atoc combinations, including those short of memory (only 512K). Since I only have 512K, I have discovered the delights of trying to get the compiler to compile even simple programs - you cannot just run it - using a procedure covered by the manual. To save typing the commands continuously, I wrote a (Bourne) shell script file, but even that had to be compact since the method leaves only 2K space. (Most and more applications need 1Mb of RAM to work well - the latest Superbus, the Turbo backup, etc. If anyone has a memory upgrade to be reviewed - I'm the person!) It is just possible to compile on a 600K machine, and disks 06.000T and 07.000T contain the full source to the operating system and tools (all except the compiler) for you to examine and change at your will.

The final disk, 08.128 is a TOS format disk that contains useful utilities for managing MINIX systems from TOS. The most useful is a program to boot MINIX from within TOS. This program needs a data file into memory and then executes it. Another program is provided to create the data file from the MINIX 00.000T disk, but I was unable to create a workable copy from my backup - only from the master. Since you have to modify the boot disk to match your keyboard, this option needs looking at. The source to the program is provided so you could fix it yourself if it does not work for you. With this utility working, it would be possible to boot entirely using a hard disk - MINIX can read the rest of the system from partition three. An interesting fact I discovered trying to implement this is that the Intel PCX partitioning



program cannot be used to just adjust the size of one or two partitions - it must destroy them all. The IBM PC equivalent allows you to alter one without disturbing the others. The effect of this is that I had to dedicate a whole Mbit partition to a 1.15k root file system, or lose everything on the hard disk. I would have gone for the former, but finally decided to boot from floppy.

## USING MINIX

When MINIX is up and running, you can first adjust for the date in the usual UNIX manner (`date` date and time in form MMDDYYTHHMM), and then press the "login" prompt. Mega-ST owners can use a utility to access the real-time clock to save the date step. Any UNIX-compatible system has two levels of user: the ordinary user and the super user. The super user can do absolutely anything on the system, such as looking at any file he likes, changing anyone's password, creating special files - anything possible without restriction. The super user level is normally used for the system administrator, to add new users to the system, tidy up, and sort out problems when they arise. In normal use, you would use the identity of a standard user, so that the operating system will stop you doing dangerous things and interacting with other peoples files (unless they want you to).

MINIX could be used as a complete multi-user system if you wrote a driver for the read part, but as it stands it multi-tasks effectively. You could use a machine with 5MB of RAM or more, set a discless copy, or compile and a document format/print process all going in the background, while editing using the supplied MINIX editor in the foreground. MINIX is not compatible with the UNIX vi editor, since it would be too big. It is adequate for its purpose though, and the answer is there if you want to change it.

MINIX is a very good UNIX emulation - it has all the standard UNIX programs that I remember from when I was given charge of a third UNIX system. To get real use from it, you will - on the quoted paragraph note - need another book which covers UNIX SV. I can recommend UNIX - The Book by M Tanenbaum & A Ralton, Alpha Technical Press (ISBN 0-951194-21-8). Our copy is

quite old, so whichever book you get, make sure it is about the UNIX version 2, not the later system V (I can't explain the ordering).

## MINIX FOR EDUCATION

If you are interested in learning more about how computer systems work, then the book is a good starting point. MINIX is the practical part, and could indeed be useful for learning by experimentation if you have more than the basic memory it would suggest a hard disk is required too so that all the commands, compile and source can then without disk swapping. Each of the UNIX commands are available for experimentation too, and may be easier than experimenting with the workings of the operating system itself. And if you do not wish to modify it, it will give you very good practice on the UNIX operating system - which does seem to be increasing in acceptance. It could indeed be used for real applications, but again with the RAM prerequisite. MINIX never crashed on me, and seems fairly robust, but since the ST provides no hardware assistance for some basic checks (like stack overflow), it could sometimes give problems. The manual describes how to give a program more stack space, but you need to have enough memory to support it.

## DOCUMENTATION

I have already mentioned that the "manual" supplied is stout, and that you will require the Operating Systems book and probably a UNIX book too. The supplied manual really does assume that you have a technical understanding - it is not children's guide. You will have to read it several times to become really familiar, and I spent my time flipping through it trying to find the relevant section that described how to do such task. Once you have MINIX set up and ready to go, you should find you need it less. Chapters cover "Starting and Installing" (14 pages), "MINIX-ST Users Guide" (29 pages to cover super-users, keyboard codes, MINIX all the ways to use the C compiler, new MINIX commands, and ST libraries), "Resolving MINIX-ST OS Issues" (Changes in the Implementation" (18 pages), and "Troubleshooting" (4 pages). It is brief, but contains all the information you need - any more that you want is probably in the book. Unlike the manual for the book give day detail of the C library calls - again you have to look elsewhere for that sort of detail. Finally, the manual describes how to get more information about what is happening to MINIX, by accessing the USENET conferencing systems available on many UNIX systems. This network is mainly available to students and professionals - so should not be too much of a problem for students in higher education. They suggest a membership of 10,000 people - an impressive number of MINIX users!

## CONCLUSION

MINIX is not for those who consider their computer a tool. It is for the hacker who wants to get "inside" the computer and tinker with it. As such, it is very good, but you will not get a great deal of use out of it unless you have more than 512k, 16bit FPU, disk, or a hard disk makes things much more usable. Considering UNIX occupies a 40MB disk minimum, running MINIX on a single sided 11.2k system is incredible, but not practical. On a larger system MINIX-ST is good. If you are a hacker or student of computer science (possiblyably hacker) MINIX is for you, but otherwise you may find little use for it.

# FUN SCHOOL

## 2

Educational software is the best-selling software charts' Entertainment, but true. At the time of writing, this series of educational packages has been as high as number 4 in the Gallup software charts, right up there with the 'lean' 'em up! Who said educational software costs a lot!

There are three packages in the Fun School 2 series, categorized by age-group to cater for the under-six, 6-8 year olds, and over-10s. Each

is attractively packaged in a colourful cardboard box containing two program disks, study produced instructions and parents'/teachers' notes printed on glossy card, and a metal pin-on badge for the child to wear.

There's a strong family resemblance between all three packages. Each consists of eight separate programs selected from a graphic menu, and all have a similar style about them. The graphics and animation particularly are of a very high standard throughout. These programs are not just simple card spelling drills, but provide a whole range of exercises designed to make your child think and learn in many different ways.

Most of the programs allow you to set the initial skill level, and will then automatically adjust themselves to the child's ability. Extra-long using words allow you to add your own word lists once the child tires of those supplied. For those feeling brave it's possible to modify the programs using BASIC. Everything was written in BASIC Basic, so if you own a DOS you can change the code, graphics, graphics or music to your own purposes.

Program control and entry of answers is via the keyboard or joystick and should be easy enough for virtually any child to cope with. Correct answers are usually rewarded with the ubiquitous 'my namey theme music, but here it's handled extremely well, using multiple voices playing in pleasant harmony. And thankfully, there's not too much of it anyway!

Let's have a look at each of the packages now to see what they contain.

### UNDER-SIXES

The right program in this package cover shape recognition including letters, colour recognition, counting, word building, spelling, experiments with number stars, creative writing using the keyboard, and logical thinking.

Other concepts, such as up, down, left, and right are learned incidentally. The teddy bear is used as a recurring character, and even appears as a character in several exercises!

**TEDDY COUNT** is a favourite with children (and me!). This has you to nine delightfully animated teddy bears dancing round the screen. The child has to count them and key in his answer. They then form themselves into a line, and if the answer was wrong



There hasn't been much educational software for the ST but John S Davison and his son Pete have been having great fun with some new releases



100 Database Educational Software

they step forward individually to be counted again. If the answer is still wrong they count themselves for you. **FIND THE MALE** has five male bears numbered according to size, one of which conceals a male. The child has to guess which by typing in a number. If correct the male emerges from his hole. If wrong the child is told whether the correct number is bigger or smaller and repeats the exercise until the correct answer is obtained.

**COLOUR TRAIN** has a steam train chugging along a track passing through coloured stations. The child has to stop the train of the station pointed the same colour as the train. If he succeeds various passengers get on and off the train, which then changes colour, and the process is repeated. Again the animation is smooth and detailed, including tea and coffee (with of course coming from the train's buffet). **TEDDY BEAR'S PICNIC** is a maze game in which the child guides Teddy through a maze of trees to find his picnic. This gives practice at logical thinking to negotiate the maze, and co-ordination of up, down, left, and right movement to steer Teddy to his food. **SHAPE SNAP** is a fairly simple exercise played like the card game snap. Shapes are displayed successively and if they are the same the child presses the spacebar to indicate snap. If different, he presses any other key. Higher levels use letters rather than shapes to introduce the concept of the alphabet.

**PICK A LETTER** takes this a stage further. A letter is displayed and the child has to guide Teddy to find the same letter in an alphabet grid. The letter is then picked up and guided back to an answer space. Higher levels use words rather than single letters, introducing the idea of spelling. **SPELL A WORD** is yet another stage forward, and is similar in concept to Spell also reviewed in this issue. A picture is displayed and the child has to spell the word it represents using the keyboard. This could be continuing to young children as the keys are marked with capital letters.

**WRITE A LETTER** is the final stage of experimenting with letters and words. It allows the child to experiment with writing in the form of simple phrases, sentences, or even a little story or a short letter to someone. In fact it's his very first word processor!

## SIX-TO-EIGHTS

The second package of eight programs are some of the concepts from the first set, but in a more advanced way. Counting is extended to become arithmetic and is exploited by several programs, the idea of co-ordinates is introduced and an overall higher level of comprehension and logical thinking is required. Again, there's a recurring character and this time it's an orange-coloured frog.

**NUMBER TRAIN** is an extension of Colour Train from the first package. As the passengers disembark and disembark the child has to work out how many people are left on the platforms. **MATHS MAZE** continues the maths topic. Here the frog has to be guided along stepping stones, some of which are occupied by robots. To pass these the child has to correctly answer an arithmetic problem. **NUMBER JUMP** provides a painless way of understanding the concept behind multiplication tables. The child has to guide the frog across a pond by jumping only onto the lily-pads marked with multiples of a given number.

**SHOPPING** helps with reading, comprehension, and co-ordinates skills. The child has to read a highlighted item from the frog's shopping list and then guide him to the correct shop to buy it. The exercise ends when the frog has purchased everything on his list.

**BOUNCE** is designed to encourage co-ordination and logical thinking. The child aims a ball so that it hits an apple only bouncing off various walls and obstacles in its path. It's probably the most difficult exercise in this package, and is challenging even for adults!

**TREASURE HUNT** introduces the idea of co-ordinates. The child keys in grid co-ordinates to guide the frog to a particular grid square on the treasure island. He's then told how close to the buried treasure he is by the 'cuboid/warmer' technique.

**PACKING** has the child guiding the frog to pick up shapes which have to be fitted together in boxes a rectangle. In the highest level one of the shapes may have to be rotated to make it fit correctly.

**CATERPILLAR** is an amusing Homage-type game, where the child keys in letters to find a hidden word. If a letter is correct it's put in its correct position and the caterpillar moves down to an apple. When the word is found the caterpillar chomps his way neatly through the apple.

## OVER-EIGHTS

In this package the programs are linked in that the first seven each provide a password if completed correctly. These passwords are needed to successfully complete the eighth program. The exercises presented here will challenge the child's reasoning and logical thinking skills and should be advanced enough to keep the brightest of children occupied for quite a while. The theme character is a robot this time.

**BUILD A BRIDGE** is a more complicated version of Packing described above. Coloured shapes have to be fitted together to fill the gap in the bridge. Its higher level has more shapes than are actually needed, making the exercise a little harder. **SOUVENIRS** mixes a little geography and maths. The child has to plan a route through Europe visiting each country only once, buy a souvenir in each one, and end up back in the UK. He's given an amount of cash in Sterling, but buys souvenirs in local currency using a specified exchange rate for the currency conversion. At

the highest level the countries' flags are shown instead of their names, so the child has to be able to recognise these. **CODE BOOKS** introduces the child to coded numbers. He has to decode the coding system, in reality a boss change, from the class given.

**MISDEED MACHINE** requires the child to decipher the code used to encrypt the instructions to operate the machine. The exercise is completed by following the instructions made visible by successfully cracking the code. **PARRIDGE OF GUESSESS** is a similar idea to Maths Maze from the previous package. This time the child has to get his robot past the Guardian Robots by solving conundrums.

**UNICORN** has the child controlling a robot in order to carry a bird, a worm, and an apple one-by-one through a forest maze to where the Unicorn lives. All is well while the robot is present, but when some are left alone together that trouble starts. I won't spoil things by telling you what happens, but solving the problem can be quite a challenge, especially as there's a time limit imposed by the forest burning down!

**LOGIC DOORS** is undoubtedly the most difficult exercise of them all. It requires the child to find his way through a maze of rooms, each separated by coloured one-way doors. Keys of matching colours to open the doors are scattered around the maze, and to finish the game you need to open all the doors in the correct sequence with the correct keys. There's a practice level allowing you to map the maze and locate the keys first, but you won't be given the password completing it this way.

**ESCAPE**, the eighth program, is another maze exercise similar to Logic Doors but without the keys. All certain points your way is obstructed, and to get past requires the child to combine passwords obtained from the previous programs. Each password can be used only once, so again mapping is vital. Unfortunately, in the review copy I received and Logic Doors seemed to have bugs preventing their completion. This meant two passwords couldn't be obtained so Escape couldn't be completed either. Database are now aware of them, and hopefully should have fixed them by the time you read this.

## CONCLUSIONS

There's only one word to describe this collection - fantastic! Never before have I seen educational material presented in such a professional and entertaining way. The nearest probably being some of the Disney programs. But, my seven year old son, can't leave them alone and keeps coming back for more. What better recommendation can there be for educational programs!

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# B BYTES

## Educational Software

**B**Ware is a new software company set up by Acorn dealer B-Bytes Computer Systems of Hinchey. Their intention is to use local programming talent to bridge the gap between public domain and normal commercial software, supplying all that world educational, small business, and home-hold software most software companies ignore. Prices will be kept low by using simplified packaging and printing, compressing code and data to fit on one single-sided disk where necessary, and by eliminating fancy graphics. Here we have their first offering in the educational category.

**B. SPELL** is a spelling and letter pronunciation aid aimed at 5-8 year olds, with options for 3-4 and 7-8 age groups. It's designed for ease of use by young children, so it totally stores controlled, allowing the child always to work with screen display of lower case letters (as taught at school) rather than the confusing upper case letters on the computer keyboard. The program's main screen is simple and colorful and contains several large icons for selecting various options. Letters of the alphabet are laid out in order round the sides and bottom edge, and during the program's lengthy load cycle each letter flashes in turn as a halter rate pronunciation is phonetically, the speech, signified by AVR 10 (teletype carriage) is so clear you can even hear her soft (unintentional?) secret.

To use the program a letter can be chosen by the child or picked randomly by the computer. A word beginning with that letter together with a bold, bright picture illustrating it are then loaded. For 5-8 year olds both word and picture are displayed successively, so the child can copy the spelling by finding and clicking on the same letters in the screen edge-alphabet. For 3-4 year olds the picture only is shown, so the word list has to be correctly deduced from the picture before it can be spelled out.

As each letter is selected it's placed successively and pronounced by that nice lady again. Mistakes can be corrected by clicking on the 'rub-out' icon and a replacement letter selected. A click on the disengaged flag icon signals the word is complete and if the spelling is correct a voice (made this time) says "Well done!" and the child's efforts are 'rewarded' with a burst of excitingly painful nursery rhyme music. If the spelling is wrong the lady says so, incorrect letters are indicated, and the child can repeat the exercise until he gives the correct answer.

B.Spell comes with a set of 26 pictures, one for each letter of the alphabet, but is designed for use with additional picture sets. You can produce these yourself with the aid of the utility program described below.

**B.SPELL CONSTRUCTION SET** is available for just £5.00 extra if you buy it with B.Spell, or £9.95 if you buy it separately. To fully exploit B.Spell you really need this program, so it's wise to buy the two together and save yourself a few. You'll also need a separate art program (Degas, or Neochrome) to actually draw new pictures. I tried it with the public domain version of Neochrome and everything worked fine.

To fit everything onto one single-sided disk, B.Ware had to compress five of the file groups supplied. Before use these must be decompressed, a once-only operation easily performed with

**A small independent software publisher proves that you can produce educational software that is low in cost but not in quality as John S Davison finds out**



B.SPELL, as well as colorful graphics, it speaks to you!

the ARCLITEP program provided. One file group contains a complete set of 26 additional pictures ready to run with B.Spell. The others provide (in Neochrome and Degas formats) a set of 26 pictures you can modify plus a set of 26 empty picture boxes for drawing your own pictures from scratch.

When a new set of pictures has been drawn, the Construction Set is used to convert them to B.Spell format, associate a word with each picture, and write everything to disk. They're then ready for use with B.Spell. You can also add single pictures and words to, or correct words on, an existing B.Spell picture disk if required. And that's really all there is to it - simple but effective! B.Ware have started a 'swap shop' for B.Spell picture disks. Send them a disk containing a new set of pictures and £2.99 and in return you'll receive another disk containing 1000 sets of pictures for your own use. Also, they'll soon be selling ready-to-use picture disks for £5.00 each.

**KIDSOFT SCHOOL TIME MATHS** is B.Ware's first offering in the maths area, and is aimed at five year olds and upwards. It consists of seven different options covering simple counting, addition, subtraction, and multiplication exercises. Tasty children grasp the concepts of arithmetic more quickly if they can actually count the occurrences of recognizable items rather than trying to cope with something as abstract as numbers. So, this program can replace pure numbers with the corresponding number of pictures of everyday objects. The instance instead of the number 5 the child is shown five bananas or whatever the program chooses from its large set of pictures. Once the child understands the concept, actual numbers can be used instead.

A single screen is used for all seven options. This depicts a classroom, with a large blackboard occupying the wall facing you. Walking up and down in front of this is 'teacher', who takes the child through a series of problems of the chosen type. To help



the child there's an arrow along the bottom of the screen, and this may be used for marking out AND entering the answer to a problem.

The screen has twenty numbered positions on it, any of which can be selected by using the mouse to slide a bead to the required number. For instance, the sum 3+2 can be calculated by moving the bead to 3 and then moving it 2 places to the right to arrive at 5. A click on the mouse then enters this number, which glides up onto the Blackboard or the child's screen.

As the screens can only count up to twenty it follows that no problems can have an answer greater than this, which means all problems are very simple, however as the program is aimed at very young children this is all that's needed. Exercises in division were omitted for the same reason.

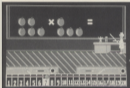


FIGURE 104.182 - Ayr attention teacher's watching.

All exercises are conducted in the same way. Teacher starts at the left of the Blackboard and moves across placing pictures or numbers and arithmetic symbols on it to construct the problem. As he does so he SPELDS to the child (for example 'three across again?'), orally stating the problem. If pictures are being used he counts the items onto the screen orally too, thus reinforcing the concept of counting.

Correct answers result in a 'Well done!' from Teacher and - you guessed it - that parental music again! Mistakes result in a short burp or two from the mouse (tip on the correct answer glides onto the blackboard to correct the error).

Each exercise involves ten problems after which the child is shown answers for many correct answers he gave. Teacher doesn't actually speak this information, which is a pity.

#### OVERALL CONCLUSIONS

These programs are first class and should prove genuinely beneficial if used appropriately. Young children will love the colorful graphics, sampled speech, and who takes - even that awful mouse! Overall quality (music excepted) is excellent and all the programs worked flawlessly during the review period. B-Bytes must be congratulated on this venture, and on the eminently sensible policy behind it all. I hope we see more from them soon, as current evidence shows their products provide unbeatable value for money.

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# POLICE QUEST II

## The Vengeance

I don't particularly like to compare a 'new' game with it's predecessor as I believe a game should be judged on it's own merits - yet this is necessary with a sequel, and what a sequel it is!

The first Police Quest followed the hunt and subsequent apprehension of one Leslie Bates. Now he's not! The killer is dead and you are once again cast in the role of Sonny Bonds, charged with the ultimate capture of the Death Angel. This has actually moved on since PQ1 and you are now a Detective, still based in Lytton, but assigned mainly to homicide cases. To add further intrigue to the game, and possibly increase your vigilance, your girlfriend has also been kidnapped by the Death Angel ... and the left you such a sweet message!

The game documentation loads your involvement in undercover police missions, handling a kidnapping and the safe disposal of possible explosive situations. All the skills necessary to carry out these tasks have to be learned and practised as you progress deeper into the game.

The graphics in this sequel are nothing on the superb, with far greater detail shown and much more use made of the objects situated in your on-screen vicinity. Try playing with the latest computers in any of the offices and check out your rear-view

in the non-convivial streets, such as the numeric code for your personal locker (flip the business card that you should have found in the glove compartment of your initial vehicle).

Police Quest II is based on real life in a U.S. Police Department so, as you can well imagine, the scenarios it hosts and the situations are meticulously A through reading of the Homicide Officer's Guide (provided with the game), is a must, if only to learn the correct wording for the various U.S. Police procedures - remember 'ADMINISTER FIELD SOBRIETY TEST' in the first case!

Most inputs are understood and acted upon - eventually! On the S2010 it seems rather a long time for everything to happen, yet I can assure you that the

wait is well worth it. As usual I tried a muted input and was subsequently corrected several times - a glove LOCKER doesn't exist yet a glove COMPARTMENT does, and car MUFFS can be requested and obtained yet only one PROTECTORS can be used! Missions really, but it shows that even with a comprehensive vocabulary, the best games (players) are easily fooled.

Miss doors open automatically for you, but not all. I was particularly pleased to find that I didn't have to try and manipulate my car around Lytton - just DRIVE TO (wherever) provided you have previously justified your journey! There are two main areas you MUST check out before leaving the Police Station, these being your Storage file in the entrance hall, where you find your 'Field Kit' and your Locker, where you find the rest of your equipment. Document locations and TALK to everybody, you never know what you may learn!

I'm not going to spoil things for you by going any further into the game and revealing too many of the treats in store, but

I can say that this game really is a pleasure to play, almost like controlling a film! One final, and important, point that must be noted is the fact that these later Sierra On-Line games require a DOUBLE-DENSITY drive, but you will find an offer of exchange for single-sided drive disks reduced in the game packaging, provided you enclose a further five dollars for this service! As it stands, the game comes on 3 double-sided disks.

You may be somewhat disappointed to learn that Jim Walls - the author of both Police Quests - has no immediate plans to



write a third in the foreseeable future, but the good news is that Sierra have commissioned him to produce 'Operation Code Name: Ice Man' - a new undercover spy thriller about hi-tech insurgency and hi-tech crime. This should hit the United Kingdom about the time next year, all being well.

reviewed by John R. Barnsley

### SOME CLUES FOR GETTING STARTED

#### DON'T READ IF YOU DON'T NEED HELP!

- 1) Read the game manual!
- 2) Check out both your storage bins (by the counter) and your locker (first one you came to on the LEFT of the Locker Room).
- 3) The reverse of the business card will open your locker!
- 4) Open the filing cabinet and read the named files for further information.
- 5) Check out the firing range and don't forget to ask for our protection.
- 6) Listen carefully to what your superior tells you and don't forget to get authorisation before you go elsewhere.
- 7) You want to drive around? Get in your car and DRIVE TO THE AIRPORT - see what happens!
- 8) You did know you had some money with you, didn't you?
- 9) SAVE OFTEN - SAVE EARLY!



mirror when driving along to see what I mean!

As with all Sierra games the motto is SAVE OFTEN - SAVE EARLY. Clue-obvious!

**POLICE QUEST II**  
**Sierra On-Line**  
**£24.95**

**ANDES ATTACK**

Llamasoft

£9.95

*Reviewed by  
John Davison Jnr*

Revering a program written by Jeff Minter is always a pleasure. His strange sense of humour is evident throughout his games. Even the highly amusing instruction sheet to the game itself, *Andes Attack* is no exception to this. It is, in fact, a complete review of Jeff's very flat game, which was released on the VIC-20.

The objective of *Andes Attack* is to fly your fighter-stuff over the placidly descending the literally llamas from attack by the evil (and very infamous) *Epyxion* empire. The empire's intention is to abduct the animals and transform them into mutated monsters by using the llama's 'innate' powers. Its appearance and style (*Andes Attack*) is very similar to the old classic 'Defender', being an extremely fast horizontally scrolling shoot 'em up.

The game is controlled using the mouse and keyboard. The mouse is used for movement and the buttons to activate the



shoot and for turning around. The keyboard is used to activate the weapons and other facilities which are at your disposal, being the all important laser gun, your shield, and the very useful smart bombs which destroy everything on the screen.

Gameplay is almost identical to 'Defender' in that you have to shoot just about anything that moves, while at the same time deciding whether a smart bomb or the shield should be used. What all this is going on you must also watch your scanner. This shows the entire planet, enabling you to locate the aliens and also to see where the llamas are being taken from, so you can rescue them.

The game contains many nice little features which are most obviously Jeff Minter creations. For example, the power mode does not merely freeze the game, it enables you to play with the game's sound effects (using the keyboard to activate them)

while watching pulsating patterns. Throughout the game there are levels known as the 'five Llamas Wonders' where all of the enemy craft are of the 'high scoring' variety as opposed to a mixture of these and the lower scoring leader craft which attack the llamas. These levels enable you to rack up huge scores by destroying everything you encounter. Obtaining high scores enables you to receive extra ships, shields and smart bombs.

The graphics, while not being especially drawn are (surprisingly) colourful. During play, the game screen is a mass of throbbing psychedelic colours which are quite pleasing. The audio effects are also very good and come into their own if you play the game with the sound turned up. LOUIS Anybody else would be trying to sell this game at around £20. Jeff however, in true Minterish fashion, does not believe that £20 is a fair 'full price' level for games of this type. He maintains they are no longer in vogue on the ST than on the old 8-bit machines, so there is no justification for charging twice the 8-bit price. Hence the low price of this program. It is a pity the rest of the software industry do not follow his example!

Overall, as with all Llamasoft games, *Andes Attack* is utterly fantastic. It's incredibly fast, tremendous fun, and a true bargain at the price. If you like a good blast then you'll love this one!

**BALLISTIX**

Pygnosis

£19.95

*Reviewed by  
John Davison Jnr*

Every time a new *Pygnosis* title arrives for review I always seem to start by commenting on the incredibly impressive presentation of their games. From the packaging to the graphics and sound of the game, *Pygnosis* titles always seem to 'wow' about quality. Ballistix is no exception to this.

The packaging is up to the company's usual high standard, being a sturdy box, illustrated with some superb artwork. The game is basically a high speed ball game set in the sports arena of the future. All of the action is viewed from above the arena and your 'player' is an arena which is steered around to shoot the ball. The aim of the game is simple, you must score more goals than your opponent in order to win the match. Achieving success, however, is difficult as there are a large number of obstacles which hinder your gameplay.



Spitters fill the screen with dozens of balls, not arrows, speed the balls up to incredible velocities, and tunnels hide them from view. Bumpers cause the balls to fly about at crazy angles and magnets pull the ball away from your control. To score the ball around the arena you must fire smaller cannonball type projectiles at it to push it in the direction you want it to go.

In the one player game you actually battle against gravity on a tilted patch rather than against the computer itself, and you can take on a real opponent in the two-player game. There are a large number of 'variable' settings you can adjust to make the game easier or more of a challenge. For example, the speed of your

projectiles can be varied. The graphics, as one would expect from *Pygnosis*, are extremely good. When the game first loads the credits scroll up the screen with commendable smoothness, and once this has finished a superb picture is 'rolled' down the screen. The game screens are equally as striking, being intricately drawn. The weird and wonderful patterns of the credits can be seen along with the

people who are continually marching over the screen. At the start of each game a large figure boots in and announces the match. The ball is then placed on the pitch by a rag-covered skeleton hand.

The sound is also very effective, being mostly sampled, especially the speech at the beginning of each game, and the cheer or boom when a goal is scored.

Overall I found 'Ballistix' to be quite impressive, and thought it to be especially good for two players. The graphics and sound are both excellent and the presentation is general is of *Pygnosis*' usual very high standard.

Looks like *Pygnosis* have come up with another winner, once again.

**BLASTEROIDS**

Imageworks

**£19.95**

*Reviewed by  
John Davison jnr*

The press release for this game claims that 'Blasteroids, which was a re-imagining of Atari's classic hit Asteroids, was a huge hit in arcades, combining a highly successful game concept with the latest technology.' On loading the game it is obvious that it is derived from Asteroids, however there are several distinct changes from the original. The most evident difference is the ability of your ship to transform its shape into one of three different types of spacecraft. These ships are the *Spacraft*, with its incredible speed, the *Fighter*, with its immense firepower and the *Victorian*, which is much larger and has the heaviest armour. There are now five different types of Asteroid, some of which are particularly nasty. These include *beavers*, which fly straight at you when shot, and *egg asteroids* which release *beavers*. These *beavers* attack themselves to you and sap your energy. Control of the spacecraft is the same as



Asteroids in that to move you rotate the ship to face the desired direction then use the thrusters to propel it forward. Other differences are the multi player option,

### 'the feel of an arcade game'

where two players can play simultaneously to defeat the enemy, and also the customisation of the spacecraft, where extra features can be added to make the craft more powerful.

The aim of the game is to clear the galaxies of evil forces and to ultimately destroy *MURDER*, the evil ruler of all galaxies. Each sector within a galaxy contains many asteroids which must be cleared.

Within the asteroid fields you will also come across various enemy craft which will do all in their power to destroy you. The destruction of an enemy ship of any kind will enable you to pick up a piece of special equipment such as more powerful guns or shields to customise your ship. These extra features make it considerably easier to complete the higher levels.

Upon loading the game for the first time, having not seen the title in the arcades, I was not sure what to expect in terms of graphics. The loading screen did nothing at all to boost my hopes, as it is not terribly impressive, however once the game has loaded it is apparent that a lot of effort has been put into the graphics, as they are of a very high quality. The sprites are all shaded to good effect, being very colourful and accurately animated. Sound effects are not exactly wonderful however, although this is made up for by a fairly reasonable, if repetitive, background music which fits the game very well.

Overall 'Blasteroids' is a very well presented game which has the feel of an arcade game. The graphics are sound and of good quality and the game will appeal to fans of shoot 'em ups. My only minor quibble is that it is not really the most original of games. Over the years there have been a great number of Asteroid clones, although this is one of the better ones.

**BOMB FUSION**

Mastertronic

**£9.95**

*Reviewed by  
Damon Howarth*

The term budget software has been applied to many variations of quality and style and this game offers no redemption to the reputation that some budget software has of also being budget quality. In this platform game, which owes much to *Demigod*, the player is cast in a slightly ineffective super hero charged with defeating a machine made planet. The fact that he arrives in a 'docked and fuelless CJ' gives away much of the game's concept.

The packaging of the game features an total misrepresentation, since the screenshots are labelled in small print as *Amiga* version and show some spectacular, international lookings. On loading into the ST there are no backdrops and very poor graphics, indeed one could be forgiven for thinking that the colour display and sprite



techniques were basically a typical imitation of the early 1980s. It is not a particularly playable game, in so far as both joystick recognition and collision detection are not the most accurate. There are areas of screens but all are somewhat repetitive, the only actions that are needed are to simply collect as many parts of what seems to be a paper chain's loops and then put them in a bin while dropping off platforms to defeat the burning bombs. To make life a little more difficult there is a bouncing ball that will drop on you and despite both your power and your paper chain, this means that it takes more time to complete the level and takes the chances of your destruction.

The background music is thin and repetitive and it is fortunate that there is the option to use a function key to stop it. There is little to say on the positive side save that it is quite an easy game to play and should you feel nostalgic for the old eight bit budget game then this is a good reminder of the mood of its genre. I was particularly disturbed by the presentation issue since the packaging of the game would make impulse or non trial based buying a possibility, and although I accept that this sort of packaging has been around for some time it does not make it any more acceptable. I fear for the purchaser in an limited budget who may feel that this is a relatively inexpensive option and fails to have missing graphics. It is a pity that Mastertronic, who are bringing out some excellent cheaper software have to allow this sort of thing onto a machine as sophisticated as the ST.

There is no way I can recommend this package as there are infinitely superior alternatives on the market. If you see this game in your local store either see it but or avoid with extreme haste.

# ST GAMES ... ST GAMES ... ST GAMES...

## ADVANCED RUGBY SIMULATOR

Codemasters  
£19.99

Reviewed by  
Damon Howarth

The roar of the crowd at Twickenham, the flash of Murrayfield tactics and the echoes of Lord of the Flies' wailing woe are all looked at in this package. On loading it showed a well designed screen with suitable soundwork and it's option screens give a well thought out menu system controlled by the joystick. The mouse has to be replaced with a joystick to facilitate control in this tight a side simulation of Rugby Union.

The options available offer the player either computer or human opponents and even goes as far as allowing up to eight people (with optional computer) to participate in a league, which would prove most ideal in clubs or similar establishments. It is possible to designate various playing formations and styles and even to select names and colours for your teams or



opposed to the default countries. Once all these decisions have been made, or ignored if you just want to play selection of the playing mode takes you onto the pitch for the kick-off.

The control for this is more than adequate and although it is occasionally a little awkward any problems lie with the skill of the operator rather than the program ignoring the user. Kicking and passing is by way of joystick direction with the player under control being indicated by a large arrow over his head. It is possible to receive Gary Owen or up and under with left control of the stick. The computer provides an opponent of extreme difficulty, there is a definite sense of achievement in scoring against it, but as in all such games the true beauty is in its two player mode wherein both participants can blunder away while learning without conceding embarrassing losses.

'the roar of the crowd ... the flash of tartan'

The area that needs most praise is the deep look into the writers' imaginations and most impressive on the reader and it entails a great deal of well timed guessing of the fire button. This feature can together with the match against the computer and Scotland look ahead tactics can very hard to invade. It is vital that this function is learnt to enjoy the game to it's full potential. The kicking is perhaps reserved only to the scrumage periods where frantic waggling of the stick will gain possession of the ball.

The cut screen following a score is entertaining in as much as most occasions show just a steady and perhaps crowd led cheer as other teams line will attack across the screen for light relief. Other similar little touches add to the general atmosphere of the game. Even as an American Football addict I found this game most entertaining and far better than many soccer simulators. I recommend this to any computer operators with the slightest interest in Rugby.

## STEVE DAVIS WORLD SNOOKER

CDS Software  
£19.95

Reviewed by  
Damon Howarth

Snooker games are becoming one of the most popular forms of simulation in the computer world. The ST has many of varying standards and I am pleased to say, this is one of the better ones. CDS have come up with a format which reflects the thought behind pocketing balls rather than a contest of drawing lines between balls or catching cyclical lines.

The packaging is as nice as the game of snooker itself with a black box and a photograph of Steve Davis on the front, the supplied booklet is, however, detailed and explains the rules of all the balls and ball mechanics it is capable of playing. Back over the same friendly control system of mouse input and menu control for strength, spin, direction and even



position of the white when necessary. There is even a magnify option for close up on tricky shots. The cue action is determined as a matter of where you want the ball to travel rather than angle of cue to ball. There are six levels of play ranging from Novice through to Steve Davis and a variety of opponents consisting of either the computer or another player and a choice of who breaks first.

There is, the nice mandatory, speech synthesis to inform the player of points scored, penalty strokes or where fans it is and some excellent title music sampled from pop music. In the game sound effects are purely those of ball on ball in a series of clicks which do not bear a great resemblance to those heard of the average snooker ball. That apart it does lend itself to promoting the serious contemplative

atmosphere of the game.

The most entertaining thing about this game is the number of other variants that are available all of which are as faithful to their original as the title game. There are two forms of pool (American and British) but only the British version plays in the Yellow and Red ball version rather than the spots and hoops of my youth. There are also two forms of billiards available in the form of Cannon and Standard. In Cannon there are no pockets and all points are scored through the Cannon shot in various lines. It is perhaps the billiards mode I found most entertaining especially since on lower levels the computer is as prone to silly mistakes as normal events in real billiards balls.

The control system is the same throughout with only minor adaptations to the choices to suit individual requirements, for example snooker will request which colour is to be attempted during a break whereas American pool will ask for pocket and ball combinations.

On the whole I felt this to be an enjoyable and highly playable simulation and that in lesser many of its rivals (snookered)

**ZANY GOLF**  
Electronic Arts  
£24.99

*Reviewed by*  
**Damon Howarth**

Minutes of sunny Sundays on Monocable Pleasure Beach, sticky rock and sand in the hair are evoked by this most pleasant of programs. The design is fantastically simple and like all the best ideas demanding of great skill.

The basic idea is to simulate the crazy golf courses of most popular seaside resorts, but with some electronic twists. Luckily there are some American equivalents to the most British of ideas but they do make the game even more educational and thus may be forgiven. The packaging of the game is adequate in the standard CD style box and there are sufficient instructions to make the game playable straight away. There are nine holes on this course each totally different from the others, the method of putting your ball is via mouse control. First position the area hole over the ball and push back leaving a dotted line as a sort of power marker behind it



then release the button and the ball is on its way, so far so good, but obstructions get in the way. For example the bumpers that spin over the second hole and jumps up and down necessitating timing in the hitting out of shots. Many shots need a skill that would be envied by Steve Davis as trajectory and impetus come in the form to make successful putting possible.

Not all holes require the same skill, some require puttable skills, others require the accurate placement of a first shot to set up a final putt, indeed each of the nine holes presents its own problem. The game ends at the end of nine holes or, as is more usually the case, the allotted number of shots runs out and terminates the game early. Luckily the feature means that the unlikely player cannot even finish the game since running out of shots means a total restart. This is including but equally

**'with its realistic bouncing Big Mac and squirting Sauce bottle'**

challenging adding to the addictive flavour of the game. Bonus shots are obtainable by rolling the ball over a random hole or completing a hole in as short a time as possible these shots allow an extension of game time. Some holes have a graphic feature such as the Hamburger Hole with its realistic Bouncing Big Mac and squirting Sauce bottle. My particular favourite is the Fun Hole in which the ball is guided round the adequately writhing maze by mouse wiggling and scribbling lines to show it in the optimum direction. Most interesting is the Agg ball hole, which moves with the wind, oh very strange!

The game is playable by up to four players which allows for suitable use of the computer and owing to the fact that it does not rely on high speed reactions and multiple deaths of hapless aliens is attractive to a family audience. Indeed so fascinating was the artwork and graphic splendour that even my 70 year old mother (really) found it enjoyable and possible to play. This is a definite 10 substitute of a game and so each lives up to its seaside origins. Highly recommended.

**BARBARIAN II**  
Palace Software  
£19.95

*Reviewed by*  
**John Davison jar**

At the finale of Barbarian - The Ultimate Warrior, the fantasy 'beat 'em up' genre returned last year, the firm managed to defile the evil warriors of Doom thus leaving the Pitonax Martians from his evil spell. As a result of this, the evil wizard fled to the dungeons which lie beneath his black castle and he vowed that he would wreak havoc upon the beset Kingdom. The power that he holds that the only way to stop Doom from succeeding in his evil ways is to send someone to destroy him. The Barbarian and the Pitonax Martians ran accomplished swordsmen so the only two warriors within the Kingdom who are skilled enough to survive the perils which exist within Crax's lair.

The game begins as you select your character, be it the Barbarian or Martiana. The selected warrior then walks towards the



dungeon and the first level of the game loads. Your warrior must fight through three levels - the Wastelands, the Corvex and the Dungeons before reaching the final level, the Inner Sanctum of Doom. Each of the first three levels consists of a maze of approximately twenty eight screens. As each screen is viewed it is possible to move your character left, right or into doors or caves which can occasionally be found at the back of the screen. As you travel through the levels you will have to battle with a variety of beasts ranging from dragons to snakes and you finally reach the evil Doom. Magical objects can also be found as your travels which will assist you in various ways throughout the game.

Graphically, the game is superb. The backgrounds are colourful and well drawn,

and the sprites are all large, detailed, and superbly animated. One of special note is the Dragon in the wastelands, which is really huge! The sound which accompanies all of the characters and their various actions is very convincing. As far as I can tell, all of the sound in the game is sampled, from the "Pitoned Pile" type speech heard as you select your character, through to the Dragon bawling as it recovers your head having bitten it off!

Overall the game is extremely good and it is obvious that some considerable thought has gone into it. As well as being impressive to look at and listen to, Barbarian II is also a highly playable game which holds your attention for considerably more time than its predecessor. If only other well-typed games could do the same we'd all be well happy!

## DRAGONSCAPE

Software Horizons  
£19.95

Reviewed by  
Damon Howarth

You have been transported through time and space to beautiful Turanica to protect it against evil invading aliens. The only ally that you have is Garmen a good friend that slightly mentally retarded dragon, your mission, should you choose to accept it, is to pick up and replace the various ornate stones around the country and to dispose the king of Koss thereby becoming a hero and saving the world. This makes an good a scenario for a fast moving sixteen way scrolling arcade game at any and the game that encompasses the plot. *Dragonscape* is a good example of the thinking man's scrolling shoot 'em up.

The loading is extremely quiet and the loading screen deceptively peaceful but once the game has loaded the music begins. It is good strong music with the occasional sampled voice in it and from there the gameplay gets better. The sprite representing your sword and self is exceedingly



mobile and very, perhaps overly, responsive to the joystick, and the enemy are equally well defined and most deadly. Your only weapon is manoeuvrability and of course dragon breath, a tried and tested method of mythical self defence. The game is fast and as such mistakes are costly with your dragon's skin flaking off to reveal skeletons below, once the skeletons is fully revealed the game is over.

It is necessary to obtain various items representing lost artefacts and replace them within the place they came from. For the most part the relationship is obvious such as the arrow to the left line or the skull to the skeletons. It is important to remember where all these essential things

are, since time is limited in each level and it takes forever trying, dodging and grabbing to complete a level. As in most of these type of games, on completion of a level another large evocative creature needs to be killed before further progress can take place.

The only problem with *Dragonscape* is the small playing area which prohibits forward thinking and, after many games, forces the player into remembering previous positions. The effect of this is frustration with the screen and a claustrophobic feeling during play, otherwise the system is a credit to Software Horizons.

I found the game a change to the scrolling, shooting market since it allowed for an element of strategic arcade adventuring and the exercise of being clever as well as being power. It is also good to see one of fantasy's low level creatures being cast as the good guy for a change. I wondered whether there was some Anne McCaffery influence on the writers since the plot is related to much of her Fantasy material. For those who are good at scrolling games and even for those new to the concept this is a worthwhile choice that will prove absorbing and challenging for some time.

## 'absorbing'

## FUSION

Bullfrog/Electronic  
Arts  
£24.95

Reviewed by  
John Davison Jr

This release from Bullfrog/Electronic Arts is a scrolling shoot 'em up style game which involves some thought, as it contains a number of puzzles which need to be solved in order to complete the game. The main objective of the game is to collect all the segments of 'The Bomb' and return to the starting point without destroying your ship.

To move around the alien levels you have a choice of two craft which are available for use at any time. These craft are the Mother Ship which is a large manoeuvrable fighter craft and the smaller, less mobile Assault Crawler which it carries. You can swap between the two as long as the terrain is suitable for the Mother Ship to land for the Crawler to disembark.



The various puzzles within the game involve the restricted areas of the alien level known as the 'grid'. These grids can be traversed by the Crawler and in some areas extra features can be collected to modify your vehicle. However, the grids are broken in sections and in order to pass from one to another, switches must be activated by the Crawler to make the new area appear or move. The whole process, whilst seeming to be quite simple, is in fact incredibly complicated and involves a great deal of thought to actually make the things do what you want them to!

To make matters worse there is an occasional bombardment of enemy fire regardless of what you're doing. The 'Bombing', as they are known, really does it well! There are a large number of visible alien and various entities scattered about all over the

various levels to impede your progress. All this makes the game both challenging and quick paced, a combination which makes *Fusion* a difficult but enjoyable game in terms of presentation. *Fusion*'s quite simple. The loading screen is not outstanding, but is accompanied by an excellent lengthy sampled tune. The game then loads and you can gain the option of normal or expert levels. The graphics of the game itself are very impressive, being brightly coloured and shading to add to great effect. It has some unique features too, for example the score is not only written in the unworldly accepted decimal system, but also in a strange alien script as well. The sound does not live up to the expectations set by the loading tune as it is consists merely of gunfire and various alien white noise based effects.

Overall, the game is very good, although I did have a few quibbles. To start with the game would not load on my now aging SL, so in order to play it I had to find a more recent machine to make it work. Secondly, although the instruction manual is fairly witty written, it manages to obscure what it is trying to tell you by its 'round about' style. Despite these quibbles I still enjoyed the game, as its playability and unique features make it more than a simple mindless shoot 'em up.





## A MIDdot's Guide to Music Making on the Atari

# <sup>2</sup> Musical Hardware

**I**f Part One of this beginner's guide to MIDI we concentrated mainly on exploring basic MIDI concepts and jargon, and a brief introduction to MIDI keyboards and sound sources (synthesizers). This time we'll look further into MIDI-related musical hardware, and at how you might set up your own low-cost MIDI system.

Obviously, you need a MIDI-capable musical instrument before you can make music via MIDI. Although I'd recommend the novice to start by purchasing a MIDI keyboard with built-in synthesizer, this isn't necessarily the only option. You can now synthesize, this isn't necessarily the only option. You can now synthesize, this isn't necessarily the only option. You can now synthesize, this isn't necessarily the only option. You can now synthesize, this isn't necessarily the only option.

Also, manufacturers like Akai and Yamaha produce non-synthesizer MIDI-like instruments which behave like traditional woodwind or brass instruments, but produce the suitable sound of their own. Digital electronics generate MIDI messages in response to the player's finger positions, lip pressure, and breath velocity and these are turned into sound by an attached synthesizer. For much less and (surely) better. Costo will sell you their synthesizer-like "Digital Horn", but this has rather limited capabilities.

### HEART OF THE SYSTEM

A requirement in the heart of any MIDI system, providing the means of capturing and storing a MIDI message stream, so that it can be played back at a later time. In concept it's rather like a multi-track digital tape recorder (usually with 8 or 16 tracks), but it records the MIDI messages used to produce a sound, NOT the sound itself. It usually sports a disk drive for long term storage of the MIDI data. Playback has to be performed through a MIDI controlled sound source to recreate the original sounds.

Each track can be recorded, edited to correct any errors, and played back independently of the others. While recording on one track you can simultaneously play back any of the tracks previously recorded, allowing a complex piece of music to be constructed in step stages, using the techniques it's possible for a lone musician to sound like a whole band in the finished recording. A sequencer can be bought at a stand-

**John S Davison continues his exploration of MIDI for the layman with a look at the hardware and it's not as expensive as you might think**

alone piece of hardware, but it often found built into other MIDI devices such as a keyboard or expander module. So far I've described only the dedicated hardware based sequencer, but many musicians prefer the superior facilities available from a software based sequencer - running on an ST, of course! More details on this in the next issue.

### SAMPLED SOUND

Another important sound source is the 'sampler'. This exotic device can digitally record a sound 'snapshot' from real life, from an existing recording, or from another electronic instrument. This can then be edited, processed in many different ways, and the resulting sounds stored in the sampler's memory. From here they can be triggered to play back at any pitch by an incoming MIDI message stream, permitting tunes to be played using any conceivable sound, including those gamely dug heaving, knocking glass, and what-notting sounds we're all bound to find. As sampled sound is held as digital data it's possible to upload it via MIDI to your ST and manipulate it there using appropriate software. In fact, it's even possible to store your ST into a rudimentary sampler using products like AVR's 'SE Sampler', which use sampling hardware plugged into the ST's cartridge port. AVR also do a similar but even simpler product for the 8-bit machines. Both seem more suited to capturing realistic sound effects for use in your own computer programs rather than as a basic sampling aid, though.

The sampler has created much controversy in the music world. It's now possible for anyone to steal another musician's unique sounds by sampling them from existing recordings for incorporation into their own work. So, if you wanted an authentic Eric Clapton guitar sound you could just sample it from one of his records and play it from your own keyboard!

Another device worthy of mention is the drum machines. This is a combined sequencer and sound source dedicated to producing percussive sounds and rhythm patterns. Digitally sampled drum sounds are used, so surely they're pretty realistic. Rhythms are created by a MIDI data stream, copying either from the machine's internal sequencer or from a MIDI message stream generated elsewhere - a MIDI equipped drumkit, for example. A more advanced MIDI system could include several sequencers, e.g. one in the keyboard and another in a drum machine, to play together they need to be synchronized, and this is achieved using special MIDI positioning and clock messages broadcast to

## MIDI ON THE XL/XE?

Although MIDI is usually treated as an ST topic, 8-bit users needn't feel left out. Next issue there's a review of MIDI Master, a simple low-cost MIDI interface and software for the Atari 8-bit machines together with news of exclusive offer for readers to purchase MIDI Master from PAGE 67

## by John S Davison

of components of the system by a connected 'master' component. This acts like the conductor of an orchestra, ensuring everyone starts from the same place and plays in time. An extension of this principle allows engineers to be synchronized with multi-track tape recorders, video recorders, and other studio equipment.

Much modern music is highly dependent on special effects for its impact, and to get these the new music is routed through one or more 'effects processors'. These can add reverb, chorus, delay, echo, chorus, sustain, flange, fuzz, stereo panning, and many other audio effects to create whatever style is currently fashionable. MIDI control has been extended to these processors too, so it's possible to automatically trigger the required effects at exactly the right time.

Similarly, it's possible to automatically vary the relative levels of different sounds by using a MIDI controlled mixing desk, allowing the volume of a particular instrument to be boosted during a solo, for instance. Some heads are now even using MIDI with special switches to control the stage lighting of their live concerts!

### YOUR FIRST MIDI SYSTEM

You probably think it's difficult and expensive to set up and use a MIDI system, but this just isn't so. With care virtually anyone could manage it - you don't even have to be able to play a musical instrument, but obviously it's helpful if you can!

The best bet for the new beginner is to buy a MIDI equipped 'home keyboard' as these are completely self contained, usually combining keyboard, sound source, drum machine, amplifier, and speakers all in one unit. They often have lots of automatic play 'fun features' too. Until recently the most popular beginner's instruments were Casio's CZ101 and CZ200, and most fine quality MIDI software was developed with these in mind. They're still good buys if you can find them, but they're now out of production, so what should you buy?

There are dozens of different low cost MIDI equipped keyboards around, but beware! Some, particularly older models, have a poor MIDI implementation, so make sure the one you buy will do what you want - particularly if you buy secondhand. MIDI keyboards are usually supplied with a MIDI implementation chart showing exactly what the instrument can and can't do, so take a look at this before deciding. If possible, buy from a

specialist music shop as they should be able to sensibly discuss your requirements and advise you accordingly.

For my needs (and yours!) the best value home keyboards around right now are Yamaha's PS1480 and it's bigger brother the PS1488. These cost around £150 and £200 respectively and offer great value for money. Add £5 for two MIDI cables, £25 for a simple SF software sequencer package such as Activision's Music Studio, and you have a beginner's MIDI system capable of producing some excellent sounds.

Both keyboards have 100 different pre-set instrumental voices, from rock guitar to harpichords, plus five synthesizer voice registers for building your own patches. In addition there are 12 sampled drum sounds, all accessible via MIDI. Both instruments have 16 MIDI channel support and 12 note polyphonic capability, so can play up to twelve simultaneous notes. Amazingly, they're also 12 voice multi-timed, so using Music Studio you can play any combination of up to 12 different pre-set and custom sounds at once. With just the one keyboard you can sound like a 12 piece band!

Both also have the full complement of MIDI sockets (IN, OUT, THRU), again unusual at this price level. Additional facilities include pitch bend, stereo chorus, vibrato, smooth sustain, and performance to ease up your performance. And they have stereo outputs to feed into your hi-fi system for infinitely improved sound reproduction over that provided by the small onboard speakers. These and lots of other features put them right ahead of anything else at the price, both as 'fun' home keyboards and for MIDI use with your Atari computer.

At this price level Yamaha, like all other manufacturers, have to make compromises. The main one is that both machines have mini-keys rather than full size piano keys, although the PS1480 is unique in having a 61 note keyboard instead of the 49 usually found on instruments in this class. The keys aren't velocity or aftertouch sensitive either, but none of this should be a major problem unless you're already used to full size keys or are REALLY serious about learning to play properly.

Actually, you can make exciting music via MIDI without even TOUCHING the keys, using a 'step-time' software sequencer like the Music Studio package mentioned above. It's for discussing this in the next issue, when we'll cover the whole topic of MIDI software. In the meantime, why not visit your local music dealer to have a look at what MIDI keyboards can do? Then try to resist buying one!



Yamaha's PS1480, an ideal beginner's choice with a lot of features for around £200

# LARRY'S QUEST

## and GRAHAM's QUEST

Sierra's initial pioneering work with graphics culminated in 1984 with their first 3-D Animated Adventure Game, *King Quest: Under the Sun*. This graphics-based game drew attention to itself and these two novel game environments — from a graphics and music point of view. Both games support MIDI output to a Roland MT-32 or Cx4x C2-301 and RIFF contains forty minutes of original music.

In all Sierra's games, the graphics really are integral to the game. You have to use the cursor keys or mouse to maneuver your character around the screen in order to solve certain puzzles and reach certain places, as well as entering text commands in the normal way through the keyboard. Many of the puzzles are visual, requiring you to find routes around obstacles in the picture, or avoid the numerous monsters which chase you round the screen. Here's a hint, use the mouse for getting up spinal chakras or positioning yourself at an exact point on the screen, and the mouse keypad for awkward diagonal movements.

The pictures and animation are excellent, but do unfortunately take a significant time to load. This is not a problem when you first reach a new screen, since there is usually lots to do on each screen, and the responses to your commands are very fast. The system has been enhanced to remove, for an example of the last few screens as it was (about four or five screens) — less if there has been significant animation, so that extracting your save or going back and forwards between two screens only takes a few seconds.

LARRY and GRIFFIN are also quite slow so there is a definite inhibition to trying out



ideas. Whereas in a good text adventure like *Beyond Zork*, or a good Twin Adventure with pictures such as *Trilby* you can backtrack and move through the scene in a matter of seconds, with pictures turned off, allowing you to try out a dozen different ideas in five minutes, in contrast it can take a lot longer to do that in a Sierra game so you will be lucky if you manage to try out ONE idea in five minutes! In *King's Quest III* they solved this problem to a large degree by providing you with a Magic Map which allowed you to teleport directly to anywhere you had previously visited. I thought this was a great idea and I really don't understand why they have not continued with this feature. These loading delays are a limitation of the current technology and you just have to accept them if you wish to play this kind of game — SAVE frequently! It may be slightly better on a 386x, it may even be great if you have a Hard Disk!

Sierra have obviously put a lot of effort into improving their music, graphics and animation over the years. Unfortunately they have not been quite as progressive with their input games. Most of the time it is barely able to cope with *WHEEL MOUNTAIN*, and confuses you by underlining a command in one room but claiming not to understand it in the next! I won't bore you with the

details — you'll suffer enough if you play the games — but it was off-putting for me when, in *Leisure Suit Larry II*, I typed in an extremely simple sentence and it responded with this little gem: "Perhaps you can understand that sentence, but I have graphics to worry about!" On the positive side, they have expanded the graphics area to fill the whole screen, and whereas you start typing a command the entire screen and a text window appear for you to complete your typing, also a simple tap of the space bar will scroll your last command — an excellent implementation.

Sierra have also added a lot more superbly animated cartoon sequences to the games. As well as a ten minute introductory cartoon, there are numerous points in both games where the program takes over and shows you graphically what happens next, often with some nice touches of humour (but be warned! a lot of it is very "American" and very "cute"). These are great the first time you see them, unfortunately, you have to sit through them every time — there is no fast forward button. This is made especially annoying by the "hang, You're Dead" syndrome which permeates all Sierra games — yes, the graphics and text which accompany your many forms of death are excellent, but I get awfully bored doing RESTORATIONS and sitting through the same cute cartoon for another three minutes!

One major drawback, if you only have a single-sided disk drive is that both these games are only available currently on double-sided disks. Julie Banwell of Adventure (0744-188800) is trying to arrange for



# REAR

## John Sweeney combines a quest round the noble land of Daventry with some sleazy U.S. bars in two eagerly awaited follow up adventures from Sierra



THE PERILS OF ROSSETTA: The Perils of Rossetta

single-sided replacement disks, contact her for the latest information.

I have no far-reaching memory of the engine's points of Sierra's games, if only they would give a little more thought to the person trying to solve the game by providing features such as a Magic Map and the ability to skip past contents you have seen before, and by putting a tiny fraction of their effort into improving their completely inadequate input level games. Then these games could be really great. For the moment, as long as you can stand these limitations, then nearly all their games are well worth playing. Apart from being entertaining-as-adventures, they are all full-of-humor - it is always worth trying stupid things, occasionally they may actually be useful, but very often you will get a joke or sarcastic comment from the game.

**K**ING'S QUEST IV carries on the story line from QIII. You play the part of the Pincock hero and you urgently need to find a magic fruit to save the dying king. Unfortunately you can only get home with it if you can solve the good fairy Cassiope from the evil Lolabelle by entering a stolen talisman. Unfortunately you can only do this by... and so it goes. There are lots of puzzles to solve and quests to complete and a whole new land to explore, full of eggs, diamonds, combis, a unicorn, a troll, and lots more - all beautifully animated and with their own little signature tunes. A lot of the responses are based on myths, legend or

fairly tale and there are few really hard problems to solve.

There are a couple of nasty bits, some of which are a bit unfair as I include a few clues for those who are really stuck - to decide just go back those items in the objectset:

- 1) BIDE WUPH BRS VSH OBBRBYWH  
YRPHWALG YRPHWHHSH HXQJHY
- 2) OBNHU OCBNPMR HXGKLN MSH  
MVDQJ DQDLG
- 3) WSH MSHL EDE WSH XSHV
- 4) GKH'W ZDLV HBU QJLKH'OOO - LW  
ZLOO IDOO HXVOR LI MRS DUN  
HEDG BR LW

Whatever you do don't look at the Official Book of King's Quest if you prefer to solve adventures by yourself - the hints are arranged so badly that it is impossible to find a clue without seeing for the much information about parts of the game you haven't reached yet.

This is undoubtedly an excellent addition to the King's Quest series and well worth playing if you aren't looking for too much of a challenge and have lots of patience - though personally I thought Q3, Q1 and much better.

**L**ESURE SUIT LARRY II continues the story of Larry. Larry is a nerd - "the most negligible bachelor of the year" thrown out by his (the lady he, um, er, made friends with at the end of Lesure Suit Larry in the Land of the Lounge Lizards) Larry is persistent, but if you find

the right things to do and can move a thing through a take-off of an American version of "Mind Diner" you too can end up with a Million Dollar Note - which nobody will change! - and a ruler with a beautiful lady - if you can find your passport and if she doesn't send her mother (sad!) Unfortunately Larry also gets mixed up with some spy business and finds himself the target for a lot of very nasty people who can use really understanding what your objective is simple - survive!

I wasn't too impressed by the quality of the puzzles in LII. There are far too many where you are not given a chance to solve them in advance by logic - you just have to wait until you die (again), then go back and taking fairly obvious steps to prevent it - and sometimes you have to go back quite a long way! If its doubt try TALK MAN AT 51 - there are at least TWENTY of those that will score you points!

And be sure to test the keyboard interaction during the various sequences - although most of them are obvious when you have to find the points where the keyboard is activated and enter a command - the programming loads on becomes!

It says "FOR ADULTS" on the box but I have seen a lot worse in PG rated films. This is definitely downhill from the origins of Lesure Suit Larry - the graphics and music are excellent and many parts of the game are good fun to play through QMCL but if you want something to PLAY rather than WATCH it is definitely overpriced.

WITH GEMINI BKS SLIP 30 MPH CEE - 1  
OFFER: BBOG D VSH BR LW DQO LW  
L' L'ERDQO

**KING'S QUEST IV:**  
The Perils of Rosetta £29.99  
**LESURE SUIT LARRY**  
gains LOOKING FOR LOVE (in  
Several Wrong Places) £24.99

Both by Sierra On-Line  
and distributed by Activision

# ST SECRETS

## Colm Cox returns with some more programming secrets for everyone to share using ST Basic or C

**W**elcome back to my last article may look in issue 12 I took a look at the various hardware registers of the graphics chip and examined the basic software interface between programmer and hardware. In this issue I aim to explore some more of the features offered by the ST in the field of graphics. To begin we look at the basic subroutines of the GEM system.

GEM (Graphics Environment Manager) can be broken up into two sections - VDI (Virtual Device Interface) and MS (Multitasking Environment Services). The VDI functions we will examine are those in the field of graphic production, including drawing shapes - circles, boxes, ellipses - and also the mouse functions - reading the position of the mouse pointer and state of the mouse buttons. All VDI calls have unique numbers - the numbers of the calls I will be dealing with are 3, 4, 5, 11, 12, 13, 15, 16, 122, 123, 124.

The MS handles windows, menus and alert boxes. As this article is concerned with graphics, I'll mainly discuss VDI functions but for non MS books, I won't dwell on you!

To use any of the functions provided by the VDI you must first tell it you wish to use it - logical eh? This is accomplished by the VDI call OPEN\_VIRTUALIZATION. When using a VDI call it may only be necessary to supply its unique number, for example when reading the position of the mouse pointer. In other cases the unique number plus additional parameters are required, for example, drawing a line in a particular position on the screen. The parameters are passed in the following arrays. All values can stored as 16 bit values (2 bytes).

**CONTROL:** This is the array in which the unique number of call is passed. Also various other parameters which relate to that call are passed in this array.

**PTIME:** This array is used to hold sets of co-ordinates (x, y) as input to the call we are going to execute.

**PTIMEUT:** This array contains pairs of co-ordinates, which the VDI passes back to the user.

**INTIME:** This array is used to pass various parameters to the VDI.

**OUTIME:** The VDI uses this array to pass most of its results back to the user.

ST Basic sets up its own workstation and five keywords are provided which the system recognises as the base address of its associated array for example CONTROL is the address of the control array.

<b>CONTROL</b>	Base address of CONTROL array
<b>INTIME</b>	Base address of INTIME array
<b>INOUTUT</b>	Base address of INOUTUT array
<b>PTIME</b>	Base address of PTIME array
<b>PTIMEUT</b>	Base address of PTIMEUT array

To execute the call, all basic uses type **WRITE(X)** where X is any number.

The Assembly user must set up a workstation if they wish to use the VDI. As space is so short supply I cannot enter the required listing - but if you do need it, write to me - my e-mail is at the end of the article.

Most C's include their own bindings which place the arguments in the required arrays and then execute the call. The code to set up a workstation is

```
short work_in[32];
short work_out[17];
short handle;
handle=grf_handle(handle,cmd,cmd,cmd)
for(i=0;i<16;work_in[i]=i);
work_in[16]=2;
v_openwork_in(handle,work_out);
```

As you may have noticed, the open workstation call does not perform anything. However, after this call is executed, a results of graphic operations are at your finger tips, including: Draw box, Draw circle, Draw ellipse, Fill sectors, Print text in a variety of styles and size and clear screen. These commands provide graphic output well beyond that provided by 'non

real' ST Basic. The next block on the next page provides a description of these commands, copied from ST Basic.

### PROGRAMMING EXAMPLES

If you get lost somewhere along the way this note listing I shows how to access the VDI from ST Basic, and is fully commented. Below I describe the listing, and particular location marks note - SYSTAB=24. From ST Basic, POKE SYSTAB+24,1 disables GEM. The menu, windows, keyboard input - (including Control-C) and ST Basic graphics commands are disabled to improve execution speed. When you use this POKE any times in your program will leave the system because as mentioned above keyboard input is disabled. You should test your programs without this POKE and when you are sure of correct operation, insert the poke then and only then POKE SYSTAB+24,0 re-enables the disabled system.

### RASTER OPS

The commands so far are fairly straight forward, providing an easy method of accessing the graphic functions provided by the VDI, however I have left a very useful set of commands called last. The commands in question are known as RASTER OPERATIONS. Raster ops are an easy method of shifting rectangular chunks of screen memory around. Sections of the screen can be copied to RAM, RAM copied to the screen and sections of the screen copied to other sections of the screen. How?

There are three raster commands: COPY RASTER OPAQUE, COPY RASTER TRANSPARENT and TRANSPARENT RASTER. The commands COPY RASTER, TRANSPARENT and TRANSPARENT RASTER while interesting are not of concern for the purpose of this article. Before describing COPY RASTER OPAQUE, I refer you to my article in issue 12 for the description of graphic plots.

**COPY RASTER OPAQUE** - from ST Basic:

```
POKE CONTROL,100; POKE CONTROL+24;
POKE CONTROL+4,1;
H=HND(SOURCE,EMM); L=SOURCE;
EMM=RAM;
POKE CONTROL+14,0; POKE CONTROL+16,1;
H=HND(DESTINATION,EMM); L=DESTINATION+EMM;
continued on page 72
```

## GRAPHICS COMMANDS FROM FROM ST BASIC

### To clear the screen

POKE CTRL=4:POKE(0)

This clears the whole screen - including the menu bar and window leaving you with a blank screen.

### To draw a line

POKE CTRL=6:POKE CTRL=4:2  
POKE CTRL=6:POKE CTRL=4:2  
POKE CTRL=6:POKE CTRL=4:2  
POKE CTRL=6:POKE CTRL=4:2  
POKE CTRL=6:POKE CTRL=4:2  
POKE CTRL=6:POKE CTRL=4:2

Draws a line from 50,50 to 150,150

### To place text anywhere on the screen

POKE CTRL=8:POKE CTRL=2:1  
POKE CTRL=8:PRINTTEXT  
POKE CTRL=8:PRINTTEXT  
POKE CTRL=8:PRINTTEXT  
POKE CTRL=8:PRINTTEXT

FOR A=1 TO PRINTTEXT:PRINTTEXT  
POKE CTRL=8:PRINTTEXT:PRINTTEXT  
NEXT A:POKE(0)

This command allows you to place text at positions TEXT,TEXT. The code given assumes that the string to be printed is in TEXT.

### To draw a bar in the current fill type

POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1

50,50 are the co-ordinates of the top-left hand corner of the bar. 150,150 are the bottom-right co-ordinates of the bar

### To draw a filled circle in the current fill type

POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1

POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1

### To draw a filled ellipse in the current fill type

POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1

POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1  
POKE CTRL=11:POKE CTRL=6:1

CONTINUED OVERLEAF

```

10: POKE CTRL=11:POKE CTRL=6:1
11: POKE CTRL=11:POKE CTRL=6:1
12: POKE CTRL=11:POKE CTRL=6:1
13: POKE CTRL=11:POKE CTRL=6:1
14: POKE CTRL=11:POKE CTRL=6:1
15: POKE CTRL=11:POKE CTRL=6:1
16: POKE CTRL=11:POKE CTRL=6:1
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96: POKE CTRL=11:POKE CTRL=6:1
97: POKE CTRL=11:POKE CTRL=6:1
98: POKE CTRL=11:POKE CTRL=6:1
99: POKE CTRL=11:POKE CTRL=6:1
100: POKE CTRL=11:POKE CTRL=6:1

```

### To fill an area in the current fill style

POKE CONTROL:R2,POKE INTM:COL  
POKE PTM:FLX:POKE PTM:FLY:POKE COL

Variable COL is the colour of the border of the area. FLX, FLY are the co-ordinates of the point at which the fill is to start.

**Set Write mode** - Determines what effect future graphic operations will have on the graphics currently on the screen.

POKE CONTROL:R1,POKE CONTROL:R1:POKE INTM:MODE

There are three possible values for MODE - MODE=1 is called REPLACE mode which means that operations will replace any graphics displayed on the screen in the areas of overlap. MODE=2 is called TRANSPARENT mode which means that, for example, the drawing of a circle with a disc inside will not affect any graphics inside the circle. If you draw it in REPLACE mode then any graphics inside the circle would be erased. MODE=3 is called XOR mode. If you draw a line across the screen using this mode and a circle is already displayed on the screen, the points of intersection of the line and circle will be inverted in colour.

### Set Character Height

POKE CONTROL:R3,POKE CONTROL:R1:POKE PTM:G

POKE PTM:G:HEIGHT:POKE COL  
The values for variable HEIGHT assign pixels and refer to the height on the character excluding the block, points surrounding it. The height of scaled text is 14. The CT basic PRINT statement will only work when the text size is 14. For all other text heights use the method outlined under 'To place text anywhere on the screen'.

### Set Text Special Effects

POKE CONTROL:R6,POKE CONTROL:R1:POKE INTM:EFFECT:POKE COL

The values for EFFECT are listed below. To get a certain type of text just add together the given values for the effects required. Some combinations are not displayed correctly such as double plus outline. To return to normal text the above call should be made, with EFFECT=0.

EFFECT	VALUE
Normal text	EFFECT = 0
Red text	Add 1 to EFFECT
Light text	Add 2 to EFFECT
Italic text	Add 4 to EFFECT
Underlined text	Add 8 to EFFECT
Outlined text	Add 16 to EFFECT
Shadowed text	Add 32 to EFFECT

CONTINUED ON NEXT PAGE

```

10  POKE .....
20  POKE .....
30  POKE .....
40  POKE .....
50  POKE .....
60  POKE .....
70  POKE .....
80  POKE .....
90  POKE .....
100 POKE .....
110 POKE .....
120 POKE .....
130 POKE .....
140 POKE .....
150 POKE .....
160 POKE .....
170 POKE .....
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POKE CONTROL:R8,R:POKE CONTROL:R2:POKE INTM:MODE:POKE PTM:G:HEIGHT:POKE PTM:FLX:POKE PTM:FLY:POKE COL:POKE INTM:EFFECT:POKE COL

Where SOURCE and DESTINATION are the addresses of a standard call Memory Type Definition Block (MTDB). Their form the area of memory to be deleted. Their structure is:

- WORD 0 # Address of point. End of area to be deleted (0)
- WORD 1 # If you set these to 0 the screen runs in text (0)
- WORD 2 # Height in pixels (140)
- WORD 3 # Width in pixels (140)

- WORD 4 # Width in words (0) - 640/160
- WORD 5 # Format, 0=device specific (non-standard) (0)
- WORD 6 # Number of graphic planes (0)
- WORD 7 # Reserved (0)
- WORD 8 # Reserved (0)
- WORD 9 # Reserved (0)

The default values are given for a normal screen.

MODE is the way in which the operation will affect data on screen.

- 0 The area covered by the raster is masked.
- 1 The areas of intersection are set.
- 5 REPLACE mode are allowed.
- 6 XOR mode, alone.
- 7 TRANSPARENT mode, alone.
- 13 Similar to 0 but area is filled in current colour.







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In a future issue I'm going to make a look of the Intelligent keyboard interface card hope to see you then. My address for any queries etc is below - but if you want a reply include a S.A.S. If you live outside the UK, international reply coupons can be obtained from your local post office.  
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