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NEW

ATARI USER

The Resource for the ATARI CLASSIC and the ATARI ST

Issue 75 - January/February 1996

\$2.50

FOR THE ATARI CLASSIC

⊗ HYPER DRIVE

A full review to help you decide whether to
upgrade your disk drive

⊗ ARRAYS

An essential part of programming in
an easy to understand tutorial

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This issue's

Thanks

Les Ellingham puts it all together and fills up the gaps but the real thanks goes to the following who made this issue possible

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

For their regular contributions:

John & Doreen Allan J. Palmer
Paul Brown Stuart Murray
Ann O'Driscoll

For their contributions this issue:

John Fawcett Paul Bellini
Andy Goldsamer Mike Peller
Doug Brock

Special thanks this issue to Andy Bellini who seems to have a lot of things in this issue

APOLOGIES

I am still extremely poor at acknowledging contributions so I apologise to everyone who has sent in stuff and I haven't got time through the month. The intention is to reply in magazine in time but the time seems to slip by. If you have not heard, thank you and keep sending the stuff, you might be surprised.

HOW IT'S DONE

PACE is always just what you can do with your Atari. NEW ATARI USER has always been created entirely with Atari equipment, mostly of the 80 but more lately with a Mega TT and also used, also some PCs or Macs. Hardware includes a Mega 2TD (registered to FMS), 1MB 2D Memory, Super 320K disk (1.44) & 1MB Super II Floppy (1.44) (prices: FMS £249.95, £149.95, £149.95, a couple of 1MB disk drives, 8000000, 800, 8022 cards. Special offers used in FMS) and The Great Uninstaller 4.0. Other software includes Burn, Tool, Link, Turbo Basic and various custom written programs on the MAGE. Articles submitted on 3.5" disk are transferred across to the AT on TABLETS. Programs are coded on the AT and printed out directly by typing in after the programming is completed. All major editing is done with Finalcut and pages are laid out with Peter Hines Publisher. Blank page is output directly from your drives on a 8000000. 3D which produces 3D shaded pages exactly as you see them. All that is left is to strip in the artwork and photos.

Well, it's not quite as easy as that but you get the idea!

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Inspiration

As I type I am listening to Sacred Spirit, a mix of Native American chants and modern music which I am sure you must have seen advertised on TV over Christmas. I am still trying to figure out who the artists to by as it only credits 'The Feathered Drum' but it is almost certainly by someone very well known who is probably under contract to another label. Sounds a bit like Mike Oldfield but bits of it sound very much like Enigma. Does anyone know? Main listening is still King Minors, nothing new, gotta pay the bills instead.

CONTRIBUTIONS

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

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The next issue of NEW ATARI USER is due to be published by 10th March 1990
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DISK SUBSCRIPTION

A disk containing all of the disk programs from each issue of NEW ATARI USER is available either separate to or as an add-on to your magazine. Single price £2.00 per disk, a disk subscription to cover you about £8 a year. (UK subscription rate £5 a year)

UK	£25.00
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Europe (air)	£35.00
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Editorial

I had a letter this morning from a reader unhappy about the delay with these last couple of issues who suggested that I call it a day and get out while the going's good. He said that he would rather support NICHOLLO and TWAUG, presumably on the basis that they can always guarantee to get their newsletters out on time. One of the problems in trying to publish a magazine to a high level on a regular schedule is that you stand to be shut down.

There are reasons for the delays in the past couple of issues indirectly connected to the magazine but the principal reason is that nobody can make a full time living out of publishing a magazine for the Atari any longer and other things have to be done to survive. The biggest problem that has arisen indirectly from the magazine is that when we gave up our office a couple of years ago, an enemy of the lease, the landlord decided to completely refurbish the premises and tried to get us to pay for it. Anyone who has leased commercial premises will know that this is not uncommon but the legal system in this country does not allow for right and wrong. It merely gives the greatest chance of victory to those with the most money. Despite having a limited amount of legal aid we simply had to give up the fight in the end and agree to a substantial payment which now has to be met every month. In effect any profits from the magazine are now going to some greedy lawfiel who doesn't need the money and I have to do other work or starve.

There were times when I would sit up in the small hours, or even through the night, to complete an issue but time marches on and I am too old now and too weary down by the pressures to do that sort of thing. Each issue goes completed, hopefully at the same high level, but if it takes an extra couple of weeks, as he I. Jon Wilson of Calicut, Nova produced a fine magazine for an extra year as I have done but it took a toll on his health and he had to end it a day. I don't intend to go the same way and if it means that I take it a little easier and one or two issues are a little late, that's the way it has to be.

Over the years I have had incredible support from many keen Atari users and the magazine has gained a huge number of friends who I have never met. People who regularly support the Accessory Shop, write letters of thanks and encouragement and send us Christmas cards. It is for them that the magazine continues to be published and will be for as long as it is possible. We have a large had one or two detractors who have, for reasons best known to themselves, had it to do us over the years and we can afford to lose them providing the majority of you continue your fine support.

So there you are. Apologies for the delays but I believe that we will do a better job than anyone else in providing an ongoing source of support for the Atari community and I am not going to let the Jesuitical dictate the future.

CONTRIBUTIONS AGAIN!

It's time for you to put pen to paper, or fingers to keyboard, once again and let us have more more fine articles and programs. Stocks are beginning to run down again and we like to be able to look two or three issues ahead to get a good balance.

As I have always said, if something is interesting to you it will be interesting to other Atari users, so write about it and I'll do my best to get it published in New Atari User.

Les Ellingham

Extra

I wrote this editorial last year but it never got used as something else to my come along. Having read it again it still seems quite interesting so, for the very first time, I am treating you to an editorial extra!

TEN YEARS ON!

I have just taken a look at the early issues of Page 6 to see if we have any 'golden sides' that might be worth reprinting and was interested to find an editorial published just over 10 years ago. In Issue 7, here's how it went.

This is probably an opportune moment to restate the philosophy behind PAGE 6. Although the situation is changing slowly, you will not find much for the Atari in the national computer press. In America, where there are many more machines, there are also dedicated Atari magazines and a host of others that provide regular support. The amount of third party products and advertising revenue is enormous allowing such magazines to grow. In the U.K. the story is totally different and it is unlikely that similar magazines will appear. PAGE 6 was created to fill a gap and allow Atari owners to share their discoveries with others as a sort of national user group. All of the articles and programs come from FOI and without your dedication and support the magazine would fold. Contributors are mostly voluntary, i.e. you don't get paid, but I would hope that the satisfaction of seeing something you have written published in a magazine read by Atari enthusiasts all over the world will be reward enough. Many people seem to think that, because of the quality of the magazine, PAGE 6 is produced by a big publisher. That is not so, all of the 'mag' are listed on page 3! We accept advertising for two reasons. Firstly it pays for the quality of the magazine (just) and secondly, in a country that does not have the same support for the Atari as, for other machines, it allows you, the reader, to find products you might not otherwise know about and hopefully encourages those who want to produce software and expansion for the Atari to advertise at very reasonable rates.

That's it then, it is your magazine. When you write a program or discover a new aspect of your Atari, please send it in for others to share.

That was 10 years ago and, remarkably, very little has changed in that time. The only major difference is that the U.S. support has gone but, other than that, I could have written the same editorial today. Here are all names through better times but we have come out, ten years later, at exactly the same point. Find that editorial again and particularly the line 'without your dedication and support the magazine would fold'.

One or two of you will have read the original editorial back in Issue 7 but most will not have been with us that long. Those of you who have been on the site for only a couple of years should realise how important your continued support is.

Les Ellingham

P.S. Some things have changed. Issue 7 had advertisements for Paper Breakout at £20, Jawsat at £27.50, Crispcode at £27.95 and Blue Max at £23.50. Check the recent Accessory Shop prices and you'll see how much you have benefited by our talking with you!

Mailbag



Back Again!

I'd like to say "Thanks" to Len for stepping in to the breach at short notice last time around when the deadline had run and I didn't get a chance to compile the letters column. It's now the beginning of December and I've got just enough time to get this issue's Mailbag together before Christmas - and luckily, I've just got over a bout of flu which laid me low for a week - so here goes ...

Allan J Palmer

THANKS

Simon Hodges of South-ception asks that I pass on his thanks ... to M Tomlin for taking the trouble to reply to my letter and assistance in the 1950 disk drive problem in issue 75. I took a very careful look at the inside and found one of the plugs loose, pushed it home, and boy presto we were in business again. Here's a little tip that may be helpful to someone, if any of the circuits in the motherboard of the keyboard are broken, they can be repaired by the glue used for repairing the window elements in a car rear window-dome - it's called "Epoxyform" - it's not too clear but a steady hand is required."

8-BIT IBS?

Ray Thompson of Leeds asks "... if there are any Atari 8-bit Bulletin Board Systems (IBSs) in the U.K. or even outside the U.K.? I am a user of various IBSs around the country but as yet I have never found any dedicated Atari 8-bit ones, or even a website in an IBS for Atari 8-bit; there is however a great deal of Atari ST support on the IBS scene."

♣ And to say, Ray, I'm sure some of my Atari 8-bit IBS

since the demise of the CITY IBS (formerly the A800, I suspect that there isn't a large enough community to support a dedicated 8-bit IBS. Most IBSs's carry lists of other IBSs's, so if you happen to find one there, I suspect you'll end up back - unless of course one of our readers knows better? The growth of the Internet and the World wide Web may accelerate the use of Bulletin Boards - perhaps John S Denton's new Cyberpace series of articles will shed some light on a possible alternative ...

USEFUL 800XL

David Downing from Gillingham in Kent asks in a lengthy letter which I hope he'll forgive me for condensing. What he offers help for Eddie Jones' problem in making a backup copy of AtariWriter Plus (by the way this unit price, I should have got that one right), Dave continues by praising AtariWriter Plus "... every Atari Classic owner who prints documents by the same method is a prolific letter-writer should not be without it! I've owned my Atari 800XL (suppressed since time ago with a 1988 Hamco XL board) for about 9 or 10 years and it has been worth more than its weight in gold -

I don't know what I'd have done without it!"

Dave explains that a couple of years ago he was made considerably redundant after more than 20 years employment with a large multi-national company - he lost thousands of pounds' worth of pension rights, etc. through his former employer's actions. With another redundant colleague, Dave has attempted to take action against this redundancy, resulting in many individual Tribunal hearings, involving the production of hundreds of sheets of documentation to be used against the company. Additional Dave and his colleague had to take action against their own Union and a night-long strike - hundreds of more sheets of typing. To have undertaken all this documentation in handwritten form, keeping copies or photo-copies would have been tedious to say the least, but Dave's Atari 800XL, AtariWriter Plus and Parasitic printer came to the rescue.

♣ On a more enjoyable note, Dave also says the presence of another Atari Classic program - the Atari Planetarium. I've owned this for a number of years but when I got it I was embarrassed by its power and accuracy. It will give you a picture of the sky day or night - on screen or printer! In any outside of any day

whenever you stand on Earth (except for the Polar regions) and during periods extending from 1999 B.C. to 1999 A.D. Additionally, it will tell you within very precise tolerances where the singular bearings of hundreds of stars and galaxies, in addition to those of the Sun, Moon and planets - this program will sharpen your interest in our wonderful universe." Dave notes how the power of the Atari Planetarium was able to prevent for him a childhood memory of watching a solar eclipse in Edinburgh - the program brought back a 9 year old Dave's view of the sky at 12:30 pm on 1st September 1951!

♣ Thanks for the letter Dave and your endorsement of a couple of fine Atari Classic programs. I must add my support to Dave's views of the Atari Planetarium - it's a great piece of work for the 8-bit and certainly proved useful in helping my young daughter understand something about the stars and constellations.

TAPE TO DISK TRANSFER

Reynold Hatch of Datchet in Berkshire offers some help in *Pages 116/120* to transfer programs from tape to disk. Reynold suggests that the

program FloppyBall Manager can be transferred using a program - published a long time ago ... (and in a galaxy far away ...), hence, the Mail Bag Editor's long-standing Star Wars again! In a magazine published by The U.K. Atari Computer Owners' Club - in issue 9 of their magazine, there appeared a program written by Ron Lary called De-Talonator which allows you to list protected Atari BASIC programs."

♣ Thanks for the help, Reynold - I'll pass your philosophy of De-Talonator back to Len so that he can dig Bryan's address out of the files and send it on to him.

HARDWARE HACKERS WANTED

Paul Smith of 80 Rhyer Drive, Woodstock, South Yorkshire S72 8LP is "... looking for someone who would be willing to write some programs to run some hardware expansions for me as I haven't got the time to write them myself. The expansions are:

- Inlet PA chip giving 16 8-bit bi-directional ports with 8 handshaking lines, part 1 could be used for universal control (eg. a speech synthesizer as described in the old Atari User), part 2 could



- can be used for a printer port, or it can be used for memory upgrade instead of DRAM, which allows more expansion without having to increase BASIC
- VTA chip, provides all of the capability of the 6520 in addition to a pair of parallel internal timers, a serial-to-parallel/parallel-to-serial shift register and input data latching on peripheral ports
- ACIA chip, can be used to communicate with other Atari's direct or with a modem without the need of a 6800
- and more to come when I get around to it!
- ! Good luck, Earl, I must admit some of that technical jargon went a bit over my old head, but I hope there's some one out there who understands it and is willing to assist.

PRINTER HELP

From *Belgian in Mainz, Ataraph*
 Program could help help writing his MP-Designer 500C printer with his 1200C and XPSA. "The printer works with programs like first Oliver II, The House Accountant and the South Spread-sheet, however I would like to use the printer with a program called "GENERATE LETTER" on Page 6 library Disk 0042. This program is written

using codes for the General 10X printer, I would like to know how you can modify the codes in the program listing so that my HP500C can be able to print out the reports from General Ledger."

! My initial thought is that as the printer works with some programs, it's probably 8-pin compatible? Please as this suggestion is shot down to those by more knowledgeable people, Can someone supply a conversion list between General 10X codes and those for my Epson for a HP500C?

THOSE LISTINGS!

D-Saverius of *Division in Wichita* is having problems with John Pickett's Lottery program in issue 73. In particular Mr. Saverius has been unable to decipher the content of line 370. Just what are those double characters? Well, Mr. Saverius I hope that the revised format for the listings that debuted in issue 74 has made it easier to decipher and enter those special characters. In the meantime, for those of you who've had problems with that line in the Lottery program, here's my attempt at deciphering the troublesome string:

```
DLIN(1)+(J)(M)+M=END,
TAB(0)+(M)+M+(J)+P=0"
```

```
+(M)+(J)+P=+(M)+(M)
D)+(P)+(M)+M+(J)+P=0"
```

where + is inverse character, () is control-character, > is inverse-control-character. I hope that helps!

ANOTHER LISTING: DILEMMA

While we're on the subject of difficulties with the type-in listings, Mr. P. S. Wood of *Westport, West Yorkshire* reports that he "... had the greatest difficulty with the DATA lines 124 to 140 of the CGS program and although in the end I managed to get the correct TYPE III codes for lines 130 to 140, I have been unable to get it for line 120. Nevertheless, the program works and is quite impressive."

! Almost? does this mean that the listing format is still not 100% perfect? A small lapse, eh? I speak in this regard and manager to get the correct Type code straight away. Always a case me three goes and I admit that it wasn't easy so easy. One problem is being that of the number of times the CTRL-character followed by inverse CTRL-B is repeated. It is easier to count them in the listing (lines 120, 123) and then count them on screen. I bet the one that has really frustrated Mr. Wood is for the first

time too) is the ESC, DELETE LINE. You just press the Escape key and the delete/control space key but with the shift key held down. This key has three functions. On its own it back the cursor one space; with the CTRL key it deletes and character and with the Shift key it deletes a line. You know that you have to try if Mr. Wood just is sure if it can be done and to prove that there is nothing wrong with the new format! How we had better get back to the rest of the letter. (Ed.)

"The most confusing part of the typing is that one needs constant concentration to remember whether one has lower case and/or inverse characters and in the middle of a line this can cause an ERROR which then has to be cleared. After many false words, I decided to write a BASIC program to show the status of the Caps and Inverse keys, the program displays a 'W' for normal and an inverted asterisk for lower case and inverse. The two characters are one above the other in the left margin. I have put them on the second and third lines so that TYPE III can use line one without overwriting them. The character in the margin does not interfere with the line being typed over if the character is on the same line. The program bypasses itself if the left margin is set to zero for long

continued overleaf



```
20000 REM.....
20005 REM* MARGINPRINTTO *
20010 REM* SHOW STATUSOF *
20015 REM* CAPS AND CASE KEYS *
20020 REM.....
20025 REM* By
20030 REM* M.S. WOOD
20035 REM* November 1988
20040 REM.....
20045 RESTORE20120
20050 FLAG=0:SUPER=0:1
20055 B=0:A=0:END=C=0
20060 IF A>=8 THEN FLAG=1
20065 READA
20070 IF A=8 THEN B=888
20075 POKEL,A
20080 I=I+1
20085 GOTO20080
20090 IF FLAG=8 THEN B=100
20095 RESTORE20100
21000 I=C
21005 READA
21010 IF A=8 THEN B=100
21015 I=I+1
21020 POKEL,B
21025 GOTO21000
21030 G=0:(C):RESTORE:END
21035 DATA104,170,48,2,149,49,100,
170,49,2,149,00,100,24,172,00,100,100
21040 DATA16,141,00,100,170,00,100,
141,00,100,140,79,100,100,0,149,00,100
21045 DATA100,57,141,0,0,100,100,141,
1,2,100,130,040,40,100,100,100,100
21050 DATA10,010,00,72,100,00,001,0,
174,0,100,04,170,100,0,0,100,100
21055 DATA40,240,0,100,40,141,000,
100,170,100,0,0,100,40,40,240,0,100
21060 DATA120,141,100,100,140,
224,170,320,100,000,000
21065 DATA0,10,10,21,24,27,00,00,40,
000,000,000
```



lines (and of course it does not display). The routine in one page below the screen memory and adjusts itself for BASIC or Turbo BASIC.

The entry was much easier with this program, but I still cannot get the correct ST60 BI code for line 120 of C008.

1 Thank you Mr Wood, your utility is printed alongside and perhaps it may help or solve any remaining problems with the listings.

ATARI FUTURE?

Following our Editorial Board's comment on the withdrawal of Atari wanting to 2020, General Perinich of Dundee dropped on these lines:

I read on the news page of TeleFoot's DigiStar magazine (p. 47) (March) 4, Nov 20 1988 that there are rumours that Atari are "about to shut their hardware arm off." It has given me to say that they've closed the Jaguar 2 development team and are swiftly winding up all Jaguar activity for a future "as a PC games developer." Although it was printed in TeleFoot's own "unmistakable" style, it obviously wasn't a joke article. It looks like Atari really have decided in their last aspirations of being a major player. And yet, the thing is, don't they deserve it? How many

machines have failed to take all licensed Atari data? Give them the support they deserve? Everything from the pathetic launch of the XE Games System onwards has been a disaster (although the XE had arguably set its own before that). The failure of the Jaguar (which wasn't surprising since the current Atari positioned the launch because stocks were low - typical) is just the final nail in the coffin. I could go on, but the XE Games system, Lynx, Palm and Jaguar speak for themselves. What happened to all those projects the Transmille made? Then again, what happened to the Transmille? Still, they outdid Commodore which must be an achievement - just not a very big one. Oh, and they've got a nice logo.

On the up side, all these thoughts about Atari may have rekindled my interest in your CDROM. Who knows? - I might end up writing some half decent programs for it! If you do write more programs for your Atari Classic, General - don't forget to let me see them! Thanks for your thoughts on Atari Corp's future (or lack of it...). Interestingly, the same day that your letter arrived at the postal production headquarters in Stafford (Page 61 Publishing (the usual... we open the letters in the garage!))! Let me also mention that some of

issues of the computer trade newspaper "CTW" which carried a full page article/interview with Bob Gendreau, Atari's European boss. We haven't got space to report the whole article, but I've highlighted a few paragraphs that you might find interesting...

"He [Bob Gendreau] speaks to CTW not long after 'The Sunday Times' ran a piece predicting that Atari would soon tip out of the hardware market completely and concentrate on software." "The European operation has already been backed back to cope with the prevailing system environment. Atari UK now has only 15 employees (compared to over 300 five years ago) and there is only one other European office, in Holland, concentrated mainly with logistics."

"Initially the loss was not less than the average size games publisher. In the third quarter (September 20th) it lost US\$13.6 million or US\$4.1 million sales. In the nine months of this year it has now lost US\$22.9 million or sales of just US\$12 million."

The article also reports on the newly set up Atari Internet store's plan to publish its first PC CD-ROM game, Tempest 2000, in January 1990, and that Atari is hoping that a subscription to this costs in 1990 will provide some small scale opportunity - perhaps a Japanese market for under £200. But the competition is of course Sega and Nintendo with its 6190 64... It is noted

that the Japanese recently went on trial at 50 top Discos stores and although no formal announcement has been made, it is understood that the format is being phased out of the chain.

I must quote the article's concluding paragraph summarising Gendreau's hopes: "All of which should guarantee, if nothing else, more of what is already Atari's acknowledged speciality - good value."

DEDICATION

Finally, I feel it's appropriate that I add a dedication to this column. You may have read elsewhere via Derek Fern's colleague mailing or via the TRAMM Newsletter of the untimely death of Dave Stevens, one of the organizers of TRAMM. Unfortunately, Peter Atari Dave's recent schedule prevented us from referring to this matter. I never actually

met Dave, but over the last three years or so during which he helped get the TRAMM Newsletter up and running, we talked either by post or by phone on several occasions. On each occasion, I came away refreshed and impressed by Dave's cheerful attitude and hospitality. We struck me as someone who was always willing to help others in our shared interest of the Atari Classic without wanting anything out of it for himself. I'm sorry that I never made it to one of the AMS shows and got the opportunity to meet Dave in the flesh. I hope Dave's approach has rubbed off on other people and that his influence will help promote the support of the Atari Classic. My sympathy goes out to Dave's family.

So I dedicate Writing for the Forgotten future to the memory of Dave Stevens - one of the good guys!

WRITE TO US!

Ask your views on all things Atari or help your fellow users with their queries - even ask for help yourself! If you want, it's all interesting, if only you write it down. Here's the address:

MAILBAG
NEW ATARI USER
P.O. BOX 54, STAFFORD
ST16 1TB

BACK ISSUES

Back issues of NEW ATARI USER are still available from ISSUE 31 up to ISSUE 74 except for the following

ISSUES 32 and 33 - SOLD OUT

ISSUE DISKS

All issue disks from ISSUE 14 ONWARDS are still available

DON'T FORGET!

ISSUE DISKS
1 to 13
now available!

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DON'T DUMP YOUR DRIVE!

John Foskett has a few ideas of what to do when your drive goes wrong

While programming one evening in April 1990, saving my work to disk at regular intervals of about 15 minutes or so as one should, I discovered to my horror that on one occasion error 144 occurred. I attempted to save the latest version of my work several times, all of which resulted in error 144. I inserted another of my work disks into the drive and again attempted the save. Again the same error resulted - error 144. I inserted yet another of my work disks and again attempted the save only to be greeted yet again with error 144. Flustered, realizing that saving the program had for some reason become impossible, I wrote down on paper all the changes that I had done to the program in memory since my last successful save and

then switched my equipment off so that I could investigate the problem further.

Since all disks failed at the same time, and it is unlikely that all the individual disks would have faults such as bad sectors the problem must be something to do with my 1050 disk drive itself.

THE DRIVE

My first task was to remove the cover which is achieved by inserting the drive and removing the six screws securing it. The cover is then removed by turning the drive back the right way up and carefully lifting the cover from the back, pulling it forward, lifting it clear of the drive.

Once opened, the first step is to inspect the tiny pressure pad which is positioned above the read/write head upon a pivoted, spring loaded arm. This tiny pad is the usual reason why a disk drive fails to read from or to write to a disk.

With a disk inserted to the drive and the drive closed, it can be seen that the pressure pad makes contact with the actual disk head. There must be a small gap between the surface of the disk and the tiny cap that supports the pressure pad. This is to ensure that only the pressure pad touches the disk and not the cap itself. The gap should be about 1mm.

MY PROBLEM

Upon inspection, I could see that virtually no gap at all existed between the pressure pad cap and the surface of the floppy disk. This is therefore the most likely cause of my problems but even if it is not, it must still be corrected. I could also see that this could be the cause of another annoying problem that has begun to plague me, that of a horrible squeal which is generated as the disk rotates, obviously generated by the cap actually touching the disk.

Over a period of time, the pressure pad gets compressed and one method of restoring it, is to wedge a paper clip and very carefully scratch up the surface of the pad with it. This process however, proved to be a failure in my case, since the pressure pad had literally worn itself away. The only remedy was replacement, but with what and how?

USE A CASSETTE!

After an hour or more of very deep thought, it occurred to me that perhaps another firm that uses a pressure pad could be put to a good (or better) use. I realized that every cassette uses a pressure pad and that I have many old C15 computer tapes that I haven't used since becoming a disk user several years

ago. Here then, was the answer to my problem, make a new pressure pad.

FINDING THE RIGHT BIT

The first step is to remove the spring loaded arm that supports the pressure pad. This is achieved by very carefully pushing out the small spindle that the arm pivots on taking extreme care not to touch the read/write head immediately below it. The spindle can be easily removed by using a pointed tool (a 2" paint pin can be used). The spindle is best pushed out from the main drive motor side of the disk drive and finally withdrawn from over the stepper motor using a pair of long curved pliers. Great care must be taken to prevent the tiny spring from flying out of the drive under its own tension whilst withdrawing the spindle. This could be done by using a short length of cotton wool to the spring before the spindle is withdrawn.

With the pressure pad arm removed, it merely remains to remove the tiny pressure pad support cap from the arm itself. This can be seen to be a small separate component, carrying the actual pressure pad. Removal of the pressure pad cap is achieved by gently squeezing together the sides of what looks like a large screwdriver slot and allowing the cap to fall free.

Once the tiny pressure pad cap has been removed from the arm, the pressure pad itself (or what remains of it) can easily be seen. Another attempt to revive the pressure pad using a pointed tool should be tried before replacement is finally considered.

If you do need to replace the pad it is important that all traces of the old pressure pad and its adhesive are removed prior to replacement.

available from BASIC, but there are also several "new" commands which aren't readily available. Let's take a look now at each one in more detail.

DISK FILES

XIO 0 - OPEN A FILE OR DEVICE

The XIO version of BASIC's OPEN command is almost identical and, in practice, all you are doing is replacing the command OPEN with XIO 0 to get the same result. So, next time you need to OPEN a device, you have a choice of two ways of doing it. The format of using this XIO is:

```
XIO 0,F1,A,"D:\filename.ext"
```

As with the OPEN command, the # in VALUE 1 signifies "open the file for output".

XIO 1 - PUT RECORD OR PRINT

To send a string of text to a file (which must have already been OPENed) use the following format:

```
XIO 1,F1,A,"HERE'S A LINE"
```

Note that you must place an # in VALUE 1 of the command, to signify an output. By the way, instead of using a literal string (in quotes), you can also point the contents of a variable to the file, for example:

```
XIO 1,F1,A,STRING
```

XIO 2 - CLOSE FILE

Any CLOSE command you normally issue from within a program or in immediate mode (i.e. directly onto the screen without a line number) can be substituted with:

```
XIO 2,F1,A,"D:\filename.ext"
```

This has exactly the same effect as BASIC's CLOSE statement.

READING A FILE

You can use an XIO command to read a file, and although this has no advantage over using GET from BASIC it does give you a better picture of what XIO is actually capable of. To use this format, firstly you need to open the file to read. Instead of using BASIC's OPEN command use an XIO 0, but this time in VALUE 1 you should use a 4 to signify an input. For example:

```
XIO 0,F1,A,"D:\filename.ext"
```

XIO 3 - GET RECORD OR INPUT

To use an XIO 3 command in your program, you have to format it in the following manner:

```
XIO 3,F1,A,STRING
```

You must store the read from the file in a string. Of course this means you should DIM the string that you are going to use before you attempt to read the file otherwise you'll run into all sorts of problems. Also never try to read a record that is longer than the DIMmed length of your receiving string. Because if you do you may find that it corrupts other strings or even parts of your program, forcing BASIC to "lock-up". And don't forget to close the file, after you've finished reading from it, by using an XIO 2 command.

MANIPULATING DISKS (A REPLACEMENT FOR DOS)

Okay, so we've taken a look at the XIO's that resemble BASIC commands. Now let's cast our eye over some others which aren't similar to any that are available from BASIC.

XIO 20 - RENAME FILE

By issuing an XIO 20, you can change the name of a file just as you would by using

DOS. To use simply type:

```
XIO 20,F1,A,"D:\filename,renameme"
```

And the result would be that file called "oldname" would be renamed as "renameme". All that without a DOS call to sight!

XIO 21 - LOCK FILE

This command takes care of the files on your disk, by allowing you to lock them all, or just one specific program or file. To lock just the one file type:

```
XIO 21,F1,A,"D:\filename.ext"
```

And to lock all the files, you should type this instead:

```
XIO 21,F1,A,"D:.*"
```

XIO 22 - UNLOCK FILE

If you need to unlock a file or files for any reason, it's just as simple as locking them. For example to unlock just one file type:

```
XIO 22,F1,A,"D:\filename.ext"
```

And to unlock them all, type:

```
XIO 22,F1,A,"D:.*"
```

XIO 24 - FORMAT DISK

This can be a real life saver, especially if you don't have a RAMDISK (or MEMOSAM) and you find that you have run out of disk space and need to format a new one so that you can save the programs that you are writing. However if you do use this command, BE CAREFUL, because once you've issued it and pressed RETURN there's no turning back, everything on the disk will be erased so there are no "Are You Sure?" prompts.

If you use DOS 1.1-5 you can in fact format your disk in either single or enhanced density. Simply to format in single density use XIO 24 (instead of XIO 24A, for example:

```
XIO 24,F1,A,"D:."
```

But if you want to get an enhanced disk space on

possible you can format in enhanced density for a 1080 or 3755 1) by typing:

```
XIO 24A,F1,A,"D:."
```

Once you've done that, you can also write a DOS.SYS file to the disk by just typing BASIC TO:DISK.SYS. These will, however, be no DUP.SYS file - you'll still have to use DOS option H to do this. Incidentally, if you are using an #10 you can issue either of the above commands, XIO 24 or XIO 24A, to format your disk, but you'll only be able to get single density, I'm afraid.

A WARNING

All of the last five XIO commands that we've looked at must each be given an UNUSED character. We have been using #1, but #1 is already in use in your program (there was a different one for any XIO commands. Why? or you do make more than they don't check at you'll get some strange error messages.

USING XIO IN GRAPHICS

XIO can also be used in our graphics applications, that of filling shapes. The command is:

```
XIO 10 - FILL
```

An example of the format to use is:

```
XIO 10,F1,A,"S"
```

The fill function is used to fill in shapes which have been drawn on a graphics screen using the PLOT and DRAWGO commands. It is, however, very limited in the way that it operates, in that it is probably quite a big disappointment to most people when they learn how to use it for the first time!

Type H and run Program One. Notice that it


```

T0 0 ROM #####
F1 2 ROM # 800 TEST 8000 #
M0 3 ROM # TURBO 80000 #
M1 4 ROM # by Andy Sullivan #
M2 5 ROM # ----- #
L0 6 ROM # NEW ATARI USER - JAN 76 #
T0 7 ROM #####
M0 8 ROM
M0 9 ROM Setup Variables
M1 24 PORTS=240 D / PABLE=250 ROM=1500
F1 24 RESET=PIE+TABLED+#####P000
(PTABLE)
M0 44 POKE PORTS,RESET
M1 24 ROM Setup Screens
M0 48 GRAPHICS 20:SON=OPT0:BD:POKE 797,
4
M1 78 FOR N=0 TO 4
M0 88 ROM Draw screen
M1 78 FOR 0 TO 2: POSITION X,0:Y: NINE
X:Y
M0 188 FOR Y=0 TO 10:POKE SON,SON+10000
,4:NEXT Y
F1 138 ROM Select Bank
M0 128 BANK=POKE(PTABLE+21)*5
F1 138 POKE PORTS,BANK
F1 148 ROM MOVE screen to MEM
M1 138 POKE SON,POKE,POK
M1 148 NEXT N
F1 178 POKE PORTS,RESET
F1 188 ROM File screens
M1 178 GRAPHICS 20:IN=SPR+240
M0 200 ROM Set DL to point to MEM
M1 218 POKE 24,4*POK
M0 238 FOR I=0 TO 4
F1 238 ROM Select Bank
M1 248 BANK=POKE(PTABLE+20)*40
M1 258 POKE PORTS,BANK
M0 268 BIT 4
F1 278 NEXT N
M0 288 BIT 23

```

```

T1 1 ROM #####
M1 2 ROM # 800 TEST #
M2 3 ROM # TURBO 80000 #
M3 4 ROM # by Andy Sullivan #
M4 5 ROM # ----- #
L3 6 ROM # NEW ATARI USER - JAN 76 #
T1 7 ROM #####
M1 8 ROM
M1 18 ROM SETUP VARIABLES
T1 24 PORTS=240 D / CRYE=2400 PTABLE=1500
F1 24 ROM SETUP SCREEN
M1 48 GRAPHICS 20:SETCOLAR 22,20,20:SETCO
LOR 21,20,10:POKE 750,21
F1 78 POSITION 20,20:Y: *BANK Bytes 800 80
M0 88 POKE 100 BANKD
M1 48 ROM SET RESET VALUE
M1 78 RESET=PIE+PORTS+#####RESCTN(1)
M1 88 ROM SETUP BANKS FOR TEST
F1 78 FOR 0 TO 2: BANK=10000+4*
M0:POKE PORTS,BANK:POKE 0YTE,43:PORT
CHECK
M1 188 ROM RESET PORTS
M1 138 POKE PORTS,RESET:POKE 0YTE,20:M0
BANKD+0
F1 128 ROM TEST BANKS
M1 138 FOR 0 TO 2: BANK=10000+4*
M0:POKE PORTS,BANK
M1 148 IF POKE 0YTE=40 THEN M0BANKD+40
M0BANKD+21:POKE 0YTE,20:POKE PTABLE+03
#####BANK
M1 158 2-LOK STR#(M0BANKD+21)
M1 168 POSITION 22-2,20:Y: M0BANKD+110
M0 178 NEXT CHECK
F1 188 2-LOK STR#(M0BANKD)
M0 198 POSITION 20-2,20:Y: M0BANKD
M1 208 ROM RESET PORTS
M1 218 POKE PORTS,RESET:POKE PTABLE,M0B
ANK:POKE PTABLE+01,RESET

```

Unicode - INVERSE CHARACTERS - [] + CONTROL + CHARACTER - = - + INVERSE CONTROL + CHARACTER

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table is required. The screens are first set up then MOV'd to each bank (the bank is contained and the memory moved to the same place each time). The DL is altered to look at the start of the bank within area. The second loop then just selects each bank in turn at every top jump. As the DL has been set the screen automatically flips to show the data saved in each bank.

When a SOCKET expanded XL the bank select while we set up to General Expanded RAM while allowing both ANTIC and CPU access the banks when required. This gives greater compatibility between the 13000 and expanded XL's so everybody should be able to use your programs. On a 13000 the program should work okay for CPU access as it already HASMC access does not work then try alter-

ing both of the testing loops to run from 20 to 0 STEP-1. This means that the ANTIC bit is contained before the CPU bit and should select ANTIC screens. I might be wrong though, and this may not be necessary.

I was disappointed that the Video Dims demo doesn't work with my SOCKET as the ANTIC only extended RAM mode is not supported in main mode for the extra bank select bits. However, many thanks and everything else I've tried then work!

My latest software release, CLIP TRACER XL is an updated sample programmer that uses bank switching to give 64K for example on a 13000. Up to 128K of banks are supported on expanded machines - as are Ramer upgrades if fitted.

UNDERSTANDING

ARRAYS

Ann O'Driscoll
shows you how
to use arrays for
serious programs
as well as for a
slot machine game

SETTING UP SIMPLE ARRAYS

Before you use an array, you must reserve some space in the computer for it using the DIM (for dimensional) statement. **LINE 40** of **LISTING 1** sets up the two arrays for the "Mads" program. The test results will be held in the M array.

DIM M(50) creates a numeric array called "M" with room for 51 separate entries or numbers, held in M(0) to M(50). Our program will store the marks of 10 children in M(1) to M(10). We will ignore the 0 element of the array altogether, as it is more natural to count from 1 rather than 0. The children's names will be held in the N\$ array. The \$ character in the array name must be a dollar sign for string (non-numeric) arrays.

DIM N\$(50) sets up an array called N\$ with space for 51 letters stored at N\$(0) to N\$(50). You will notice from this that there is no zero element in string arrays. Our program allows 5 letters per name and there are 10 pupils altogether, so N\$ will accommodate them all. **LINE 45** simply fills the string with spaces, to clear out any unwanted information.

```

10 1 DIM M(50)
20 2 DIM N$(50)
30 3 DIM M
40 4 DIM N$
50 5 DIM M
60 6 DIM N$
70 7 DIM M
80 8 DIM N$
90 9 DIM M
100 10 DIM N$
110 11 DIM M
120 12 DIM N$
130 13 DIM M
140 14 DIM N$
150 15 DIM M
160 16 DIM N$
170 17 DIM M
180 18 DIM N$
190 19 DIM M
200 20 DIM N$
210 21 DIM M
220 22 DIM N$
230 23 DIM M
240 24 DIM N$
250 25 DIM M
260 26 DIM N$
270 27 DIM M
280 28 DIM N$
290 29 DIM M
300 30 DIM N$
310 31 DIM M
320 32 DIM N$
330 33 DIM M
340 34 DIM N$
350 35 DIM M
360 36 DIM N$
370 37 DIM M
380 38 DIM N$
390 39 DIM M
400 40 DIM N$
410 41 DIM M
420 42 DIM N$
430 43 DIM M
440 44 DIM N$
450 45 DIM M
460 46 DIM N$
470 47 DIM M
480 48 DIM N$
490 49 DIM M
500 50 DIM N$
510 51 DIM M
520 52 DIM N$
530 53 DIM M
540 54 DIM N$
550 55 DIM M
560 56 DIM N$
570 57 DIM M
580 58 DIM N$
590 59 DIM M
600 60 DIM N$
610 61 DIM M
620 62 DIM N$
630 63 DIM M
640 64 DIM N$
650 65 DIM M
660 66 DIM N$
670 67 DIM M
680 68 DIM N$
690 69 DIM M
700 70 DIM N$
710 71 DIM M
720 72 DIM N$
730 73 DIM M
740 74 DIM N$
750 75 DIM M
760 76 DIM N$
770 77 DIM M
780 78 DIM N$
790 79 DIM M
800 80 DIM N$
810 81 DIM M
820 82 DIM N$
830 83 DIM M
840 84 DIM N$
850 85 DIM M
860 86 DIM N$
870 87 DIM M
880 88 DIM N$
890 89 DIM M
900 90 DIM N$
910 91 DIM M
920 92 DIM N$
930 93 DIM M
940 94 DIM N$
950 95 DIM M
960 96 DIM N$
970 97 DIM M
980 98 DIM N$
990 99 DIM M
1000 100 DIM N$

```

Inline = INVOKE CHARACTER -] = CONTROL CHARACTER - < = INVOKE CONTROL CHARACTER

PUTTING DATA IN ARRAYS

Our next job is to assign values to the array elements. **LINE 60** to **66** of **PROGRAM 1** use a FOR...NEXT loop to read the marks, held

in DATA in **LINE 500**, into the numeric array elements 1 to 10. The number at **LINE 500** to 560 is used to fill the string array. An array called M\$ is set up to temporarily hold each name, held in DATA in **LINE 560**. The first name starts at M\$(1), the second at M\$(2), and so on, with the 10th and last starting at M\$(10). In general terms, if you have an array

with fixed length elements like this, the 8th element will start at $M \times L + (3 - 1)$ and end at $M \times L$ where "L" is the length of each element. Incidentally, another way of getting information into arrays would be to INPUT the data when the program is running. Just change LINE 60 and P2 to INPUT X and INPUT A0 respectively and delete LINES 580-590 if you want to try this.

MANIPULATING THE DATA

Now we are at the stage where we can do something with the information. LINES 110 to 190 use a FOR ... NEXT loop to show each pupil's score next to his last name, as well as keeping track of a few variables. LINE 120 prints the name and mark, while LINE 130 keeps a running total of the numbers in the M array. LINES 140 and 150 use counters to check up the number of pupils who passed (mark of 40 or more) or got honours (50 or over) respectively. Total marks divided by 10 (number of pupils) gives us the average for the class (LINE 180). LINES 190 to 210 display number of passes, fails and honours, using the two counters.

Finally, the program prints out selected names and works out the highest mark. LINE 220 only shows the name if the M array contains a value of 60 or more. LINE 230 sets up a variable called S4 which continuously takes the value of the highest number it finds in the M array. Another variable, X, is used to flag the array position, so that the name and mark of the best pupil may be displayed (LINE 260).

A listing of this could easily be adapted for many other uses. For instance, the "best pupil" routine above could become the "high score" routine in another program, as the

same principles of selecting and displaying specific records apply. Another use would be in a clerk, to keep track of members' names (string array) and subscriptions (numeric array). This could list amounts collected and show who paid, using routines taken from the "banks" listing.

INTERRELATED DATA

Let's suppose now that our teacher in PROGRAM 1 wanted to show the pupils' results from a series of tests instead of just the one. While it would be possible to set up a separate program for each test, this would involve lots of typing. It would also be impossible without using a separate program again to track individual pupils' performance, to see the trends in average marks, and so on. A much better solution in a case like this would be to use what's known as a two-dimensional array to keep everything in the one program. 2D arrays are useful whenever you want to organize interrelated data that can be arranged in rows and columns. In this example, the rows could hold the names and the columns the different results. For instance, row 1 could hold the first student's results, with column 1 holding the mark from the first test, column 2 holding the second test, and so on.

Two-dimensional arrays are set up using the command

```
DIM A(4,4)
```

where A is the name of the array and 4 and 4 refer to the rows and columns. It doesn't matter whether you put rows or columns first, so long as you remember the order used when inputting or analysing array data. Like the simple numeric arrays, the entries in two-

dimensional arrays are counted from zero. To take an example, DIM M(3,3) sets up an array called M with 4 rows and 3 columns, or spaces for 12 numbers altogether. We need two numbers (row and column) to specify one of the entries.

A PROGRAM FOR STOCK CONTROL

LISTING 2 sets up a simple stock control system with 5 items - Product A, B, C, D and E - each available in 3 sizes. The array sizes are defined in LINES 40, 50 and 61 and are the number of items and the length of each row. NC and LC are the number and length of the categories. LINE 60 DIMENSIONs the arrays. The string arrays are used for product names (ITEM) and sizes (CAT), while the numeric array (STOCK) is used to hold the number of items in each slot.

The routines at LINES 80 and 85 fill the string arrays, using the same procedure explained in PROGRAM 1. The stock array uses columns 1-3 for the categories and rows 1-5 for the different products (columns 4 and row 1 are ignored). LINE 70 reads the 5 entries for the first column and puts them in STOCK(1,1) to STOCK(5,1); the entries for the second column are put in STOCK(1,2) to STOCK(5,2) and the entries for the third column are put in STOCK(1,3) to STOCK(5,3). The nested FOR ... NEXT loops in 2 dimensional arrays can sometimes cause problems as it is very easy to get the rows and columns mixed up - just remember that the data for the first or outer loop comes first. In this program, each line of DATA is ROW - 840 refers to a COLUMN of the array, so the CATCH loop is used to read the columns. If the DATA lines held rows from the arrays instead, then the loop to read in the rows would have to be the outside one.

The rest of the program gives a few ideas on how information like this might be used. The first routine (LINE 300 - 1) shows the data in a

tabular form. LINES 310-340 print out the row and column labels and the FOR ... NEXT loop at LINES 350-360 displays the numbers. The next routine (LINE 400 - 1) asks the user to input a product name and prints out the number of items in each category (actual for the product). This is done simply by setting up a variable (F, in LINE 400) to flag the row number of the item. A running total is kept too (LINE 480). The last routine (LINE 500 - 1) prints category, product name and number for all stock below a given limit. In this case F, set in LINE 500.

Other possibilities could include an option to print out the value of the stock (multiply the numbers in each row by the cost of goods for the row and add the total), or perhaps a routine to list the number of items in a particular size category (insert the search routine at LINE 400). You could also have a routine to change data values as goods were sold or bought (input name and category to locate the row and column, then input the number for the array). All the routines could be run from a central menu.

THE GAME

Finally, the game on this issue's disk shows how numeric arrays can be used in a totally different way. Here, the "action" takes place on a 5 by 5 grid of red and yellow numbers on the screen. Pressing the spacebar selects a yellow/red number pair shown in one of the 25 grid positions. The objective is to select straight rows or columns of numbers within a given number of hits. Points are also awarded for picking corner positions.

The program uses a two dimensional array - M(5,5) to look after the grid. All the elements in this are initially set to zero. The "red" numbers are held in the rows and the "yellow" numbers in the columns, so any pair of numbers is associated with a unique array element. The element is given a value of 1 when its numbers are picked. For instance, if red is

HYPER ACTIVE

**Les Ellingham
checks out the
recently advertised
Hyper Drive from
Chaos Computers**

You may be wondering why you should consider an enhancement for your disk drive when the drive seems to be doing a completely adequate job already. If you are not technically minded and have only barely got to grips with DOS then you might think that an enhanced drive would be beyond your understanding. Is it worth splashing out around \$200 to have a super drive if you are not a technical wizard?

Some drive enhancements of the past, like the infamous Happy Drive, were developed primarily as a means of copying commercial disks and came with long, complicated, mass-market explaining how to crack various protection schemes. The Hyper Drive does this to

an extent but it can also be of benefit to the most basic of users who would just like to see their drive working faster and with greater capacity.

Speed can be an important factor if you use your drive a lot but the most important consideration nowadays has to be the ability to back up your software. If your favourite disk gets trashed tomorrow, all you can do is throw it away. The chances of you finding a replacement copy of most serious applications is almost zero and the software publishers have long ago disappeared or moved on so they will not be able to help. If you have software such as Print Shop, Symantec, VIP or even some of the classic games it really is worthwhile trying to back them up so the Hyper Drive should be well worth considering.

SOME BACKGROUND

The Hyper Drive has been around for some time having been developed in the States at the height of Alan's popularity. I can't recall it being widely advertised or sold in this country although anyone who read the great American Atari magazines like *Atari* and *Atariage* would be aware of it and many serious thought would be from the States. One such person was Paul Holmes who purchased a Hyper Drive shortly

after acquiring his first disk drive. He was so impressed that when he got a second drive a year or so ago he contacted the manufacturer to see if he could get another unit. The company concerned was no longer trading but still had a number of Hyper Drive boards available and so Paul decided to buy three and set up Chaos Computers to make the Hyper Drive available from stores.

Like every person still supporting the Atari Classic, Paul is a born Atari enthusiast and has no pretensions of making a living out of selling add-ons for the Atari. Chaos Computers is not therefore a big company trying to make fast buck and reservations expressed by some readers about their reliability and trustworthiness can be dispelled. Like all of us Paul has to make a living by holding down a full time job which often has to take priority over his Atari interests, so if you do experience a few delays should you decide to order a Hyper Drive or need for details, please don't assume that you are being ripped off.

LET'S TRY IT!

Right, let's assume that you have taken the plunge and sent off your \$200. What you'll get is a foil-wrapped PCB containing the Hyper Drive chips, a 26 page installation and operating manual and a copy of the Hyper Drive Version II software disk. For the time being you'll also get a free copy of MyCopyII, a straightforward disk copier that will let you copy your unprotected disks at breakneck speed!

The manual itself is comprehensive and, at first sight quite daunting as it goes into the many facilities of the Hyper Drive but you don't have to understand it all in one go. Indeed there are several facilities that you

may never use so don't get too bogged down in technicalities at this stage. Best thing to do is get the board installed and run through the manual with the thing actually operating.

GET THE TOOLS OUT

If you have never opened up a disk drive before, don't worry as the instructions will take you through the procedure step by step starting with a list of the few tools and other bits and pieces you will need. Nothing fancy, you are sure to have them at hand.

Removing the case is quite straightforward but when you have done so take a good look inside to familiarise yourself with the various areas connecting the drive to the system circuit board. You will need to remove and refit these but they are all connected with simple push-in plugs. Looking from the front there are five push-on plugs at the back on the left hand side and three are the first to be removed. Don't yank them off yet, or you'll make the mistake I did. Look at them carefully and you will notice that the centre plug is clipped out from the others and must be refitted this way round. It will fit on either way and I made the mistake of fitting the plug back to a central line. If you should do this, don't worry as, despite the dire warnings in the manual, no harm seems to be done although the drive won't work!

Once the middle plugs have been disconnected you can lift up the drive mechanism to get at a couple more plugs underneath and with these removed you can just the drive mechanism aside. It is best to earth one side of each plug with a bit tap pen so that you can refit them with the marks all facing in the same direction.

Next you have to remove the aluminium box

which slides several chips on the main circuit board. This is easily done by straightforwardly a few twist tabs (some drives may have screws) and lifting the box clear. Now you can see the chips and this is where things can get away if you are of a nervous disposition! There are five chips to check and you need to ensure two of these fit the Hyper Drive board. A diagram in the instructions makes it quite clear which two are to be removed and the procedure is fully explained but if you have never taken out a chip before it can be quite nerve-racking. The chip has to be lowered out of its socket little by little from each end. The secret is to lever out only a tiny amount each time and not rush the job. If you pull up too much on one end the pins will bend and you will never get the chip back in should you need to in the future.

All instructions for removing chips suggest a flat blade screwdriver but you might find it easier to use the slightly curved end of a teaspoon with which it is easier to get the right leverage. It is certainly no daunting don't be put off, it is not as difficult as it seems and you are unlikely to do any damage.

Once the chips are removed the hard part is over and you need only push fit the Hyper board into the two empty sockets. Again take your time and be sure that all of the pins on both chips are lined up with the sockets before you exert any pressure. Once the pins are seated in the sockets you can press quite hard, directly over the chips, to ensure that the board is correctly seated.

Now it's simply a matter of reversing what you have done so far. Practising you have marked your plugs so you get them the right way round it should be quite easy to get the drive back together again. Congratulations you will now go and have a cup of tea while waiting through the rest of the manual.

Anyone can fit the Hyper Drive, even those

who have never opened up a computer or disk drive before. The installation instructions are quite comprehensive if you read and follow them carefully. They might be better in a Step 1 - Step 2 format but all the repeated information is there. The only thing which could be clearer is advice on routing the plugs in the correct order but Cloned Computers are aware of this and may well have amended the documentation by now.

BOOT IT UP

Once the drive has been reconnected, switch it on, insert the Hyper Drive software disk and switch on your computer. Unless you make the same mistake that I did in refitting the plugs the drive should spring into action with a series of rapid beeps as the software loads.

A simple menu presents you with a series of options and this is where you need to begin to read the manual. Or do you? Not necessarily as you now have an enhanced drive that will automatically run faster unless you tell it otherwise. In fact, you now have a programmable drive with a degree of intelligence in that it can recognise certain types of software and run them accordingly.

For now take out the Hyper Drive software, insert the MyCopy80 disk and reboot. Now try copying a few standard disks and you'll be amazed at the speed. Table 1 shows you how long it takes to copy a complete disk compared to a standard drive and one fitted with a US Doubler. The secret is that the Hyper Drive uses its own memory to store complete tracks rather than individual sectors and can write a whole track in one go. If you watch and listen you will see and hear the difference.

So the you have learned nothing about the Hyper Drive but you already have a super fast computer and your software can now load and save at lightning speed.

TRY THE OPTIONS

You will recall that I stated that your drive is now programmable and it is important understood how this works. Essentially you can send commands to the drive which it will act upon and sometimes until you instruct it otherwise or switch it off. Here this is cited when trying the various options.

1. DRIVE OPTIONS

Whenever you switch on your drive from now on it will automatically be in Hyper Drive mode but you may find that some heavily protected programs object to this and will not run. The first option on the Hyper Drive menu is to **SWITCH OFF HYPER DRIVE** and by selecting this you tell the drive to reset to normal 1080 status. The drive will now revert to this mode until you switch it off. Rebooting the computer without switching off the drive will treat the drive as a standard 1080 and all software should load except that you will now longer be able to use the special Hyper utilities!

Switching the drive off for 5 seconds returns it to Hyper Drive but you can also reset programming by selecting the **INIT** option on the main menu.

Option 3 allows you to **CHANGE THE DRIVE NUMBER** without fiddling with the dip switches on the back. This means that you can boot up the drive as drive 1 and then reassign it to drive 2, 3 or 4. Just what this achieves I am not sure. The obvious thought would be that you could use programs that require the drive but as most of these would need to be auto-booted you would not get the chance to change the drive after the program is running. Option 4 allows you to **SET THE MOTOR OFF DELAY** although this will only save a second or so and hardly seem worthwhile.

Option 5 will be important to many users since it sets the drive in **US DOUBLER EMULATOR** mode so that you can run HyperDisk. Hyper Drive cannot be installed with the US Doubler so you would have had to remove your US Doubler chip if installed. Don't worry though as all facilities of the US Doubler are covered by the Hyper Drive except formatting with Sector Size which is no longer needed anyway as the Hyper Drive can read all sectors at a faster rate whether Sector Size or not.

The final option on this side is **FAST WRITE** which allows you to set the drive up to fast

TABLE 1 - Times to copy a full single density disk using MyCopy80

	Read	Format	Write	Total
Normal Drive	78 secs	34 secs	83 secs	195 secs
US Doubler	78 secs	20 secs	78 secs	176 secs
Hyper Drive	35 secs	20 secs	80 secs	107 secs

Disk used was a standard DOS 2.5 format disk with one free sector

buffered write with verify. In fact all writes will now be verified since Hyper Drive can do this faster than it can without verify! Some software, such as the MyCopyII which you tried earlier, automatically switch on the last write when booted.

When the drive is in fast write mode you might notice something strange when you take a disk out of the drive after writing. If you do not wait until the motor has stopped the heavy light will flash on and off continuously. At first I thought this was a fault but it is in fact a warning that the drive may not have finished writing. Because the Hyper Drive holds information in its own memory you may get a situation where your software tells you it has finished writing but the information is still buffered in the drive. In practice it doesn't seem to make any difference but to be safe you should wait until the heavy light goes off before removing a disk.

3. SECTOR COPIER

This is a straight sector copier for duplicating standard non-protected disks but is really redundant if you have MyCopyIII (see this option if you want but you will find MyCopyIII faster and easier).

3. HYPER COMPACTOR

This gives you the opportunity to compact several self-booting disks onto one disk but as it is more properly part of the copying routines we'll come back to it later.

4. ENABLE TRACES

Now it starts to become more involved! This option sets your drive up in a trace mode to give you information about various disks that you might want to copy. Information such as which tracks are used is needed for some copy routines so has to be obtained from this option.

Again, the drive is specially programmed to remember tracks that are accessed during a loading procedure. If you boot a disk after writing the drive in trace mode the Hyper Drive will remember which tracks have been accessed and you can set option 5 - **DISPLAY TRACE** to check the information. The drive will remain in trace mode until it is switched off again.

As the use of the drive is now becoming more involved, almost two pages of the manual are given over to using this mode and I won't go into further detail here as it won't make a great deal of sense unless you are actually using the drive.

YOUR OWN FAST DOS

Side 2 of the disk starts off with an option to use **HYPER FAST DOS** which will allow you to format all of your disks in fast read and write mode and perform all of the usual DOS functions at much greater speed.

Step by step instructions are given for you to create your own Hyper Fast Dos master disk to replace the standard Atari DOS. One thing to be aware of here is that when the instructions tell you to boot DOS 2.05, it really means that as the installation program will not run with DOS 2.5. That shows you how old the program is! If you don't have a copy of DOS 2.05 you can use any of the early disks from the Page 4 PD Library which all have DOS 2.0 on them.

DIAGNOSTICS

A built-in diagnostic routine allows you to check that your drive is working correctly.

Among several tests you can perform are testing whether write protect switches are working, whether the drive operates correctly in all formats and whether the High Speed data transfer is operating at optimal speed. Perhaps the most useful tests are RPM measurement and read and write tests on various parts of the disk.

The diagnostics are useful if you are having problems with your drive although there is no advice on what to do if you encounter problems so you might worry yourself unnecessarily. If your drive appears to work without problems, leave well alone!

BACKING UP DISKS

At last we come to the facility that most people will want a Hyper Drive for - backing up your irreplaceable commercial software. Here we have some good news and some not so good news. Backing up many programs in a browser, not much slower than copying un-protected disks, but others will take a good deal of work and, of course there will be one or two programs that you will not be able to back up. Don't expect miracles.

Five or six pages of the manual are given over to copying protected disks and it can get rather heavy at times. Hyper programmers will go through the instructions understanding every word and be able to work out how to copy almost every disk but most of us are not that clever and need to back up our disks without too much effort.

Unfortunately I do not have a list of software available, having sent virtually everything out to reviewers over the years, so I cannot give you a blow by blow account of what will copy and what will not, some very good news to start with though is that copying **PRIM BRDP**

and associated **Broderbund** disks is simplicity itself. Just select the Copy mode and follow the prompts which tell you when to insert source and destination disks. A few pauses and you will have a perfect backup of Prim things so you can put your original away somewhere safe.

HEAVY PROTECTION

If Prim Backup can be copied so easily then there are sure to be others that will copy without fuss or bother, but some publishers get rather protective about their software and introduced device schemes to stop disks being copied. The Hyper Drive Copier can cope with many of these using a set of predefined backup routines.

On side 2 of your disk you will find a number of PDY files that you can use to back up selected programs. The selection available seems to be a bit of a disappointment but there is no indication anywhere of what programs can be successfully backed up without using these files so it could be that many more familiar programs can be backed up with the same ease as Prim Backup. The files shown give an indication of the age of the software with titles that have long since passed into folklore such as **HYPERMAG** and **SYN FILE** alongside classic titles such as **SUPER HUNNY** and **RENDER WALKER**. Among these that you will recognise are **POORLY APPROACH**, **SILENT SERVICE**, **ALTERNATE REALITY** and **TEMPLE OF APHIM** and there are many more.

If you use PDY files then the actual backup procedure is quite straightforward involving nothing more than a few swaps between source and destination disks.

Some copied programs will only run on

drives filled with Hyper Drive which is a welcome detour to having loads of pirated copies around but will not affect those copying only for their own personal use as they will, of course, already have the Hyper Drive.

PROBLEM DISKS

If your disk will not copy with the straight copy program and does not have a PDS file then you may still be in luck although you will need to do a lot of investigation using the facilities provided. There is full information provided on how to go about examining and tracing disks and setting up special copying routines but it is not for beginners. Experienced users may have already looked up some of their collection using other methods.

COMPACTING DISKS

As stated earlier certain self-booting disks can be 'compacted' onto one disk and selected from a menu. The term 'compact' is rather misleading, however, since the programs are not shortened to fit on the disk but, rather are relocated so that they can use consecutive sectors. Again often it is only possible to put two programs on one disk so the usefulness of this option is somewhat limited. Additionally the programs can only be booted from a special Hyper Drive installed disk which uses a rather plain menu selection.

If you have hundreds of disks that you can't find room for this might be useful but it is probably just as easy, and safer, to back up individual disks and you will also save a great deal of time.

A LITTLE MORE

Right at the end of the manual is something that is of little practical use to most owners but something that I dreamed of a few years ago. By using several Hyper Drives together you can make multiple copies of a disk in about the same time as it takes to make one copy. The Hyper Drive software can read from one drive while making copies to other drives at the same time.

In the days when we were copying hundreds of PD-disks a day, how I longed for a facility like this. Now that I have finally found out that it is possible, so few people are buying PD disks that it wouldn't pay to buy even one additional Hyper Drive!

SHOULD YOU GET ONE?

Although there are some limitations on backing up heavily protected software, the answer is an unqualified yes. At the very least you will be able to back up essential program files like Print Shop and you will find that backing and setting files and making backups of everything else is a whole lot faster.

The Hyper Drive is not difficult to install and its use in backing up disks which can no longer be obtained makes it one of the most essential enhancements to your system. Chess Computers are in the computerized in taking the initiative to make the Hyper Drive available once again and deserve your order.

The price is £25 (including the software) and a free copy of MyCopy8. Chess Computers have an advertisement in this issue so check it out.

DISK BONUS

Two games
from Andy Guillaume and Visionnaire Software

ALIEN ATTACK

Aliens are infesting your ship - shoot as many as possible before your three commandos are eliminated.

The fire button starts the game. The game screen consists of a map of your ship at the top with alien positions shown. A menu bar shows the available options depending on your current position on board the ship. Next is a picture of your current room. On the left of this is the remaining ammo in each of your three commandos' guns. On the right a heart-beat monitor shows the currently selected commando's status. At the bottom is the commando select bar with their respective health shown - once this reaches 0 a commando is dead.

Move the cross-hair cursor with Joystick 5. On the menu or commando select bar the FIRE button activates the choice or selects a commando. On the picture area in-between, the FIRE button shoots your gun. By moving the cursor above the menu bar onto the map and pressing FIRE you change to movement mode. The flashing dot shows your commando's position. To return to FIRE/SELECT mode press the FIRE button.

If you move near an alien return to FIRE/SELECT mode and shoot it if it appears in your view area.

The other rooms on the ship (orange areas on the map) contain extra systems for your use. Some will work and others not - listen for the ship generators (which MUST be RUNNING and WORKING for the systems to work) and warning sounds which knock-out these systems.

It's all up to you now....

LIGHT CYCLES

Guess what this is! Originally written just as a TWO player game I never got around to speeding up the ONE player mode but you can play it. At the title screen, press OPTION to select 1 or 2 players and press select to alter the game speed, from 1 as the slowest to 9 as the fastest. On TWO player mode you can set the game length by the score to be reached before a player wins. Use the UP and DOWN control keys to alter the "goal" score. The START key or FIRE button starts game.

These games are the BONUS on this issue's disk. If you are not a disk subscriber you can still obtain a copy for £2.95 from NEW ATEN USER, P.O. BOX 54, STAFFORD, ST16 1TB. Please make cheques payable to PAGE 6 PUBLISHING or order by telephone with your Visa or Access card on 01785 241159.

HEY? HEY?

It's

The TIPSTER

Just as I was scribbling around my rug scratching and searching for new tips along come a veritable hoard.

From two dozen readers who send in sharp Tipster advice and hints. These tips are greatly appreciated and are here for your enjoyment. Without more ado let's get on with the James and Andy (and possibly Dignus) show!

Andy Chalmers who supports us with some excellent programs also finds time to play games and has these tips for you.

ARKANOID

Use Paddle Controllers if you can. With a joystick you have to wait while the ball comes from one side of the screen to the other, with Paddles you just turn the dial to a particular angle and the ball moves instantly to its new position. After a while you get used to moving the dial relative to the ball position. If the ball comes to one side and a useful pad that you want is falling on the other, it's just a matter of returning the ball then quickly twisting your hand on the Paddle dial to instantaneously (almost anyway) appear at the other side of the screen! I can reach the last screen against Deb almost every game.

By the way my Paddles are the ones I got with my 1081 VCS box set. I have only had to replace one paddle/hammer, both buttons and the other Paddle still work fine!

PHAROAH'S CURSE PASSWORDS

- Level 1 - **SHR**
- Level 2 - **SHRST**
- Level 3 - **SHRSTOPS**

GET INTO THE DROPZONE

Put up your men as soon as possible and bury each one back to the Base, just keep at the bottom of the screen and watch for enemies.

Shooting Blunder Demos

Lighting - look for the flash before the strike. **Rain** - you can make it underneath before it reaches the bottom if you're at full speed.

For maximum speed don't bother trying to shoot any other enemies while moving your men, keep an eye on your men's positions while doing this via the Scanner at the top of the screen, any Androids will appear near the men's positions - the Call sound and Android-direction arrow help here. Go there and destroy them as soon as possible. If the Android gets dropped off, only go to shoot it if you're sure you can make it before one of your men gets killed. Otherwise, wait until the Nemesis appears and shoot it. Try not to use any Clock or Smart bombs during the course of the levels until it's really necessary.

On Traker Invasion levels, find get your men in as before then engage Clock and go across the area in one direction shooting all the Spores. After many Trakers have been released, use a Smart bomb to fall them - do this properly and you'll get enough points to be rewarded with another Smart bomb virtually straight away!

If an Nmap appears you're taken to long completing the level, use Clock first and a Smart bomb if you fail to shoot it.

Always use the scanner to line up an enemy off screen before you encounter it and start shooting before you arrive. I've scored over 500,000 many times with no cheats at all.

More from Andy next time!

HAVE MERCENARY ON ME!

James Mathrick is a new reader and a newcomer to The Tipster column but, hey, he has to wait in a longer crop of tips for you to enjoy. If they don't fit in this issue, look out for more from James in the future. Let's go.

MERCENARY I and II

For all those who hadn't yet realized the choice is actually a super-fast spaceship, and will easily get you up to the ceiling craft. I think the choice occurs in the Second City, although I'm told you can fly the table in the Poljar landing room. There is also a hangar in the wasteland, beyond locational sensors with a narrowish aisle, and I think that can also reach the ceiling craft. Also, the narrative in its this complex, although you will need a couple of keys. For absolute beginners, keys are the huge shaped blocks left around the complexes. The spider's web can be used as a detonator key, although it is only be picked up if you are in possession of the kitchen sink (before craft kitchen). The kitchen sink can be used to pick up almost anything in the game.

Most of the objects in the game can be sold to either the Poljar or Merchants for money (e.g. gold to the Exchange, Medical Supplies to the medical centre etc. (Approx any idea as to where the essential (Popul) 30000 supply goes)?). The aim of the game is to scrape with as much money as possible, sell the large box to the Merchants, but everything else you see (including the Merchants) to the Poljar.

Shoot all the Merchant occupied positions - you will need the mental detector for this. When you are over a Merchant installation, it will change the colour of Demos's screen to blue. When over a Poljar installation, the screen will go green, and a red screen indicates the building is not owned by anybody. If anyone knows the location of the mental detector, however, please let me know.

When you hold the anti-time bomb and fire at the remains of a building, it will instantly rebuild itself.

In order to start the game with all your credits, start the Demosian Dart, and fly backwards at -400 to pick off the attacking Poljar (This technique will work for any attacker.)

Apparently I have not yet finished the game! The anti-grav can be used to pick up the neutron fuel, and the interstellar craft, so you can relocate it outside the defence complex (in the Second City), the anti-grav is supposed to be at location 00-00, Altitude 00010.

If you take the aerial track in the ceiling craft to the broken room room in the underground complex, you will be offered an intergalactic craft to buy, and if so, you will be given a resurrection point.

On the edge of the City, you should see a ship flying around - go up to it and take it for more speed, but if you wish to board it, you will have to drop it in a hangar.

The escape craft is supposed to be at location 0-00, but I think you will need the pass to get to it.

This next tip is hoarse, but it could be worth while, as it tells you how to get into the author's secret room in the Second City!

When you start, board the Demosian Dart, and fly to a height of over 5000 then level out. Press E and keep > pressed until you reach a speed of around 2700 kph.

If you're behind and so you fly closer to it, pick it up by pressing E. Then fly back to location 00-00 and take the object that you started the game inside. At this point fly to any elevator and go underground and walk to the triangular door. You will be able to walk straight through, where you can have every key, get into any hangar, and of prices, amount millions of credits. Find the narrative and the intergalactic star.

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Life Henry has always and will have. You can be a king or a peasant. You can be a king or a peasant. You can be a king or a peasant.

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Watch your units and resources for the invasion. You can be a king or a peasant. You can be a king or a peasant. You can be a king or a peasant.

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One of the best of all games. You can be a king or a peasant. You can be a king or a peasant. You can be a king or a peasant.

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Shows you how to transfer these to disk!

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TELEPHONE ORDERS ACCEPTED ON 0169 21155 USING ACCESS OR VISA

SWAP

Many of you may have used the program Letterhead Designer, which is available from the Page 9 PD Library, to design your own letterheads. Although this is a great program you do have to either print out a stack of letterheads, or else use Letterhead Designer to print out your headed paper and then load it through the printer again when you compose your letters. Wouldn't it be nice if you could just use your word processor to print it all in one go? Now you can!

CONVERT TO TEXTPRO

SWAP is a Turbo basic program, the purpose of which is to convert "HEX" files from P. Kirton's Letterhead Designer into files which will print correctly from TextPro 4.0. The file suffix .HEX is replaced by .HDR to avoid confusion.

LETTERHEAD USERS

Check out the new PD disks this issue for some great news. Reader Brian Arnold has laboriously converted almost 800 Post Shop items for use with Letterhead Designer. These are available on FOUR DOUBLE DENSITY ENHANCED DENSITY DISKS. You will be spoilt for choice!

Mike Fuller presents a useful utility to use letterheads created with the excellent Letterhead Designer directly with TextPro

The SWAP menu offers just two functions, Load and Save:

Load Letterhead: From the directory of HEX files displayed, select the file for conversion. The file is loaded and converted after which control is returned to the menu.

Save Letterhead: Prompts for a file name and then appends the HEX suffix when saving.

With just these two functions it is easy to see there's more than one copy of the HEX file.

SOME PROBLEMS

Unfortunately the program is not foolproof. This is because over one hundred codes per line may need to be replaced with TextPro friendly printer codes. TextPro cannot, to the best of my knowledge, support that many. However, it is unlikely that the fifty or so codes available will all be used on one line, so to get the best probability of error free function, the program inserts the codes at every line. The demonstration letterhead uses twenty-nine codes for the third line, which is the highest number of codes on one line I have come across to date.

The other minor problem is that the under-line option seems to fall a snag with TextPro.

A small 'glitch' appears at the centre of the line when a code '10' line feed is used. This is because in the graphics mode the printer requires more line hundred columns, which TextPro cannot support, so TextPro throws in a line feed. That is, a "10" is used when the line code is "0A". To get over this, the program incorporates a narrower line constructed from the space character "19" as you just get a thinner, but glitch free, line.

MATCHING YOUR PRINTER

If you find that CHR\$(10) on your printer does not produce a line or you require something better or prettier, check your printer manual for a suitable replacement and replace the code '10' in the TextPro file. This is near the end of the letterhead data block - just page 1, line 14 where two lines of in-code I've provided immediately by a short set of embedded commands ending in: (normal) 1-108 . Change this instruction to (normal) 1-100 number. To verify that you have line 14, use TextPro function "CONTROL, 9" which displays the page and line numbers at the top of the screen.

Alternatively, line 3310 of "SWAP" and replace the number 198 at the end of the line, with the CHR# number of your choice; then save the program. This will place your preferred code in every underlined letterhead (HEX) file. Remember the program is in Turbo basic so make sure you load up Turbo basic first!

Expect users if you use LG 1800 may find that 0108 print gives a good effect; this code produces two dots, thin, lines. Alternatively,

0108 050 produces a single line line. These codes are drawn from the TC 437 (USA, standard Europe) character table.

PRACTICAL USE

So, what is the purpose of all that? Well, with your letterhead as a TextPro file, you can print headed letters without having to go back to Letterhead Designer first. This is particularly useful if your letter is more than one page in length as you will not experience the paging problems associated with printing from post-way down the page. Furthermore, printing additional copies could not be easier.

DUE CREDIT

Now an admission, I cannot claim full credit for this program as at least half of it has been adapted from P. Kirton's original Letterhead Designer program. However, it was not who did the donkey-work of comparing files, creating new HEX strings, and writing the routines needed to accomplish the file conversions. Many thanks to P. Kirton, may I one day, meet him to say so in person.

Well what are you waiting for? Get typing!

ANY QUESTIONS?

Write to me, Mike Fuller,
c/o 99 Corporation St., Stafford ST16 2LT
between October and June

or
4 Whitehouse Cottages, 6a's High Bank,
Holliston St. Matfield, Spalding PE12 6EL
between July and September

Keep about the floppy address periods. It's the price of being a full-time student.

The SWAP program is on this issue's disk and is also available as a TYP0 coded type in listing for those who want it. Check the inside back cover for details of how to obtain the listing.

TOOLS OR TOYS?

In this article, written some time ago, Doug Brock explores how far home computers and the industry should evolve. Some things have changed in the past few years but could it be even better?

Can you remember when the only source of entertainment in your home — the only electronic marvel — was the radio in the living room? Or perhaps you recall when all cars had starting handles? Or when delivery men used horses and carts? You may claim to not actually remember such things, but the point is, they are not that far back in history at all, and already we have lap-top publishing! What, that is technology dragging its feet?

NOT YOUR CHOICE

When Marconi was a lad, he wasn't distracted by whether or not to standardize his music deliveries as to CD or LP or DAT. He had a bright idea and simply turned the invention into hardware and profit. Nowadays the shifty, ingenuous shivers of thought-out patterns are one thousand times as full of bright ideas as the high street stores are. What we have available to us on the electronics consumer market is an "overstuffed" and little as the BBC Radio 1 play list. A long time ago someone was hailed as a hero by businessmen for dreaming up the floppy disk drive, and a million home computer users cheered and threw away their cassette recorders, but now day mechanical disk drives will be as obsolete as solar powered watches.

The philosophical overview may be that at least we have made amazing advances since

the spinning-Jerry and that we should all be happy and satisfied. However, the multitude of computer formats and general architecture is a mild deflating concept. Every so often, just like soap powders, a new breed of computer comes along. The manufacturers already have very models in the pipeline, which could take this one to the cleaners and back — twice, but the market is milked to the full and then the newer model is launched — ad infinitum.

REAL NEEDS!

The old Aunt ROSE still works well, and many people are still happily playing games and doing the household accounts on them, and they know that a PC and hard disk could also make the tea, but even so, at the other end of the scale even Sperry-Univac machines are becoming obsolete, relative to their cheap, but altered task.

CD drives will probably go the same way even though they are only just becoming widely accepted. Already manufacturers are talking about organic memories, optic memories and ultra low power solid state memories, and possibly they will one day write in our sleep, only to be corrected by the disposable computer. How with a packet of Corn Flakes!

So what actual needs do home computers have to satisfy? There is certainly not a need for a green screen, clunky keyboard, mouse, dedicated company database, maintenance contract and viruses in there? A few people do play games on them don't they? But, that's a little like buying a Rolls Royce, just for the vanity mirror in as things stand what are they for?

Of course a home computer can be a hobby in itself. There need be no real product. A home computer can play games, write the

old program, and run one of two serious programs like finance and budgeting, and there's no shame in that, but the use of computers in the home has really stagnated into those two main areas.

THE STANDARD MODEL

Monitor "computer" to a reasonable man in the street and he'll think of a screen, a keyboard, and his kids sipping lemon. On reflection, he'll mention the "black box" in his car and they have computers on planes as well don't they?

Look in the Exchange and Mart and you will find what the motor trade call "book-keepers", ranging from chrome rocker covers to hub caps, to racing suits, wide wheels and disc panels. Now, for some reason, everything in the computer trade has to be "user friendly" peripheral and, of course, you can run one without your KITTIEE! Under that, look to K-change and Intel, under Home Computers and you'll find a really broad scope. It is a small market.

Home computing is perhaps a little like CB radio in one major respect. It is a slightly perishable consumer leisure market. Unlike businesses, home computer customers mainly buy home computers because they need one. If they upgrade, it's because they want to, not because they need to. The same is generally true of most electronic home consumables — Hi-Fi, calculators, recorders, alarm clocks etc. Therefore you can't rely on natural changes in the market producing a continuing demand. A farmer could wear out one tractor a year, but a household spade can last a man-in-the-street a lifetime. Therefore, do you inflate the price of spades, or do you consistently retrain the man that this new de-

sign of upside is no more better, or perhaps convince him to buy a microwave which he doesn't really need. Or does he?

BUT YOU HAVE THE POWER

If the average home computer buff took time out to consider what advantages could be gained from a real computer doing real jobs around the house, then the world of computer supply and demand might change out of all recognition. At the moment, two or three main manufacturers graciously make available some guide books containing what they think home computers should be used, whilst people just dial and buy them, that's what will always happen.

In an age where we have finally learned that telephone wires are slow, noisy and expensive, and that satellites are faster and much better, we have learned that with the right rip-off, monopolistic marketing, satellites can still be as expensive. It seems incredible that the home buffs are still typing programs in from magazine pages instead of downloading the satellite fax, videodisc and phone bills are expensive and that is such a shame for the home user because communicating with other computers is a whole new world.

If manufacturers of CB and computers amalgamated their resources and produced a range of compatible items then a fair compromise world of better and cheap data transmission could begin. Home computers modemed onto airwaves could allow anything from chess games across a housing estate to message relaying across Europe by public operated colleagues, providing reporter facilities.

Real on guides for computer could even include car servicing/diagnostic programs and hardware. A simple black box which connects to a computer and to the car's diagnostic socket would be useful, fun and probably profitable for a firm with the courage to make them.

THE EDUCATION MYTH

Lots of people will say they use their computers for 'education' but what about real educational packages. GIBSON's OCE 'D' Level Maths for example is available on a book but not on a disk. As software in a computer, with search facility, an student could find all references to, for example, quadratics, in a flash. Workings and answers could be checked contemporaneously against the model results. Simple analysis routines could give advice and identify common error levels for a particular user. A book can't do that!

Even a 'real' 32 bit computer with two or three fairly failure-proof, ready to go hard disk drives could provide a real lot of knowledge for the family. To ensure sales of sufficient number, it would have to be far cheaper than any available today, and real mass production could do it. Any number of terminals could access it and one time, standard disks would contain the *Encyclopaedia Britannica*, *Webster's Dictionary*, the *crified history of the world*, all updated each day by a binary coded 'key' from a satellite service received by radio. Also MSF or DGPS would be received and the decoded atomic data/time signals would thus keep pace automatically with GMT and GMT. Such computers would never actually be unplugged, their house state being 'standby'. All clocks in the house supplied by the manufacturers with an interface

socket) would be driven by the home computer. Houses could be built with parallelised computer sockets in each room.

Handy aids and accessories could be written in and be announced as they become imminent. The knowledge contained in such machines need not be 'peripheral' or 'static'. The database could be as good for business as for the home. All common knowledge concerning everything from gardening to plumbing, to rock climbing, to astronomy. More detailed versions of particular subjects could be available from viewers. The world of games might change a little!

RUN THE HOUSE

A household could connect a number of security devices to an interface and, of course, the machine would then look after the house, reporting and instantiating information about the day to day running of the same.

By the time such machines were on the market, some manufacturers would of course have made interfaces for the gas, electricity and phone utilities, sampling and measuring consumption rates and trends. One day, even kitchen cookers will either have interfaces or have computers in them. To claim all they've had is an *in/off timer!* Of course, the same home computer could be interfaced to the hot water and central heating and sensors over the house would keep tabs on efficiency etc. A terminal in the kitchen for updating the boiler (visually) and printing an up to date shopping list would obviously be available but necessities are only as accurate as the user provided data but there has to be a limit somewhere. Another interface or a discrete computer device could be installed in the

bedroom. Flood to the taps, it would sample the swimming of the ideal body volumes and temperatures for all family members and it would then run ideal baths again and again. It could even cope with the kids' hair set, forecast financial forecasts, keep separate and secure diaries for all the family, ring up the bank to check things over and then, automatically order flowers for birthdays, and cancel the papers for the holidays!

IT'S MOVING FAST

This technology is available today and it's slower as I write. And yet there will be those who think that it's got to be slow. Far from it. Many houses have more than one TV, so why not even have one computer. One in the garage connected to the family car's pressure points and running a software watchdog manual could make car servicing fun, accurate, simpler and quicker. Already large fast servers 'sample' the vibrations in their engines on a weekly basis and print a spectrum of peaks. If the trace begins to alter significantly, then trouble may be looming. The DDT sensor could obviously do the same.

IT'S NOT HAPPENING

The fact is that already in this age of computers, both user and manufacturers have been under-researched and poorly helped. Computers apparently have to be computer shaped, and home computers have to either play games, write basic programs (even better) and all home computers have to be (never) easy driven!

In the big scheme of things we have gone

from pencil and paper to microprocessors within living memory and the graph curve seems to be exponential, as the adjustments made in the next few years should far exceed those made in the last few. Something, however, seems to be slowing it all down - commercialization. You invent what is available until everyone has got one and then you make it obsolete ... again and again.

GETTING NOSTALGIC!

In comparison with what could and should be in the average household, the PC is an anti-magazine computer and the ROMBL a clockwork bicycle lamp! I wish this on an ROMBL, however, lighting off the well known Word Processing legs in the Main Office II adventure game. It's a nice little keyboard, and while it still works I remain quite attached to it - we've been through a lot together. But isn't this incredible, already there is nostalgia in this 'new' world of computers, people reluctant and resistant to change. Technology has to wait whilst people first believe the concept, then accept the realisation, then wait until someone else buys one before they'll buy the 'improved' version for the kids at Christmas, only to be glib-sassified in January when the new model is introduced. Technology waits on the consumer shelves because what matters at the end of the day is profit - not computers.

DEALERS IN CONTROL

The motor car world has already defined demarcations. Autocar magazine is for people who like to look at, drive over, and read about

new cars. Classic Car is for nostalgists who want to restore older cars in preference to this 'modern rubbish'. Practical Car Magazine is for those who have to, or want to, mend or improve their own car. The workshop manual is for the serious mechanic who makes his living from repairing cars. The computer world has not yet developed this far.

Computer magazines are mostly for people who want to write and read about games, games and more games and for people who want to read and write beginners' guides to reading magazines about the machines made in magazines games. There is no equivalent 'mechanics' magazine because the industry is still too busy ripping off 'users' by insisting that only very clever franchised dealers can master computers. No nostalgia/ restoration magazines yet either - old computers never die, their owners just buy a PC. This says even to those who get any idea where to get a workshop manual for their computer, disk drive or printer? Will the day ever dawn when your dealer will look up a part for you and 'get it for you Tuesday' - just like a head gasket for your 1988 Mini?

Software pop-up menus, and calculators are a bigger joke! Why should a computer only have the DOS screen? A standard format could be at least two main screens of the same size, and three little screens down each side, each with a number of keywords and associated control keys. Then, calculators, clinics and menus could always be displayed and controlled by only slightly different software and architecture. It is surprising also that not many computers have more than the old 'power' LED. The CP-PI and Video world have millions of flashing lights and it would be nice to see a few indicators of what was going on inside your computer, what the printer just was doing, how the CPU talks to the ROMBL etc.

Modems, complete with phone and dial; pad, TV monitor, RGB out, video out, KS232, MIDI, real-world matrix switches, TTL/ICD in/out, clocks and a discrete calculator could all be built in as standard equipment or be available as plug-in options on all computers. In cars we take so much more for granted now - we just wouldn't accept 5 wheels and gears to be an optional extra! The cheapest computer in some cars put the ROMBL to shame!

More printers are noisy and a lot don't cope with envelopes, and labels are a pain. Console or flat standard pin-matrix 'moving' head. Very simple but very noisy. With a little research and development a stationary head at least one whole line wide could be developed. Cheaper than a laser and up to 100 lines quicker! Disk drives are improving but nothing like the way TV sets, video cameras or cars have done in the same time span.

If manufacturers and users alike just wake up to what a good computer and a good real-world interface with some innovative software can do - not just games and painting screens with electronic tapers - then maybe more good computers should be available and more people would buy them. There we would need a parts and accessories and repair service at least equal to a BMW dealership and this may be a beginning.

COMPUTERS FOR EVERY NEED

Now should more computers that gilded windows wear. Electronic hobbyists would love a machine that could display a digital storage triple-beam oscilloscope on one screen whilst printing voltages on another

and drawing the circuit on yet another.

The TV/monitor servicing industry would like computer controlled/managed dummy calibration circuit boards which could mimic suspect boards. This would keep a small hardware/software firm in business, but only if new generations of computers have more intelligent access to outside hardware. What about a 'Microvax' bit of motors, screws and gears etc., complete with software, for various popular computers for instance? Beliefs would buy them and with the right hardware and interfacing the physical result has no theoretical limit.

WE'RE WASTING TIME

Big name Newton were spoke of himself as having been on a small boy wanting time playing on the beach with shells and pebbles while the main task - the cream of truth and all the lies, emotions and pretence - was there 'undiscovered' before him. This is where the computer industry is now, the final destiny of home computing cannot be heralded now but surely there is more to life than Space Invaders!

At the time of writing some manufacturers do indeed offer more than a bog standard computer. The starting point must be that in the whole computer field, prices must drop across the board and more and more accessories must be available, again at reasonable prices. The home computer market should be a buoyant and healthy supply and demand market and cease to be the closed shop rip off that it is.

If you have feelings on the future of home computing why not write to Mailbox?



ROUNDUP

TRAVEL WITH YOUR ST

If you are considering a geography program for your ST, then check out **ST GLOBE**, a complete geography package originally released in French but now almost completely translated by the author himself. **ST GLOBE** features 25 colorful maps which can be pulled up from an easy-to-use menu system. The maps include a comprehensive world atlas, earth geography, international organizations, languages, religions, climates and vegetation. Each is clearly drawn and labeled.

Data is available on each country (capital, energy, surface, population, language, etc.) and graphical comparisons can be made with any of up to ten countries. You can



even get the program to identify the location of a country on the world atlas. A database option is included which lists off all the stored statistics. The Big Cities menu gives information on many of the world's major cities. Finally, a quiz game is available to test you on capitals and countries.

ST GLOBE is a superior educational package. There is an excellent title screen and presentation is generally

good throughout. Unfortunately, some of the more detailed maps are difficult to read on any 14" TV anyway. This is a shareware version so around 20% of the options are disabled. However, you can still explore around most of the world from the comfort of your own office chair (and/or TV).

The major factor with any geography program is the year it was written. Obviously, information in this field



can date rapidly. Thankfully, this version of **ST GLOBE** (3.00) was written in 1994 and as such is pretty much up to date. There are a few overights and some changes to the maps but nothing to make you reach for the off switch. Anyway, by sending \$5 to the author you get the latest version with all options enabled. He even offers a link-to-link swap if you send him a list of your ID software.

Having been translated from the French version there are a few words which slipped through the net, e.g. Edinburgh is titled "Edinburg" but everything remains easy to follow. There are 1/25MB and 1/2MB versions on the disk so the program is accessible to anyone who owns a decent computer.

Get your hands on **ST GLOBE** and your old outdated atlas will gather dust on the bookshelf.

BOARD BATTLES!

Take care of your opponent's pieces: you must first defeat it in battle. Here the screen changes to a battlefield where both pieces fight to the death. Different pieces have different weapons, speed, strength, damage capacity, etc., so choose your battles wisely.

The board and pieces are well drawn but everything is very "flat". It takes a while to get used to the design of the pieces. Animations in play on both the board and battlefield. This is a pity because all other aspects of the gameplay are well designed. Digested sound effects are used everywhere and create the atmosphere of medieval warfare.

Medieval Chess successfully bridges the gap between strategy and arcade action and makes a nice change

to the usual chess (1/2MB required) in an arcade version of chess. Most of the rules of chess apply although some have been changed, e.g. checkmate does not apply. The objective of Medieval Chess is to defeat the King in combat.

Upon loading, the game board appears and a scroll opens. It is here that you set the game options: number of players, colour of opponent and difficulty of computer. When the game options have been selected battle commences. You move your piece with the aid of a cursor. They then walk to the desired square. If you wish to

ROUNDUP RATINGS:

ST984 ST GLOBE	87%
ST990 MEDIEVAL CHESS	74%



JOURNEY INTO CYBERSPACE

John S Davison tackles the Internet in an ultimate quest for the fabled Information Superhighway



The next step on our journey into cyberspace is to find out how you get your hands on the millions of files stored all over the Internet - files which contain data or programs on almost any subject imaginable. The good news is, they're free to access for the asking.

The bad news is, I've not been able to gain access to the required Internet file retrieval facilities known as File Transfer Protocol, or simply FTP, from my Atari system. I thought CompuServe would be able to provide an ANCE interface as they do with some other Internet applications, but when I dialled in from my ST I was told I could only access FTP via CompuServe's own PC or Apple Macintosh based software.

I've heard that service provider Demos Internet (and 0181-271-1234 for details) can supply a suitable ST software package that handles FTP, but to get it you have to sign up with them for Internet access, so I wasn't able to try this. This article is therefore based on my experience gained using a PC rather than an Atari, and is provided for completeness to our coverage of Internet applications. If anyone reading this has experience of using FTP from any Atari machine please contact me at the e-mail address shown at the end of this article.

ANY COMPUTER ANYWHERE

The FTP program may be a stand-alone program, or a function incorporated into another Internet application program. Ideally, FTP provides a method of downloading

files from a remote system to your machine via the Internet. It doesn't matter where the source system is - it can be anywhere in the world. The make and type of computer aren't important either - the remote system doesn't have to be the same as yours. As long as you and it are both attached to the Internet you can perform a file transfer.

Thousands of organisations, institutions, companies, and even individuals around the world choose to set up their computers as 'FTP sites' and share their files with anyone interested in accessing them. I guess this originally started way back when the main users of the Internet were universities - it was a handy method of making research papers available to others in their academic community. Nowadays, it's not just academic material sitting out there. Name a topic and you'll find at least one file on it somewhere. Files can contain virtually any type of material - if you can store it on a computer you'll find it on an FTP site somewhere - text, graphics, photographic images, MIDI files, sampled music, video, program code - it's all out there somewhere. It includes lots of shareware and public domain software too, so it's like having free access to the world's biggest public domain library. There is a tiny problem though - how do you locate "somewhere"? How do you find out where to look for a file if there are thousands of FTP sites containing millions of files scattered all over the planet?

One way to start is to buy one of the many Internet books or magazines now widely available and look up topics and associated FTP sites in the catalogue they often include. You can then key the site address into your FTP program and go straight to it. When you get there you'll have to log in, normally by using

the id of 'anonymous' and giving your e-mail address as the password. For obvious reasons this type of site is known as an 'anonymous FTP site', which basically means it's open to the public. Some sites are private, so you have to be a registered user to get in. Access here involves the use of a personalised id and password, issued by the owner of the site. Company offers have their own private FTP sites, with access restricted to its employees only. Others there are on the companies' own private networks too, so aren't even reachable via the public Internet.

ASK ARCHIE

There are various tools available on the Internet to help you locate files. One is called 'archie', which is supposed to be an index to all FTP files in the Internet. There are a number of Archie servers around the world, and each night indexes files they index over hundreds of the FTP files on the Internet (don't ask me how), so in a month the whole Internet has been covered. You can access an Archie server and search for a file by name or part name and it will tell you where matching files are located. There's also a keyword database which works with this, allowing you to search by topic.

However, for various reasons not all FTP sites are covered by Archie, and the keyword database isn't as good as it might be. There's a US Archie server at Imperial College in London, and you can use it via e-mail or log into it directly using 'telnet' like standard Internet way of logging into a remote machine from your own. Send an e-mail message to archie@ee01.ie.ac.uk and it will e-mail details





back to you on how to use it. Alternatively, you can telnet into archie.doc.ic.ac.uk and contact the search directly. You can even get to it via the World Wide Web at http://www.doc.ic.ac.uk/~worldwide/wwd.html. Note - we'll be covering telnet and World Wide Web in a later article.

Another tool is 'Gopher'. This was designed by the University of Minnesota as an easily used tool for locating files on the Internet, and is so called because it 'gops for' information you request. The university's football team are also called the Gophers, another reason for the choice of name. As with Archie there are a series of Gopher servers attached to the Internet. You can access a Gopher via a separate Gopher client program running on your system, or directly via telnet, or possibly via one of the service providers. You navigate through 'gopherpages' using a series of menus, some of which may transfer you from the current server to other Gopher servers. Searching through all the menus can be a bit tedious so an additional tool has been added to search through all the gophers for you. This is known as Veronica (Very Easy Robot Oriented Network Index in Computer Architecture) - in reality it's not this really named after someone's girlfriend.

FTP VIA COMPUSERVE

My way into FTP is via CompuServe using their own WinCIM software on my PC. This allows you to dial in, then quickly navigate to the FTP servers with a few mouse clicks. Once there you can select from a number of popu-

lar FTP sites. CompuServe have already listed in a IBM, Apple, Microsoft, Sun) and go straight to them. Or, if you know the address of another specific site you can key it in and the software will connect you to it. Once there, it's a case of exploring the directory structure you're presented with - it's just like navigating round the directories on your own disks. If you find files you want to download you just click on them to mark them for retrieval, then click on the retrieve button and wait for them to download to your own system. It's easy - with the right software. To help with searching you can also get easy access to the University of Minnesota's Gopher server via CompuServe's internet facility.

In some ways all this is becoming outdated now, as many of the functions seem to have been taken over by the World Wide Web (WWW), the 'killer' Internet application which is handling the current explosion growth in Internet usage. Several of the items we've covered in this article are accessible via the WWW, and the software functions are usually integrated together in the WWW browser software you run on your system. WWW is a big topic in its own right, so I'll cover it in its own article later.

NASTY ACCIDENT!

In this issue I was planning to publish a list of names and e-mail addresses of NAA readers who've contacted me via the Internet and would like to communicate via e-mail with other NAA readers. However, a nasty accident occurred on my PC recently, which has temporarily delayed this. The story also carries a



The ST PD LIBRARY

We have now stopped updating our ST library as demand dropped off to such an extent that it did not pay us to post out regular updates but there is good news. We are not dropping the library and have

OVER 1,000 disks available

at just

£1

each

plus £1 per order postage

We no longer have the full printed catalogue available but we can send you a full list of titles and the most recent updates which describe the best couple of hundred disks. Give us a ring or write if you want them.

PAGE 6, P.O. Box 54,
Stafford, ST16 1DR

Tel. 01785 241153

self evident moral, so take heed!

I recently had a well known company upgrade my PC with an additional one gigabyte hard drive. During the process they 'accidentally' destroyed my original C: drive, effectively wiping out half a gigabyte of software and data. Was I pleased? Luckily I'd taken recent backups of all the critical data for so I thought, and still had the original disks for all the software. I spent ages rebuilding the system from these, but when it was all up and running again I discovered I'd forgotten to back up two essential data files - my e-mail address book and message archive. When people contact me via e-mail their address goes straight into the address book, and I don't keep a separate hard copy. Unfortunately, the message archive containing the original messages with the addresses on them, was also gone, so I couldn't even retrieve them from there. Over 150 addresses lost! Arrgggggggg!

I eventually found an earlier version of the address book on an older PC I still have, so I managed to retrieve about half of the entries, but the rest are gone. The point of telling you all this is that my NAA contacts were amongst those lost, so would all you good folk out there who've e-mailed me over the last few months (Alan O'Brien, John Young, Bryan Johnson, Joel Goodwin, amongst others) PLEASE get in touch again soon so I can include you in the list. Also, I'd welcome e-Mail from anyone else who's not been in touch yet. My Internet e-mail address is

100256.1577@compuserve.com

or 100256.1577 from within CompuServe!

256 COLOUR SCREENS

Following on from his 128 colour routines last issue Andy Guillaume shows how to use the full 256 colour palette

This program shows just how easy it is to create the famous 256 colour screen used in programs such as Tetris/Arkanoid.

We begin by setting up a Graphics mode 9 screen. A DLI is set at the top of the screen block, using GRAPHICS(923) and PSCREEN(3277), sets Graphics mode 9 (30 stacked) and Graphics mode 11 (30 colours) an alternate line down the entire screen bright. A Palette-Colour (PC) is then created by plotting a pixel of the required Colour on one of the colour lines and a pixel of the required Luminance on the subsequent luminance line.

This leads the eye into thinking the pixel colour and you see the PC rather than the individual colour and luminance pixels.

Here a link at the DLI code to see how this works. GTLS routines can be set using the top 2 bits of GRAPHICS. GRAPHICS is coded with 168 every scan line causing the switch to graphics mode. X is incremented and the routine loops until all the lines are used.

The colours and luminances both range from 0 to 15 so this gives $16 \times 16 = 256$ colours. A PC is within the range 0-255, the colour number to plot is then PC DIV 16 and the luminance to plot is PC MOD 16. The colour lines range from 0-150 in steps of 2, and the luminance lines from 1-150 in steps of 2. This gives a resolution of 80 across by 90 (150/100) down.

To plot a given PC use the above formulae to work out the Colour and Luminance numbers, then multiply your Y position (0-90) by 8 to give the correct screen line. Plot a pixel of COLOUR colour. On the next line (Y+1) plot a pixel of COLOUR luminance.

RUNNING THE PROGRAM

Type in and save the main program (TYS.BAS). This is the core routine and sets everything up. The DLI code is FORKED in and the screen and DL set up. The test done

```

01 1 KEY *****
02 2 KEY 0 256 COLOUR SCREEN 0
03 3 KEY 0 by Andy Guillaume 0
04 4 KEY 0 0
05 5 KEY 0 NEW AT&D USER - JAN 1994 0
06 4 KEY *****
07 7 KEY
08 10 KEY _Setup DLI
09 20 DLI=1534
10 30 IF PEEK(DLI)=70 THEN 20
11 40 FOR A=0 TO 21:READ S:PLOT DLI+A,0:0
    GOTO A
12 50 READ 71,126,72,142,157,173,181,1,73
    ,126,141,18,213,141,17,260,263,268,245
    ,184,179,184,64
13 60 KEY _Setup Screen
14 70 GRAPHICS 9
15 80 SCREEN(923):DL=SCREEN(240)
16 90 PLOT DLI,0:240
17 100 SCREEN 512,511:PLOT 5426,10
    
```

The Set-up routine

programs show how to use the 256 PC Graphics mode. You should type NEW after saving, then type in each program in turn and save them in listed format e.g. LIST "ATTN=ALL.TYP". Now re-load (TYS.BAS) and change the required routine i.e. ENTER "ATTN=ALL.TYP" and Run.

There are two different routines provided.

TWO FIVE SIX COLOUR PALETTE
 (TYP=ALL.TYP) - Draws the 256 colour palette 14 by 16 blocks of colours.

RANDOM COLOURED BLOCKS
 (RAY=COLS.TYP) - Draws randomly sized and coloured rectangles on the screen.

continued 

```

01 1000 KEY _256 Colour Palette
02 1010 COL=0
03 1020 FOR Y=0 TO 15 STEP 4
04 1030 FOR X=0 TO 79 STEP 2
05 1040 PC=COL:DL=16*Y+COL:MOD 16
06 1050 FOR Z=0:0:0:0 TO 15:0:0:0 STEP 2
07 1060 COLOR PC:PLOT X,Z:SCREEN(Z+4,0)
08 1070 COLOR PL:PLOT X,Z+1:SCREEN(Z+4,1)
    Y+1
09 1080 NEXT Z
10 1090 COL=COL+1
11 1100 NEXT X
12 1110 NEXT Y
13 1120 GOTO 1020
    
```

Two example routines -

above - the full 256 colour palette

below - a random effect of different coloured blocks

```

01 1000 KEY _Random Blocks
02 1010 COL=MOD(123456789,15)
03 1020 X=MOD(123456789,16)
04 1030 Y=MOD(123456789,17)
05 1040 FOR I=0 TO 50:0:0:0 STEP 2
06 1050 FOR N=0 TO 24:0:0
07 1060 COLOR COL:PLOT N,I
08 1070 COLOR L*N:PLOT N,I+1
09 1080 NEXT N
10 1090 NEXT I
11 1100 GOTO 1020
    
```

SAVING SCREENS

If you write a program similar to Technobrowser Emacs, you might want to save and load various screens. The procedures are quite straightforward using Turbo Basic.

To save a graphics screen, just get the starting address (i.e. DPEEK(0)) and the length (10 bytes) (100 from c1000) for Graphics 0, open a file and INPUT the data.

```

8000 SCREEN=PEEK(0)
8010 OPEN #1,AS"O:FILE.PIC"
8020 INPUT #1,SCREEN,LEN
8030 CLOSE #1
    
```

Loading is just as easy, you just substitute a couple of statements:

```

8000 SCREEN=PEEK(0)
8010 OPEN #1,AS"O:FILE.PIC"
8020 SCAT #1,SCREEN,LEN
8030 CLOSE #1
    
```

```

10 :[256 Color] BL
20 :[y #,x]I name
30 :[y] 1995 for 100
40 :
50 :[P]100=623
60 :[P]100=52375
70 :[W]100=54202
80 :[ ]=0230
90 BL
    
```

```

1000 PWA (Push A)
1100 TWA (X into A)
1200 PWA (Push A)
1300 LWA (Y into X)
1400 :[A] [P]100 (Set 0100 mode)
1500 LWP
1600 :[A] [C] (Switch mode)
1700 :[C] [W] (Set for sys.)
1800 :[W] [P]100 (Set 0100 mode)
1900 :[P] [C] (Overwrite X)
2000 :[P] [L] (Loop if X not 0)
2100 PWA (Push A)
2200 TWA (X into X)
2300 PWA (Push A)
2400 :[ ] (Return from BL)
2500 :END
    
```

BRIGHT SCREEN

by Sue Donyay

Here's a neat little enhancement for your Graphics 0 screens. If you like a bold and bright background in your text, give it a try.

```

A I ROM WRITTEN BY SUE DONAY (C) 1986
B I GRAPHICS 0: PBR 501, R-PBR 1=1504 TO
C : : READ A:PBR 1, A:END I
D 20 :P=PEEK(500)+PEEK(501)+C256:PBR 0:0,
E :[A]PBR X+1, 104
F 30 FOR I=4 TO 20:PBR X+1, 10:ANDT I
G 40 FOR S12,0:PBR S12,0:PBR 54:PA, 1P
H :PBR 501, 34
I 50 :[A] [B] 73, 173, 11, 23, 141, 0, 23, 141, 2
J 4, 283, 73, 11, 141, 23, 283, 184, 44
    
```

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PRINTERS: 1020 printer (used) with manual, needs ink. As new, 600. Tel. 011 291597

MAOS: various magazines for sale at cheap - Alan 0260, Page 4, Monitor, Aids, Asting, Tel. Run on 01200 2101 40

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SOFTWARE/MANUALS: Wanted - Techno-Pool Rules, car stock manuals, On the Road, The Home Accountants, Book Keeper, Write to Karl Smith, 80 Wylde Street, Wandsworth, Surrey, South Yorkshire S73 5LP

FINANCE PROG.: Has anybody got a missing copy of the **FINANCE** program from Page 4 (200 #12) volume 4 (Summer 87) catalogue states that it is BASIC. A reward, to the extent I can pay any amount to Alan BASO but as far as I connect was ever another approach. Please write or phone. (Gordon Fogarty, 15, St. Marston, Church, Bedford St. Mary, Salisbury SP1 4AA, Tel. 01292 744142)

TECHNICAL HELP: Can anyone send me in a wiring diagram of the DATA and volume/contrast command signals from the 5000 socket on the rear of the 5100, during the passing of data to a printer? I want to interface onto the machine and I am finding it very difficult. I have both the 5000 manual and the 5000 service manual neither of which help. Please contact Peter Lane, 21 Northampton Drive, Haverhill, Bedfordshire, Luton, MK47 5WJ, Tel. 01753 891540

PC (XT)FORMER 1987/8: I am still waiting for my 5100K/0204 but I want to get in touch with others to swap P0, hints, tips and so on. Please write to DILLI@Shepton, 501, rue Jean-Benoit, 60020 AARNCHE, France

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