ST *APPLICATIONS*

PAGE 44

Price: £1.50

The Magazine for Users of Atari ST, TT and Stacy Computers   Issue No. 4 March 1991

Hardware

A review of the Reflex Board from Titan Designs which gives ultra-high resolution on the standard SM124/125 monitors, and a do-it-yourself thermostat to switch your hard drive cooling fan off, are in this month's issue.

CADja

CADja is the nucleus of a CAD workstation market based in Germany. V1.3 is the first version to be translated into English, and boasts some impressive features.
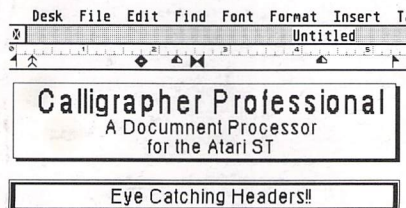

Calligrapher

Desk File Edit Find Font Format Insert Ta
Untitled

Calligrapher Professional
A Document Processor
for the Atari ST

Eye Catching Headers!!
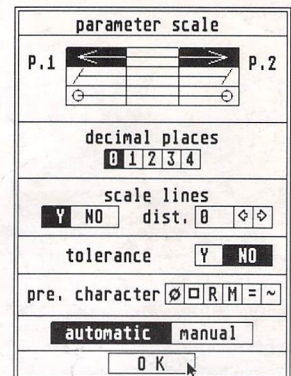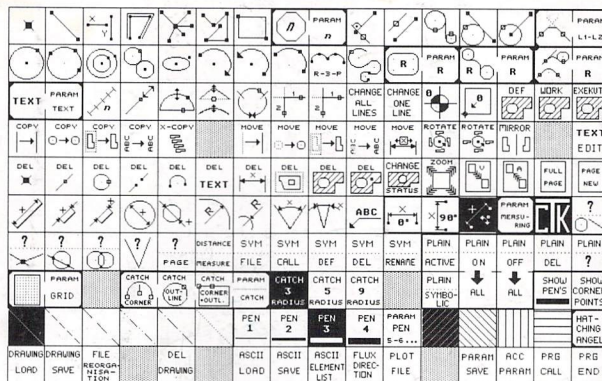
Calligrapher the Wordprocessor

The re-vamped vector-font word processor from Eclectron is now available in two versions: Junior and Professional. The Professional version is reviewed inside.
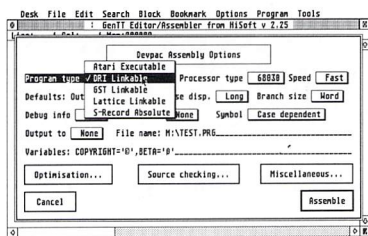
Plus

PD Update

4-page Supplement on the latest PD and Licenseware disks starts Page 29

HiSoft News

All the latest news and product information.

DevpacTT, now!

HiSoft Devpac TT, the complete assembly language development system for your Atari TT computer, is now available.

Comprising a multi-window editor, a 680x0 macro assembler, a fast linker and a powerful symbolic debugger, Devpac TT provides you with all you need to program efficiently and quickly on the TT. Features include:

Editor

- Full multi-window support with cut and paste between windows and pop-up menus
- Up to 9 tools give a complete visual shell
- Environment variable support
- Powerful non-ASCII character pop-up to allow unusual characters to be entered using the mouse from the editor and within dialog boxes

- High speed search algorithm capable of searching more than 1Mb per second
- Nine bookmarks to remember arbitrary points in the source text of any window
- Support for mouse block marking complete with shift-clicking, word and line orientated marking as well as 'click and drag'.

Assembler/Debugger

- Many directives and optimisations to exploit the 68030/68882
- Extended command line support with optimisations, options and variables all accessible from the command line
- Support for DRI, GST, Lattice format linkable code, Atari executable format and Motorola S-Records
- Assembly of 68030/68882 code at 200,000 lines per minute
- Fully TT compatible debugger with support for 68030/68882 and the TT screen modes
- The debugger contains all the features you would expect: multi-windows, conditional breakpoints, full expression evaluator etc.
- Utilities include a Ramdisk, S-record splitter and debug information splitter.

Devpac TT comes complete with a 300-page, ring-bound manual. Also included is the official Motorola 680x0 family Programmer's Reference Guide which gives complete instruction details for the 68030/68882 etc.

HighSpeed Pascal

We have recently discovered a brand-new, and rather exciting, version of Pascal for the Atari ST and TT computers.

HighSpeed Pascal comes from Denmark, is extremely fast and friendly to use and is very closely compatible to the immensely popular Turbo Pascal on the PC, even including the graphics unit from the PC.
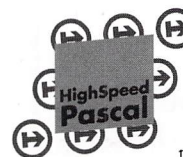
Compilation speed is roughly 20,000 lines per minute with excellent code generation for the ST and the new TT.

HiSoft has been appointed the exclusive distributor of HighSpeed Pascal in the UK, USA, France, Australia and New Zealand. RRP £89.95. Exisitng Personal Pascal users can upgrade to HighSpeed Pascal at a reduced price - please call for details.

ProFlight 1.2

We are pleased to announce the release of version 1.2 of ProFlight.

Software that matches the Hardware

This new version of our Tornado flight simulator includes improved colour graphics, the ability to save your cockpit set-up, a pause key, more control over the view angle and more.

Registered users can upgrade by sending their master disk back, together with £2.50.

Wordflair News

We are pleased to announce the immediate availability of the UK version of Wordflair, the integrated document processor for the Atari ST and TT.

With its powerful combination of text, graphics and calculation regions together with its integrated database, Wordflair is ideal for newsletters, product brochures, form letters, mail shots etc.

Wordflair provides all of the features you need for efficient word processing ... and much more. Wordflair lets you combine text, graphics, and images, with its easy-to-use page layout

tools. in addition, you can dynamically link calculations and data throughout your document, giving tremendous flexibility and power.

Many of you will of heard of a new version of Wordflair - Wordflair 2. The US version of this package has just been released in the States and we will have the UK version available in May 1991. The important features of this new release are the inclusion of a spelling checker, thesaurus and FSM GDOS, which is based on outline fonts, giving much improved display and printing of fonts.

The RRP of Wordflair 2 will be £99.95, initially, and those users of Wordflair 1 who have registered with us by 31 March 1991 will be able to upgrade for the low, low price of £19.95. So why not experience Wordflair now and then upgrade without it costing you a penny more?

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Read_Me 1st

Subscription Expired? Check your address label to see when your subscription expires: the first number above your name is the issue of the old ST Club Newsletter that your subscription would have expired with, the second number is the issue of ST Applications that your subscription will expire with, and the third number is the number of the disk mag that your Disk Mag subscription will expire with. If the information line on your address label reads STA4, then you must take out a new subscription in order to receive future issues.

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There is a limited amount of space for commercial advertising in each issue of ST Applications. Contact Nicky Wilson on 0602-410241 for further details and to request a media-pack. Subscribers can place free classified advertisements - see page 57 for details.

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12-issues : £28.00
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Subscription and Order form will be found on page 57.

Disk Mags

These are bi-monthly compilations of the best PD software to come to our attention in the preceding couple of months - not magazines on disk. Disk Mag subscribers will be sent their copy of Disk Mag DMG.22 a few days after this magazine is despatched.

Your Guarantee

If at any time you wish to cancel your subscription to ST Applications you may do so simply by informing us in writing. The full unused balance of your subscription will be refunded by return of post.

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Contributions

The articles in ST Applications are written by users for users. Everyone reading this magazine will have something to contribute; even if you do not feel able to do a full-length review or article there is the Forum section for short hints, tips and questions. If you are interested in writing for ST Applications - regularly or irregularly - please write for a copy of our new terms and conditions. We always do our best to reward quality work with appropriate remuneration.

Talespin Art

Adventure game writers without a talent for creating gruesome graphics will find Deltatronics' first release of interest. Over 4MBytes of graphics for use with Microdeal's Talespin package are available for the very reasonable price of just £7.50. Contact Deltatronics at PO Box 175, Carshalton, Surrey SM5 2WA; they can also supply the Talespin adventure writing package for less than £10.

Tommy Vektorizer

Berlin-based Tommy Software (+44 30-621-4063) have announced the availability of Object-Maker, the latest module for their MegaPaint II software. The utility will convert bit-image graphics files into vector files, import Degas, STAD, Doodle, PCX and IMG files and export GEM Meta-file, Calamus CVG and Mega-Paint's own format VEK vector files. The conversion process is aided with Help-points, Bezier curves, optimizing graduation and free programmable object functions. ObjectMaker costs DM299 (£100) and the UK distributors of MegaPaint II are Silica Systems on 081-309-1111.

Protext 5

Arnor have fixed a few minor bugs, added some printer drivers and solved the conflict with Neo-

NEWS IN BRIEF

Desk in the latest release of Protext 5. Protext 4 (£99.95) has also been upgraded and now features the drop-down menus found in version 5. Contact Arnor on 0733-68909 for upgrade details.

DC Softville

PD suppliers Softville have branched out into the world of commercial software with the UK distribution of Double Click's range of ST utility software. The first two products to be available are DC Desktop and DC Utilities. They cost £20.55 each and Softville Computer Supplies are on 0705-266509.

Geography Tutor

This is a liveley teaching aid that is packed with lots of maps and data on countries all over the globe. The Geography Tutor is available at £29.99 from Gralin International, 11 Shillito Road, Parkstone, Poole.

Mega STE: 'Real Soon Now'

Atari are holding a press conference on 12th March to herald the arrival of the 8/16MHz Mega STE. The machine is already shipping in the USA and is ready for shipping in Germany, so a UK launch should

be underway by the end of March. With the replacement of the 520STFM with a £299 520STE, all of the old-style ST's have been superseded by new hardware.

16-Bit Goes International

Heartened by the number of overseas exhibitors at the post-Christmas 16-Bit show, the organisers, Westminster Exhibitions, have renamed their bi-annual computer fair The International 16-Bit Computer Show. The next international binge at the London Novotel will run from July 12th to 14th.

UIS III

The latest update to Universal Item Selector III is now fully compatible with the TT and TOS030. The upgrade will only be of interest to TT users - no other features have changed. Upgrades: return master disk plus £1 upgrade fee to The ST Club.

Synthworks M1

Envelode Soundworks (0993-898484) are now shipping the latest upgrade to Steinberg's Synthworks editor/librarian. The new software, Synthworks M1, supports all of the M1 compatible Korg synthesizers.

Calligrapher 2.15

Working Title are now shipping the latest upgrade to Calligrapher Professional. As well as a number of bug-fixes, the upgrade speeds up searching and scrolling by up to 250%. Details from Working Title on 0865-883592.

HiSoft

Wordflair, reviewed in last month's ST Applications, is now up to version 2 and the new features include a spelling checker and thesaurus, plus the ability to import data from third party databases. The price of Wordflair is now up to £99.95 and upgrades from previous versions are £19.95 until the end of March, when the upgrade fee will rise to £39.95. HiSoft's Tornado simulator, ProFlight, has been upgraded with extra colours and the facility to save flights to disk. More details from HiSoft on 0525-718181.

French PostScript

A new PostScript interpreter, Grafx, is available from French publishers Procyon. The package includes a font editor, text editor for on-line debugging of Post-Script scripts, plus the ability to incorporate GDOS fonts in Post-Script output.

Procyon phone no.: +33 56 505410

New zzSoft Products

Following the success of their budget priced (£20) Desktop Publishing package Easy Text Plus, zzSoft have launched two more great value-for-money products.

"Introducing Atari ST Machine Language" is a complete introduction and guide to assembly language programming for the beginner and intermediate ST programmer. The book runs to over 400 pages and assumes no knowledge of assembler; the accompanying disk includes the example listings from the book, plus a text editor with an integrated 68000 symbolic assembler, symbolic debugger, and a resource construction kit. The disk also includes listings of the ST's GEM, VDI, AES and TOS libraries. The book and disk cost £21 including postage.

IMPrint is a utility for printing

mono or colour graphic files at high resolution on 9-pin printers. High resolution pictures are produced with up to 9 passes of the print-head and colour pictures can be printed in full colour using the colour version of the program, or with automatic grey-scaling on mono printers. The package will load both Degas and Neochrome picture files and a range of drawing tools and text-labelling facilities are provided. IMPrint costs £10.95 for the mono version and £15.95 for the colour version.

For details of all zzSoft products contact them at:

3 Riverdale House,

Mytholm Close,

Hebden Bridge,

West Yorks.

Pro Fonts

Atari Business Centre have launched their Pro Font series of Calamus fonts. The range of 22 font families covers most popular faces and, considering the cost of true Compugraphics fonts, the prices are attractive. Individual fonts cost from £30 and complete families £70 each. The whole range is available at a one-off cost of £350. More details from ABC on 0602-810009.
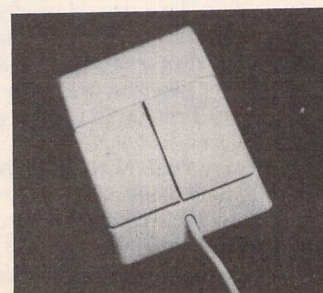
Pandaal Marketing have launched a new mouse for the ST. The DAATAmouse features a high resolution of 280-dpi, high quality microswitches with a lifetime of one million cycles, and an anti-static extra-lightweight ball which may be removed for periodic cleaning.

DAATAsound, a sound sampling cartridge, is also from Pandaal. The cartridge port device will sample sounds at six speeds between 5 and 25MHz. The software features a built-in sequencer that will program up to 18 samples, Midi compatibility, playback through either the monitor or the STE's sound ports, real-time oscilloscope as the sample is recorded, plus sound manipulation features that include: fade, magnify, echo, flip, filter, amplify, bend, soften, compress, cut, copy and splice.

DAATAmouse and DAATAsound cost £39.99 each from Pandaal on 0234-855666.

16-Bit Computer Fair Reports

Over the next three pages we have three reports of the 16-Bit Computer Fair held at the Novotel Hotel in Hammersmith in the first week of this year. The first report deals with general aspects of the show, whilst the second and third concentrate on specific products seen and bought there.

Report #1

Market Day

Can this really only be the third one held? They seem like such an institution I'd swear that there have been dozens of them! The Show was held on January the 4th, 5th and 6th 1991 at The Novotel Hotel in West London, and it was a good one. Perhaps everyone was still merry from Christmas, but whatever the reason there was an excellent atmosphere and you could sense that people were actually enjoying it, even the exhibitors! The ground floor area, where most of the exhibitors had 'market trader type' stands, was packed with punters on the first day (Friday). Cheap and cheerful in the extreme: £11 for fifty 3.5 inch floppies was one of the best buys I noticed, a bargain if they work! Some of the stands, if you could call them that, were made up of the boxes they were attempting to shift! Sensing that the classier acts were to be found elsewhere, I made my way upstairs to a veritable Aladdin's cave of goodies. Many of the Exhibitors had also been to the recent Computer Shopper Show, reported in the last issue, so let's concentrate on what was NEW.

American Visitors

First time at a Show in the U.K. were Double Click Software, and they were selling their new DC DESKTOP program for £20. This is a replacement Desktop utility along the lines of NeoDesk: watch out for a review soon. They also had DC UTILITIES v2 for £20, and had brought some other productivity software over from The States, including QUICK ST II (£15) and EDHAK, a superb Desk Accessory text editor, for £12. The gimmick of the Show was the "Double Click" clickers they were giving away: you know, those little things that "click" when you click them! Sharing their Stand was Atari Interface Magazine, a

U.S. user group publication a bit like the old ST Club Newsletter. You could tell all these people were enthusiasts, as well as being nice guys to boot.

Also from The U.S. were Soft-Logik, who had PageStream running on a TT. This is a colour DTP program. It looks good: outputs to any printer, is Postscript/UltraScript compatible, produces four-colour separations, and the price is only £149. Version 2 was shown running on the Amiga, and this is reckoned to be the biz; version 2 for the ST is due 'any day'. SoftLogik are setting up a U.K. office, and by the quality of their publicity material, etc., it seems like they mean serious business. The others had better look out.

For those wishing to repair or modify their ST's, Best Electronics from California claim to stock all the components and spare parts you could want. They were showing their replacement power supply module: this will directly replace the Atari unit which they claim will always eventually die on you; price $85. They also had a little circuit board that lets you install new 1.4 ROMs but leaves the old ones also in the computer, and switch between them with a toggle switch! What they need is a U.K. distributor. Try getting spare parts over here!

Home Brew

After the glamour of all those overseas visitors with their exotic products, what did the home teams have? On the magazine front, Future Publishing had a well-stocked stand selling all their many titles. They know how to make a bob or two these lads, and the February Issue of ST Format was on sale even though it was only January 4th! New Editor Mark Higham and staff were there to meet their readers, and I hear a rumour that ST Applications might be up to the same thing

soon. What a good way to boost circulation to the deserved level! Ominously perhaps, still no sign of any presence from the other names - no ST User or ST World: have they lost interest? Micro Mart were dishing out free copies of their 'Exchange and Mart type' mag.

Arnor announced Version 5.07 of Protext at the Show. This is now fully TT compatible, and has new printer drivers for the DeskJet 500 and many others, including Canon laser printers. Full support of each printer's fonts is provided.

The Germans are coming

Pandaal Marketing were expecting a new OCR package from Germany to be ready any day. This will be called Sherlook, and works with their Daatascan scanners. Expected price about £100.

More German products were on offer in the form of ReTouche. Having been translated into English, the junior version is already available for £150, and works on any ST without any extra hardware being required. The full professional version will be ready soon, and will set you back about £450. You will also need all kinds of outboard equipment to run it: in fact, the program is the cheapest bit! However, the results possible with this system are quite staggering; you would have to see the image-processing power in action to appreciate it. It is claimed to be better than anything available on the MAC, and you can certainly produce the most professional-looking stuff you have ever seen with this program. A colour version is promised soon, and this could make it the ultimate publishing tool.

More Shows Soon

The Third 16-Bit Show was one of the best shows I have been to for a

long time, perhaps because there were lots of new overseas exhibitors. These shows need pepping up to keep them exciting, so let's hope we have more dealers coming over from Europe and America, as there are plenty of good new products abroad. If you are looking out for forthcoming shows, The Second MIDI Music Show is at The Novotel on 26-28 April, and the Fourth 16-Bit Show is also at the same venue on 11-14 July. See you there!

Peter Crush

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Arnor
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Report #2

A breezy but dry Sunday morning saw your reporter arrive at the Novotel Hotel in Hammersmith on his executive motorcycle with wife Lyn on the pillion. Parking carefully on the pavement opposite, we joined the pre-opening queue with our tickets held carefully in sweating hands, nervously eyeing the gathering hordes. Soon we entered the exhibition area, neatly bypassing those who had not obtained their tickets in advance.

With no particular plan of campaign, but with one or two possibles in mind after perusing the program (at 50p this was the first time that I had been expected to pay), we fell back on the usual anticlockwise circuit with zig zags, stopping here and there whilst averting the eye from Am*** and PC stands.

Alas, at the very start I committed what was to prove a major tactical blunder. You see, just at the very portals was Copycare Graphic Services' stand, and what caught my eye was a large screen monitor displaying a particularly well reproduced picture of a young lady's face. Just above it was a sign saying Retouche. I was instantly hooked. This program had been in the news pages for so long it seemed to be just more vapourware. My opening remark of "How much is it?" to the chap sitting in front of a more familiar SM124 monitor met with an invitation to draw up a chair. There followed what I am assured was over an hour of demonstration from this very knowledgeable and enthusiastic young man of this fine image enhancement program. Space does not permit a blow-by-blow account of the innermost secrets of this program; suffice it so say that if you have any involvement in DTP in a business field and require scanned, dithered images to be reproduced at photographic quality with up to 256 grey scales, then this program is a must. I was particularly impressed by the editing possibilities of this program. I was shown a block copy of the lady's nose, and

with a few deft strokes from the comprehensive range of tools the lady soon had two noses - with shadows in the right places! The eraser was especially clever, since it could be assigned an erasing "pattern" from the range of grey scales at the bottom of the screen. This is the only program that will allow you to edit scanned, dithered pictures without pixel by pixel editing, and so where time is money this program will quickly pay for itself. Of course, there are comprehensive in and out file formats, outputting to .IMG or .TIF formats for use with your DTP programs. Masks, soften/sharpen and contrast adjustment are only a few of the features on offer, and Retouche will also act as a painting program should you wish. This was the "amateur" version at £150. The "professional" version was driving the large monitor with true grey scale display with the SM124 screen able to show only a representation. It also offered vectors to allow the precise cutting of blocks using a Bezier curve-like method of pulling on control points to describe the block outline, rather than the rectangle offered by the simpler program.

This program is surely set to make a major impact, and should be available now. Either will produce their absolute best only when matched with equal quality scanners and output devices.

It was now that the tactical blunder was to come to light. Whilst I had been completely absorbed in the demonstration, more and more people had arrived. Taking my leave from this demonstration we set off into the arena. And what a rugby scrum there was.

Alas, by now there was such a crowd that progress was reduced to a stately shuffle. Taking stock of the situation, Lyn stationed herself in a corner with the helmets whilst I made forays to the stands that I had earmarked.

There were, of course, the usual box shifters, and judging by the number of people bearing boxes they must have have had a field

day. On my way to the more serious stands, I was struck by the quality of the graphics produced by the dedicated games consoles, Nintendo and Sega systems by far outnumbering the Atari Lynx.

Double Click Software from the States were there. They had cut the price of their wares by up to a third (it can pay to attend shows on the last day). I hope that they return, since their utilities are universally known and respected.

Frontier Software announced their 4 meg upgrade board for the 2.5 meg already sold by them. Price is to be in the region of £189 with release due in February. Look out for a report in these pages.

Having by now exhausted both myself and the non-games stands, I stopped at Caspell Computers and bought a can of ribbon Re-ink spray. More on this later.

I collected Lyn and started to the exit, but her attention was caught by Manfred Carle's stand. They were selling PD and shareware. She wanted the book-keeping program with an eye to future requirements.

She exchanged £4 for a nicely presented disk with an English description inlay. Expensive for PD, but worse was to follow. The program was in German and hence useless. We hereby declare a rip-off.

Making a grateful exit, we made our way home, resolving to leave demonstrations until all other stands have been thoroughly inspected!

The next day I tried the printer ribbon re-inking spray. "Why is it," I thought, "that ribbons provided with new printers always seem to be half-exhausted already?" This spray would, I hoped, soon give me good, dark printouts, and with a new ribbon at around £5 would save money. The can will re-ink a ribbon up to 100 times depending on size, and at £12.95 the savings are obvious. But ribbons can only be reused whilst they are in good condition. The constant hammering from the pins, particularly

from a 24-pin printer, means that they have a limited life. Once the ribbon starts to shred there is a great danger that the pins will start to jam, and so a very careful check of the ribbon is suggested. I opened the ribbon cartridge and started to spray.

It was whilst replacing the lid that disaster struck. I dropped the cartridge and the ribbon, yards and yards of it, unlaced itself and fell out onto the floor! Eventually I managed to rewind it into the cartridge and gave it another spray for luck. Bad move. Once I had left it to dry for 24 hours, I tried it out, and was greeted with terrible smudging. I wiped the ribbon carefully whilst winding it through by hand and was able to rescue it. Despite this I am recommending this spray. With careful use you will save money, and will always be able to get good results without that longish period where the ribbon isn't bad enough just yet to warrant replacement. As a bonus, the spray is in a pump-action, 'ozone friendly' can which may, if your borough has a recycling scheme, be returned, perhaps to help to make Am*** parts!

Derryck Croker

Gasteiner Drive

The first item is a big (in every sense) investment: an 85Mbyte hard disk, sold on the Gasteiner stand at £449 (over £100 less than their most recent advertisements). The price actually dropped by another £50 as I hesitated!

It has a GE-Soft interface and software and there is, naturally, the appropriate formatting and partitioning software, but as it had already been set up with eight 10Mbyte partitions I left well alone.

Drives from Gasteiner have been reviewed in various magazines over the last 12 months. The most recent I have is in ST World issue 52 but as there are some slight differences from the one reviewed, here is a short description:

Dimensions: About 12″ square and 2″ high, so this is one to use as a monitor stand. There seems to be a trend towards smaller hard drives at the moment, but this is the old-fashioned variety with the power supply inside the case. To be fair, though, there is enough space in the case for a second drive or tape streamer and the power supply can cope with it (so I was told). I doubt if I shall need it but the chance exists to extend the system further for the price of a drive.

Finish: The case is made of two pieces of steel sheet with air-slots along both sides. It is painted a creamy-grey colour. The quality is best described as 'functional'.

Features: The only noise is the purring of the drive unit as there is no fan in the case. After several hours light use the case was just warm near the drive and quite warm by the power supply but the salesmen were adamant that the drive would not overheat. We shall see!

The case is a bit stark with only a "Gasteiner Mega Drive" label and two diodes on the front panel. Of the latter, only the top one works, as the drive-activity indicator, so I assume that the other would be fitted to the second unit. The power switch is where all reviewers hate it - round the back - but this keeps the power supply unit self-contained. I don't find it too much of a problem myself.

On the back face, the power supply port and switch lie on one side and the DMA in and out ports on the other. There is no facility to change the DMA address except by setting jumpers on the drive, a change from the test unit in ST World. This might be a problem to

Report #3
16-Bit Show Bargains

Keith Jackson visited the 16-Bit Computer Fair and purchased two items of note. He has written his first impressions on these 'for the benefit of our readers'…

someone with more than one item plugged into the DMA chain and there is no guidance given as to how to do it yourself. Indeed, a security label on the base actively deters one from trying.

Software: You get GE-_INST.PRG and GE_HDI.PRG to get the drive under way and some other software to customise the driver to be fully-compatible with Atari's AHDI 3.01. Otherwise, you get some **very** basic back-up programmes, including Turtle.

Manual: Barely adequate, although everything is there to get the drive up and running, which I suppose is technically enough. There is some German documentation which might be more use if it were only in English! Luckily, I am attending a German night-class and I hope to translate it, with help. I will send it to Gasteiner and GE-Soft in the hope that it will save someone else the sweat.

Grumbles: What, already? Yes! How about the unlabelled DMA ports which are both female? The manual gives no clues and you have to hope for the best. On mine the IN port is on the right-hand side looking at the rear panel (furthest from the switch).

The instructions suggest you turn on the monitor and drive and allow the drive to stabilise before starting the ST. I got it wrong the first time. Instead of a normal boot-up I got a Desktop screen without icons! Luckily, there was no harm done: turning everything off and then

swapping the port gave the desired response, and I could make a start. Not a comfortable way to start…

Am I pleased? Very much so. I doubt if anyone who has had the chance to use a hard drive would willingly go back to twin floppies. Timeworks is (nearly) a pleasure to work with and loads almost instantly - even when 360 dpi fonts have to be put into memory. First Word Plus is similar but that was always pleasant to use, anyway.

Some of the PD programmes which have gathered dust so far are being drawn out of hibernation - Super Boot, for example, is only really useful on a hard drive and is a very easy, if stark, way to keep up to 30 different boot schemes available at the press of a key. Neodesk is a real treat with its facility to place programme icons on to the desktop instead of having to open windows until you find the one you wanted.

Quick ST 2.21

My other purchase was Quick ST II by Branch Always Software. I expect that many of us have versions of this ex-public domain programme but this is the latest, commercial version. It is quicker than any other version I have and comes in a new style. Previous versions I have seen have been capable of being run as either an AUTO programme or as an accessory. This one is only usable as a programme but has a customising utility which can be run both ways. Confused? Just to help you along further, they
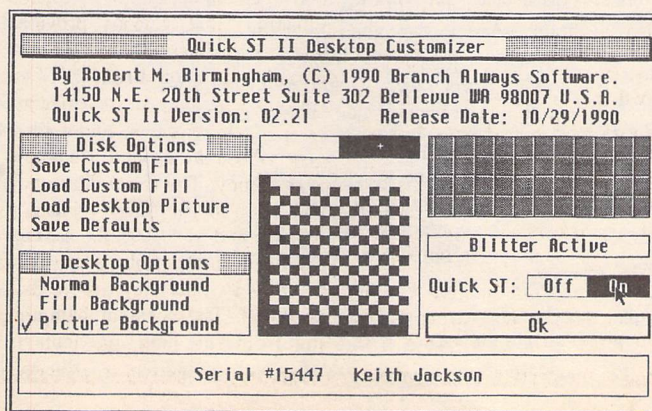
supply four versions of Quick ST II! Things are not quite so bad as they seem, thank goodness. To economise on space, the utility has been split into monochrome and colour versions and these will load into 28k. Both are placed in the AUTO folder and only that required will load. If you only have one kind of display then you can omit the other programme, of course. In addition, these programmes will load *.PI2 and *.PI3 pictures for use as a backdrop but this will give an overhead of 32k for its storage. All of this, plus other features, can be controlled from the customiser.

The remaining two versions of Quick ST are intended for use on a 520 ST where size is critical. They work in the same way but do not speed things as much and they cannot use the customiser.

The only reservation I have about the programme is that it is not entirely compatible with other AUTO-folder programmes. In practice, this means that some (most) programmes have to run before it, but a few cause problems and so have to run afterwards: the latter include Shell_fix 1.3 (Gribnif, for Neodesk) and the Frontier clock-cartridge setter, AUTO-FMC.PRG. The customiser also requires PINHEAD to be switched off via PINHEAD.DAT when loaded as an accessory.

Along with the package you get Quick View, Quick Index and Art ST. Quick View is a replacement for the GEM file reader and is a considerable improvement over the Show/Print/Cancel routine we are all familiar with. Quick Index gives an idea of just how much quicker your machine is running and it is quite an improvement for the most part. I notice file handling is slower with Quick ST running but the high numbers without the programme are there whether I use cache software or not. I didn't understand it at first as I have only TOS 1.4 and nothing exotic but in the end it turned out to be the disk format of all things. The test diskette, like most of my collection, has been formatted under Neodesk with a "twisted" format. With a plain-vanilla, PC-formatted disk the 100% was restored.

Art ST, the last programme, has been produced as shareware by one of the team. It is simple and basic programme, working in all three resolutions, and there's not a lot more to be said about it beyond it saves in Neochrome and both Degas formats.

```
╔══════════ Quick ST II Desktop Customizer ══════════╗
║ By Robert M. Birmingham, (C) 1990 Branch Always Software.  ║
║ 14150 N.E. 20th Street Suite 302 Bellevue WA 98007 U.S.A.  ║
║ Quick ST II Version: 02.21      Release Date: 10/29/1990   ║
║  ┌─ Disk Options ─┐                                        ║
║  │ Save Custom Fill │                                       ║
║  │ Load Custom Fill │                                       ║
║  │ Load Desktop Picture │                                   ║
║  │ Save Defaults │                                          ║
║  ┌─ Desktop Options ─┐         ┌──────────────┐            ║
║  │ Normal Background │          │ Blitter Active │          ║
║  │ Fill Background │       Quick ST:  │ Off │ On │          ║
║  │✓ Picture Background │                                    ║
║                                    │ Ok │                   ║
║                                                             ║
║          Serial #15447   Keith Jackson                      ║
╚═════════════════════════════════════════════════════════════╝
```

```
╔═══════════════════════════════════╗
║ ⁌  Allocated Memory               ║
╠═══════════════════════════════════╣
║   Ramdisk..........       0       ║
║   Editor...........   25600       ║
║   Scrapbook........   40960       ║
║   Spooler..........    8192       ║
║   Font.............    7296       ║
║   Printer Filter....      0       ║
║   Macro Processor...   4096       ║
║   Keyboard.........       0       ║
║   ----------------------------    ║
║       Total:.......   86144       ║
║                                   ║
║   Total memory.....  4194304      ║
║   Memory left....... 2683142      ║
║ ┌───────────────┐┌──────────────┐ ║
║ │ Save Settings ││ New .DEF file.││║
║ └───────────────┘└──────────────┘ ║
╚═══════════════════════════════════╝
```

```
╔═══════════════════════════════════════╗
║ ⁌        Set Timer & Countdown         ║
╠═══════════════════════════════════════╣
║ ┌─────┐┌──────────────────────────────┐║
║ │ALARM││15:00:00 Live footie on the box?│║
║ │ 🔔 ⏳ │└──────────────────────────────┘║
║ └─────┘                                ║
║ ┌──────────────────┬──────────────────┐║
║ │   Show Clock     │    Show Alarm    │║
║ └──────────────────┴──────────────────┘║
╚═══════════════════════════════════════╝
```

```
┌──────────────────┐   ┌───────────────────────────┐
│ File             │   │ Options                   │
├──────────────────┤   ├───────────────────────────┤
│ New         !    │   │ Delete Note     ! ^D      │
│                  │   │       Show                │
│ Load..      ! ^L │   │ Created Date    ! ^C      │
│ Save..      ! ^S │   │ √ Connected Date ! ^W     │
│ Merge..     ! ^M │   │ ---- Selections ----      │
│ -- Selections -- │   │ Delete          0         │
│ Save        ! ^B │   │                           │
│ Print       ! ^P │   │ Information      ! ^I     │
│                  │   │ Page layout      !        │
└──────────────────┘   └───────────────────────────┘
```

Harlekin

HiSoft are taking multi-function desk accessories into the 1990's with Harlekin, but does it really offer anything innovative enough to make it worth the asking price of nearly £50? Michael Baxter finds out...

Arguably one of the best features of GEM is its ability to handle memory-resident utilities or programs, generally referred to as desk accessories. If used intelligently, they can greatly enhance the computer's operating environment. Features which are annoyingly absent from main applications can often be substituted by installing an appropriate desk accessory on your boot disk - for example, how many times have you needed to access an elementary disk function from within a program, only to find it unavailable, requiring a time consuming return to the desktop? Accessories can help overcome such problems, and having a good set of utilities permanently on tap from within any GEM-based program can be a time-saving asset.

Desk accessories are almost as varied and numerous as the programmers who write them. Generally they concentrate on one particular area: for example, one may offer a set of basic disk utilities, another a range of printer functions, and so on. This independent approach has its advantages and disadvantages - you are free to install only the accessories which you consider to be necessary to the application you are using, thereby saving some precious memory. There is a downside to this approach however: since GEM imposes a limit of six desk accessories active at any one time, you may well run out accessory 'slots' before you have installed all the utilities you require.

Enter the multi-function accessory. The concept, at least, is very simple - cram as many different features into one program as possible, thereby offering an integrated set of utilities that require only one desk accessory slot. It sounds good, and indeed it didn't take software developers long to latch on to the idea - as a result, multi-function accessories have been available for the ST almost since Day One. Computer Concepts were first on the scene with Backpack, soon to be followed by Microdeal's Cornerman, and, later, Timeworks' Partner ST, along with countless other public domain variants. Nothing in life is straightforward, however, and this approach also has its drawbacks - such programs are often inflexible and usually impose huge memory requirements on the computer. The end result of this is the loss of vital memory

to some utilities that users would otherwise rarely use, prompting a return to more memory-efficient single-function accessories. Admittedly, Backpack overcame the memory problems by being supplied as a ROM cartridge, but inadvertently created another by tying up the cartridge port for other applications which required it.

Enter Harlekin, HiSoft's very own much-hyped multi-function desk accessory. It has a high specification and a price to match it, but does it present anything really new over the alternatives that have been around for ages, and how does it address the problems outlined above? Above all, does it strike the all-important ratio of features to memory that would make the vast majority of your existing single desk accessories obsolete?

"Harlekin: The Program of Possibilities" is supplied on one double-sided disk, with an accompanying 92-page printed manual which, as we have come to expect from HiSoft, is pretty good in so far as the features are explained in a tidy and comprehensive manner, but it is marred by a few spelling mistakes and poor choice of phrase in places. Each module of the Harlekin accessory is described in detail in its own specific section in the manual. This approach makes it very easy to find your way around, making the missing index almost bearable.

Installing Harlekin is very straightfoward - simply copy the accessory files and support folder onto your boot disk in the usual way, reset the computer, and away you go. There is even a batch program to automate the whole process for hard disk users.

Clicking on the Harlekin desk menu entry produces a panel of sixteen icons, whose compactness belies the power which is hidden behind them. This "menu panel" can be

moved around the screen just like the standard Atari control panel. Accessing any one of the modules is simply a case of clicking on the relevant icon; the icons, incidentally, are well designed and represent the modules' functions very well indeed.

The Scrapbook

Probably the most innovative of Harlekin's many functions is the scrapbook. The description "scrapbook" really doesn't do it justice; in fact, if it had been called an electronic Filofax I couldn't really complain. The beauty of the whole thing is that it can be configured to each user's specific needs, and provides an extremely flexible 'information and time management' system. Add to that the fact that it's available at any time from within any GEM application, and you have a very powerful tool indeed. OK, so what can you use it for? Basically, any scraps of information you constantly find yourself hunting for during a computing session can be stored in the scrapbook and called up instantly - the type of material you store is entirely up to you, and really is limited only by your imagination. I use it to store the usual list of telephone numbers, birthdays, addresses, etc., as well as technical material and business details. It also doubles as a very handy telephone notepad as well! The time planner is also well designed, allowing you to plan weeks, months, and even years ahead. For example, suppose you wanted to be reminded that your dreaded car tax is due on the 31st of September of next year: simply call up the year planner, double click on the date on which the tax is due, enter the relevant details, and then forget about it. Harlekin can then inform you of the impending expense as the date approaches. The amount of information you store in this manner is restricted

only by available memory. The scrapbook also supports some elementary database management functions, such as sort, search, and class filters, making it easy to get at the information you require with the minimum of fuss. Even if you can't see how you can benefit from this particular utility, buy Harlekin. Once you see what it can do, I guarantee you'll wonder how you managed without it.

The Text Editor

The next most impressive part of Harlekin is the text editor. This particular module also has its own GEM window, complete with a pseudo drop-down menu bar, which works in a similar way to ordinary menus, except that the mouse button must be held down while selecting a menu, and not released until a selection has been made. The editor has an impressive range of features: a good set of block functions; a very fast search and replace facility which can also work with non-ascii characters; ascii and text file modes - the latter can cope with automatic reformatting and paragraph functions; and, last but not least, a fairly comprehensive page layout dialogue which controls headers, footers, page sizes, page numbers, times, dates and line numbers. Best of all, though, is the speed of the whole thing, especially the scrolling - surely the fastest GEM scrolling outside of Tempus 2, maybe even slightly faster? It's by no means the most complete editor available for the ST (that crown belongs to Tempus 2), but the fact that it is constantly available from within any GEM program will win it many friends. In fact, I wrote this entire review using the editor, only having to resort to First Word Plus to check the spelling!

Utilities

The disk, file and memory-monitor, like all other parts of the program, is extremely fast and flexible. Basically, it allows you to change bytes either on disks or in memory directly. Unlike most other programs of this type, it is exceptionally fast (especially the search function), and is generally very easy to use. The "Goto" function can jump directly to individual sectors, root directories, boot sectors and file allocation tables. It also works with "soft sectors", in that it can scroll across a disk and show its contents without being restricted to one sector at a time.

What can I say about the calculator? Well, er, it's a calculator, and a pretty simple one at that. Programmers will probably find it most useful, as its main claim to fame is the ability to convert directly between decimal, hexadecimal and binary notational systems. If you have need for any trigonometric functions, then you will have to look elsewhere - dozens of excellent calculators already exist in the public domain.

The disk and file utilities are very comprehensive, being able to perform any function that the desktop can - formatting, copying, file moving, deleting, re-naming, new folders and disk information all present no problem
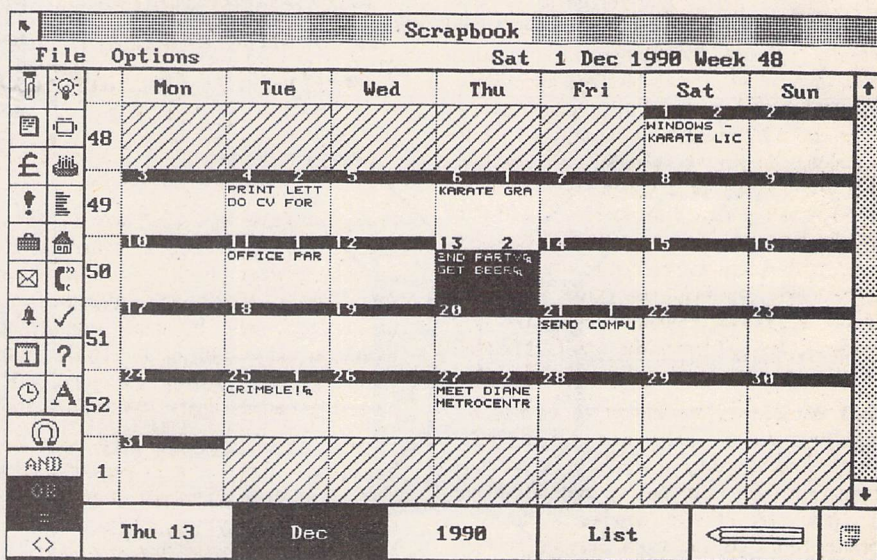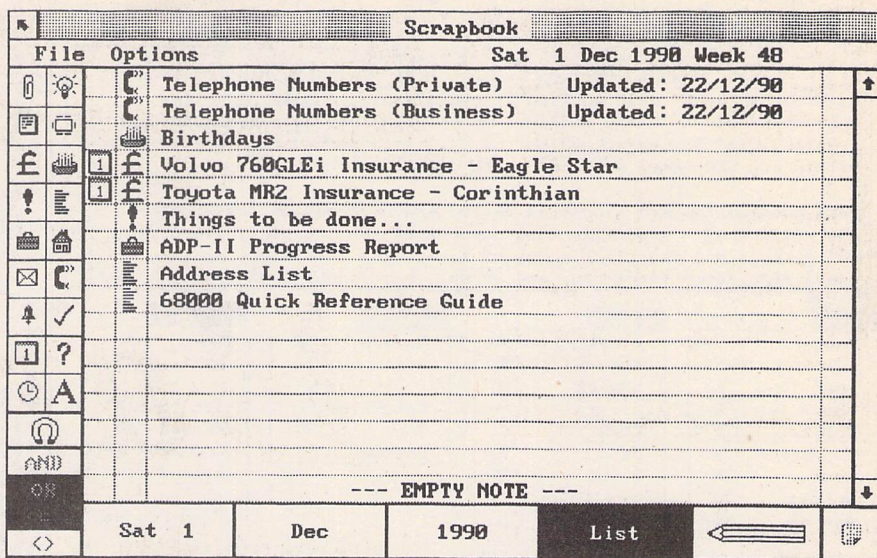
Two screen shots showing the flexibility of Harlekin's Scrapbook. Icons may be designed to suit your own requirements, and the layout can also reflect the particular usage needed: day, week or month planner; information planner; address/telephone listings; time management, etc. It even has simple database functions.

to Harlekin. Also included is a replacement file selector. Whilst this is a welcome addition, it is no match for dedicated file selectors such as Universal Item Selector III and the public domain Little Green File Selector. Nevertheless, owners of pre-TOS 1.4 machines who are still saving up for UIS III will find it more than useful.

Harlekin's macro processor must be one of the best currently available for the ST. As well as recording the usual series of keypresses and playing them back with a single key combination, you can also assign Harlekin commands to key combinations. This makes it possible to call up and manipulate any part of the Harlekin system with a key combination, perform warm and cold reboots, and paste ascii table characters and calculator results directly into text. The system uses a new principle which allows greater compatibility with other programs. The manual notes the French word processor "Le

Rédacteur" as the only program which is incompatible with these macro commands, as it has its own macro functions and ignores those set up within Harlekin.

As if all of the above weren't enough, Harlekin also includes a very well specified terminal emulator program (complete with number directory); an ascii code reference chart; a reset proof ramdisk which can autoload files to itself at start up; an alarm and digital corner clock; a printer spooler with a clear buffer function; a printer filter which can intercept and convert ascii characters sent to the printer; an RS232 settings dialogue; and, finally, a control panel. Phew!

Harlekin is also the first program available for the ST that is entirely crash-proof. Just like a re-set proof ramdisk, Harlekin remembers any information stored in the text editor, scrapbook and ramdisk, as well as it own internal settings over system crashes and
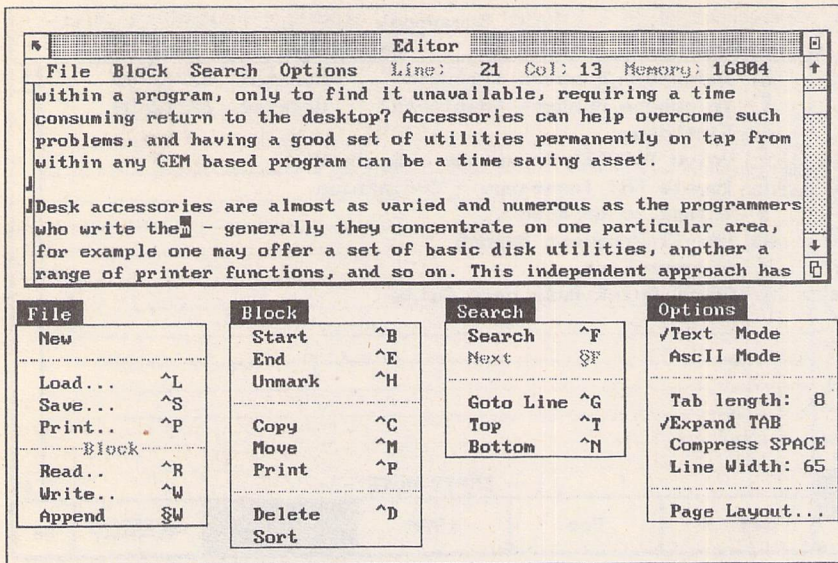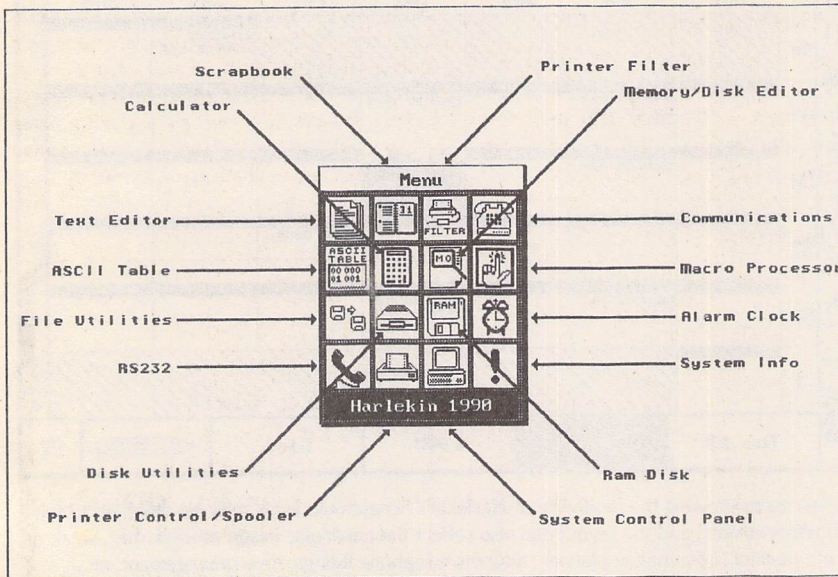
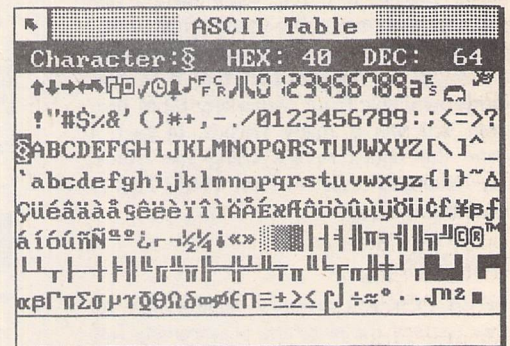Harlekin's Text Editor has four pseudo drop-down menus of its own
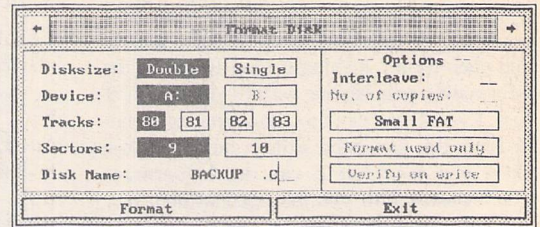
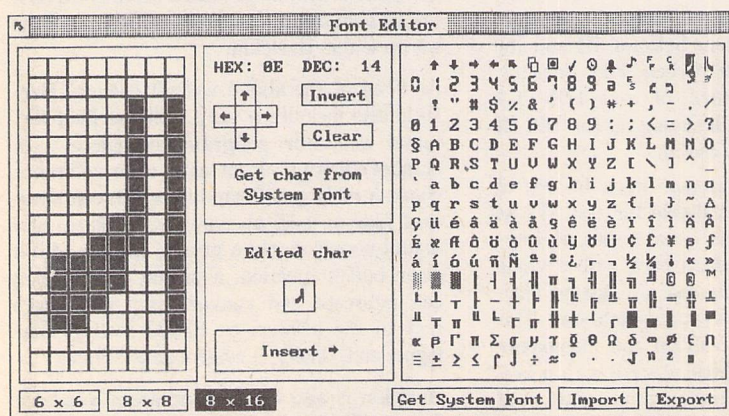One of Harlekin's disk utilities: Format.
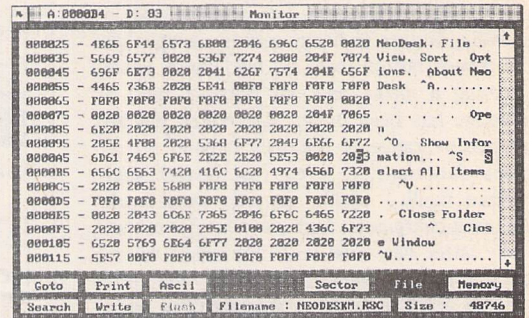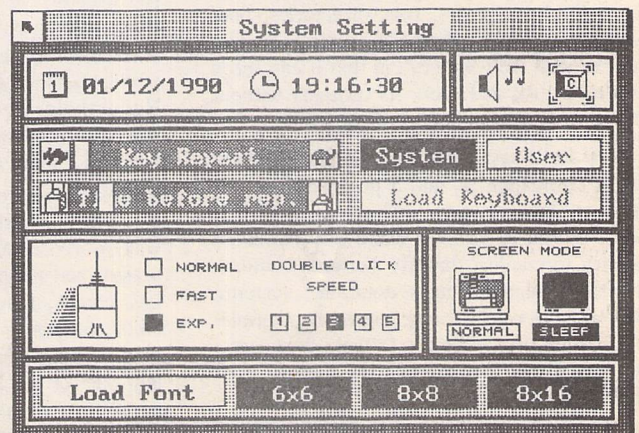

The disk and memory monitor.

Harlekin's main menu, showing all the different options
that are available at the click of a mouse button.

The Ascii code reference chart.

Harlekin's font editor allows you to
design screen fonts of your own.

Harlekin has its own Control Panel. In addition to the
mouse accelerator, note the facility for loading different
screen fonts.

warm re-boots. To make use of this facility, however, you must use Harlekin's own ramdisk - other eternal ramdisk programs resize the system memory before Harlekin is loaded, making it impossible for Harlekin to allocate a "protected" area of RAM to store itself in.

Also included with the Harlekin package is a configuration program and several replacement system fonts. The configuration program simply allows you to alter internal Harlekin parameters, such as ramdisk size, editor and scrapbook allocated memory, macro commands, and scrapbook information. It also shows how much RAM your chosen Harlekin set-up requires, which can be frightening at times. The supplied font editor is adequate for simple font alterations, but has only the bare minimum of features. If you're serious about your fonts, then you'd be far better off using a dedicated font editor program, such as Fontkit Plus, and importing them directly into Harlekin.

Summary

Points For: Immensely useful, if you have bags of Ram. All parts of the program run faultlessly and, as far as I can tell, are bug free. It can do some things that no other accessories, or even dedicated programs, can manage. The editor and the scrapbook in particular are excellent.

Points Against: Gobbles up RAM at an alarming rate, and there is no facility to disable modules which some users may not have any use for, therefore wasting precious memory. It has to be said, though, that Harlekin does pack an incredible number of features into the RAM that it does use. Also, there are some curious omissions, which in my opinion are quite serious for a utility which claims to be so comprehensive, such as blitter and RGB colour control.

Conclusion: Without doubt, Harlekin is an excellent and well designed program, whose usefulness is solely dictated by the system upon which it is running. If you have a 2Mb' machine, then rush out and buy this program - you will not be disappointed. For the rest of us, we will have to work out whether we can afford the memory. Mind you, it's the best excuse to install a Ram upgrade that has come along for ages.

Alternatives:

BACKPACK, Computer Concepts £39.95:

As you would expect from such an old product, Backpack is looking a little dated. Even so, it has some nice features, and its relatively low demands on the computer's memory may make it appeal to users with 512k machines, or those with no other need for the ROM port. Pound for pound, however, it is simply no match for Harlekin in any department.

CORNERMAN, Microdeal £49.95:

Although not a bad program in itself, its inefficient design and layout make it extremely wasteful of memory. It has nowhere near the same amount of functions as Harlekin (look at the comparison chart), yet still manages to gobble up more than its fair share of memory.

PARTNER ST, Timeworks £49.95:

A well designed and written accessory - includes a facility to disable parts of the program that are not required, thereby freeing up memory. Again, none of the elements of the program is as flexible and advanced as its equivalent in Harlekin, although included in the price is a separate 60,000-word thesaurus desk accessory, as built into Timeworks WordWriter v2.0.

Public Domain:

With the exception of the scrapbook, equivalent single desk accessory programs - in concept at least - exist in the public domain. There are also several multi-function accessories available, but their functionality is not guaranteed. There is nothing that comes anywhere close to challenging Harlekin.

	Harlekin	Cornerman	Backpack	Partner ST
Price	£49.95	£49.95	£39.95	£49.95
Min RAM	1MB	512k	512k	512k
Calculator	*	*	*	*
Address book	Note 1	*	*	*
Memory Monitor	*			
Disk Monitor	*			
Text Editor	*	*	*	*
Printer Filter	*			
Keyboard Macros	*			
Terminal Emulator	*			
Disk Utilities	*	*		
Ascii Table	*	*		
RAM Disk	*		*	
Alarm/Clock	*	*	*	*
RS232 Panel	*			
Printer Spooler	*		*	
Control Panel	*			
Calendar	Note 2		*	*
System Info	*			
Diary/Planner	Note 1		*	*
New Character Set	*			
New File Selector	*			
Puzzle		*		
Typewriter			*	*

Note 1:

Harlekin's scrapbook is too flexible to be limited to a single description, as it can be adapted to the user's specific needs.

Note 2:

Harlekin's scrapbook includes day, month and year planners.

CADja

Joe Connor visits the home of CADja, sees how it is marketed in Germany, and has a preview of the first English version.

The graphic user interface of CADja could not be much simpler. Functions are selected by mouse from this screen tablet. Apart from the file selector only a few other dialogue boxes will be encountered. The range of drawing tools provided makes complex constructions a straightforward task.
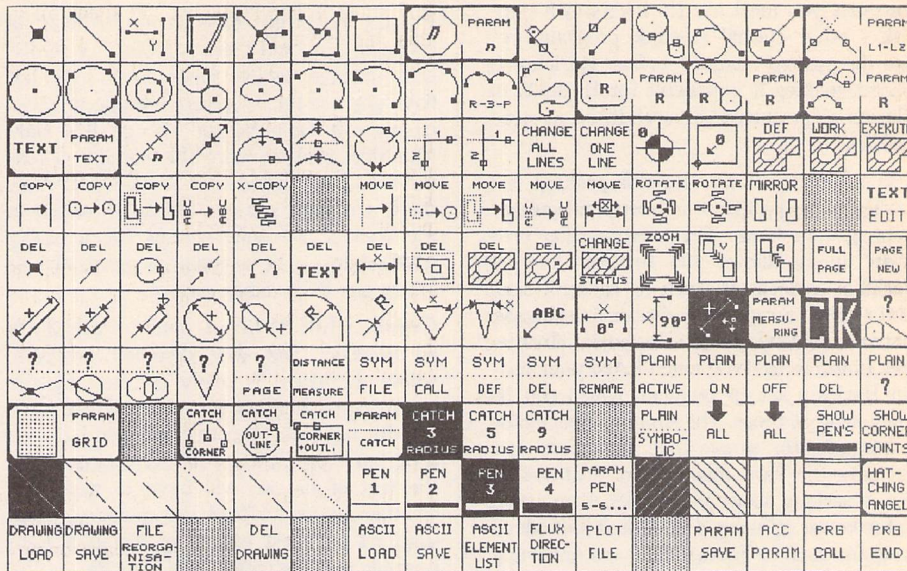
Background

CADja has been under development for over ten years and has been available in Germany for some time now. The program is supported by the German distributor, Computer Technik GmbH, which operates from an impressive Canadian-style log cabin in a small German village half way between Cologne and Frankfurt. The company is run by Wolfgang Kieckbusch, who distributes a range of ST products throughout Germany.

CADja, together with a tower system called GEO 2000, forms the nucleus of a lucrative CAD workstation market. The GEO tower system looks very attractive (apart from the logo) and houses a Mega ST4 and a choice of emulators, accelerators, hard disks and floppy drives. A GEO-badged Viking A3 monitor is included and driven using the Matrix screen card. There is little anti-Atari snobbery in Germany, but even if there were the only visible items of Atari hardware are a Mega keyboard and SM124 monitor, and even they are disguised by GEO 2000 logos.

CADja V1.3

This is the first version to be translated into English and I presume the version finally released in the UK will be fine-tuned to remove the mis-translations. An impressive early version of a CAM Module was demonstrated which is capable of generating programs for direct use on NC machines.

CADja is supplied on 2 disks: 1 program disk and 1 data disk. Copy protection is in the form of a dongle which fits into the joystick port. Installation on hard disk is a simple 'file copy into folder' operation.

Running CADJA.PRG results in an introductory screen and a dialogue box. Once the relevant options are selected, the main screen tablet is displayed. When a function is selected, the tablet disappears, leaving an uncluttered drawing screen. Return to the tablet is

effected via the space bar or right mouse button.

An elegant catch function is provided which offers a good range of catch/snap options, activated by pressing one of the following Capture keys:

D   Define points
E   Corner
K   Outline
M   Midpoint
S   Intersections

It is odd that these functions do not have icons in the main tablet, but after you have learnt the relevant keys they are quicker to

use. Several of the tablet icons may also be selected by keyboard short-cuts, but in general most commands must be selected from the tablet. This is fine for occasional use, but professional users would expect to be able to set up macros and keyboard short-cuts.

Dimensioning is simple and logical in use and for most disciplines more than adequate. Dimensions exist as groups which cannot be separated, although the dimension text can be edited.

The UNDO function merely re-draws in reverse order all deleted elements since the file was last re-organised. The lack of an
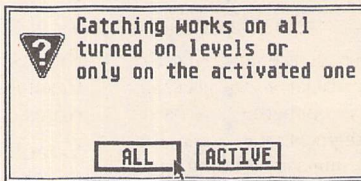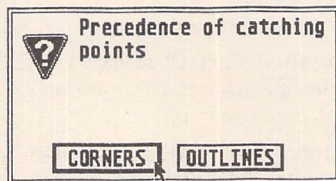

These dialog boxes set the catch priorities; capture keys always work on all levels.

Screen redraw is improved by turning off parts of the drawing. CADja would certainly benefit by including support for the 68881 maths-coprocessor in future versions.
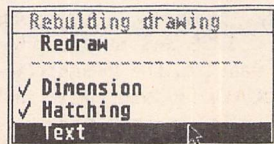

English? A few clangers still remain: have a close look at the main screen tablet.

Rotate & turn   Rotate without turning
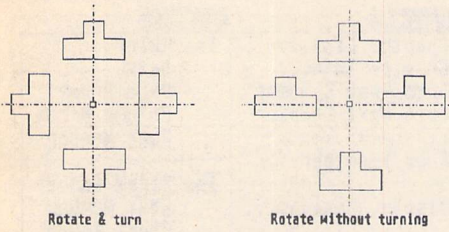
Together with the usual Rotate function (shown left) CADja provides an alternative function which can perform rotations without changing the orientation of the rotated shape (right).

Arc centres
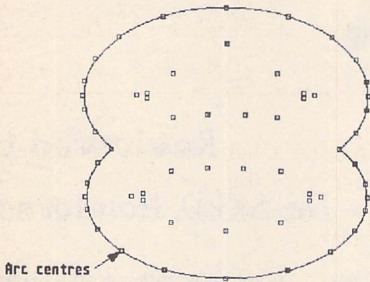
Ellipses are implemented as multiple tangential arcs which approximates the true geometric elliptical shape. Small squares show the start, finish and centre points of each arc. Although obviously a disadvantage if you must have true ellipses, this method makes trimming to other arcs and lines possible.

Straight line segment
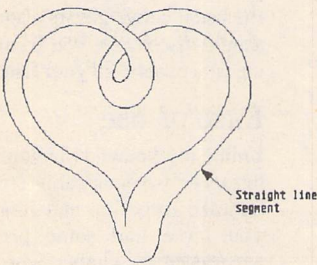
Bezier and B Spline curves are not supported but the powerful curve function can generate multiple tangential curves between a series of points. Straight line segments can easily be incorporated without making a song and dance.

Accessories cannot be accessed from the main tablet, but selecting the Accessories/Parameter function brings up this separate screen display with menu bar.

intelligent UNDO function is a serious limitation. When I quizzed Wolfgang about this, his explanation was that the program had been deliberately kept simple in order to keep the file size small enough to run on a 1Mb machine with sufficient memory over for a decent-sized drawing. He mentioned they were working on a version specially for larger machines, incorporating a much more powerful UNDO function.

The grid function is powerful and intelligent: the X and Y increments can be set up individually, and both Snap and Grid visibility can be turned on or off. Capture keys have a higher priority than the grid.

Cartesian and polar coördinates are supported, and both can be either absolute or relative. The origin is initially set to the lower left hand corner but can be easily positioned anywhere on the drawing. Coördinate entry may be via the mouse or keyboard or any combination.

Printing & Plotting

Separate utility programs for printing and plotting are provided. Both use the same PLO file created from within CADja using the Plot File function. 24-pin printer parameters offer resolutions from 180dpi up to 360dpi. 9-pin printers can print at up to 240x216 dpi. The Atari Laser printer and HP LaserJet are supported. Output larger than the maximum size of a particular printer is scaled down.

The Plotter utility program allows control over Pens, quality of plot, scale and X,Y offsets. Output can be via the Serial or Parallel port.

Interface options

DXF, ASCII and GEM Metafile conversion utilities are all under development and should be available when the program is released in the UK.

Summary

Points for: simple user interface, powerful drawing tools and solid feel.

Points against: Lack of intelligent UNDO function, few keyboard short-cuts and no maths-coprocessor support.

Conclusion: A no-nonsense approach to drawing construction gives the program a friendly feel, making it easy to learn. Ideally suited to general drafting and educational use. When the CAM module is available, the program will have its own niche market.

Alternatives: DynaCADD (£650+VAT), Campus CAD (£299), GFA Draftplus 3.0 (£99.95), BeckerCAD (£99) and Technobox Drafter (not yet available). CADja will retail for around £299 and at this price offers excellent value. CADja cannot compete with DynaCADD in text, layer and dimension functions but in many respects is its equal.

The 40 layers provided are enough for most work but fall short of the usual 255 layers or so offered by its competitors. Layers displayed symbolically appear as normal, but elements contained on these layers cannot be changed.

Dimension parameters are set from this dialog box. Leader lines stand off is set with the scale lines option.

Product:...........CADja

Version:..........1.3, Preliminary English version

Publisher:........Computer Technik Kieckbusch GmbH, 5419 Vielbach, Baustammhaus, Germany

Price:...............To be announced

Manifest:.........250-page A5 ring-bound manual, 2 d/s disks, dongle.

Add-ons:.........CAM module and Symbol libraries

System:...........1Mb RAM minimum & mono monitor.

File	Edit	Find	Font				Format	Insert
New	Undo	Search...	10pt	20	36	56	Chapter List...	Ins Ruler
Open...	Cut	Replace...	√12pt	22	40	60	Chapter Info...	Date
Close	Copy		14	24pt	44	64	Goto Prev Chapter	Page Break
Save	Paste	Find Next	16	28	48	68	Goto Next Chapter	Column Break
Save As...	Clear	Find Previous	18pt	32	52	Set...		Page Number
							Keep Together...	
Insert Document...	Mark All	Goto Page...	Italic		Superscript			Ins First Number
Insert Graphic...		Import Degas/Neo	Bold		Subscript		Display Options...	Next Number
Show Info...	Make Upper Case	Check Spelling	Underline		√No Script			First Roman
Set Paper Size...	Make Lower Case	Auto Checking	Outline		Strikeout		Text Only Mode	Next Roman
Preview...	Make Mixed...	Maintain Dict...					Set Text Printer...	First Alpha
Print...		Unload Dictionary	√Zurich					Next Alpha
	Abbreviations..		Holland					
Quit			Unitype					Ins Merge Field
			Maths Symbols					Question
			Set Font...					Merge Test

Calligrapher

Reviewed by
Dr. S.G.D. Henderson

Professional or Junior

There are two versions of Calligrapher available. The full version is called Calligrapher Professional and the cut down version is Calligrapher Junior. I have no information on the latter version, apart from the price which is £79 and that it should be available towards the end of March, as my review copy was Calligrapher Professional - which I shall henceforth describe as Calligrapher. I shall also make comparisons with First Word Plus and Signum2 - both of which I use extensively.

Weighing in at a hefty £139, Calligrapher is considerably more expensive than First Word Plus, etc. The Professional version is not aimed at competing with First Word Plus - more the Protext v5 market. Word processors fall into two categories - those which use the resident printer fonts and those which use GDOS. The first and more common type includes First Word Plus, Protext, K Word, Word Writer, etc. The second category includes Signum2, Wordflair, Write On, etc. Calligrapher can function in either of these modes but if you want to use the vector fonts then graphic mode must be used. Calligrapher is a fully fledged document processor with some of the most elegant features I have yet seen in an ST word processor. The program requires 1MB minimum memory

but will function in either high or medium resolution and runs on ST's and STE's. I would not like to have to work for long periods of time with Calligrapher running on my medium resolution colour monitor, but it is lovely using my SM124.

It would be understandable if you had groaned at the thought of "yet another new word processor review". Just when you were convinced that the ST market couldn't support another word processor, out pops yet another. Calligrapher, however, is rather special. It first appeared about four years ago and then disappeared a very short time later with stories of masses of bugs and disputes between author and distributors. At this time the distributors, Computer Concepts, ended their brief sojourn into the ST market and Calligrapher disappeared. This was apart from the large numbers of pirate copies around. I saw a pirate of this program some years ago and was amazed at the features and concept behind the program. A lot of people still use these pirate copies and swear by the program - bugs and all! Some months ago, Calligrapher V2 surfaced in Europe and I waited and hoped. At long last the wait is over, and Calligrapher is now distributed in the UK by "Working Title".

Installation

Calligrapher is supplied on three double-sided disks which are copy protected. In order to use the program, you must go through an installation procedure - shades of Timeworks DTP I thought. Wrong - it is worse! The installation procedure took about 25 minutes, with endless disk

swapping on my two-floppy system, and makes no attempt to use GEM. The result is a set of three working disks. Even after the installation is complete a soft reset is required in order to install GDOS and run the LINE.ARC program which controls Calligrapher's

sophisticated vector outline fonts. Booting the first of these disks results in a request for you to insert the original disk #1. Once the program has checked this is a master, you are ready to go. Personally I think this Key disk copy protection system is not unreasonable considering the cost of the program. If you find it irritating, there is a simple solution. Register

your purchase of the program with the distributors and they will supply a fourth master disk which contains a non copy protected version of the program along with a couple of other goodies which I'll mention later. The full installation does not have to be repeated and your working disk will be modified. When you pull down the DESK menu and click on INFO, your name is displayed along with the usual copyright message. This should discourage you from passing out copies to all your friends!
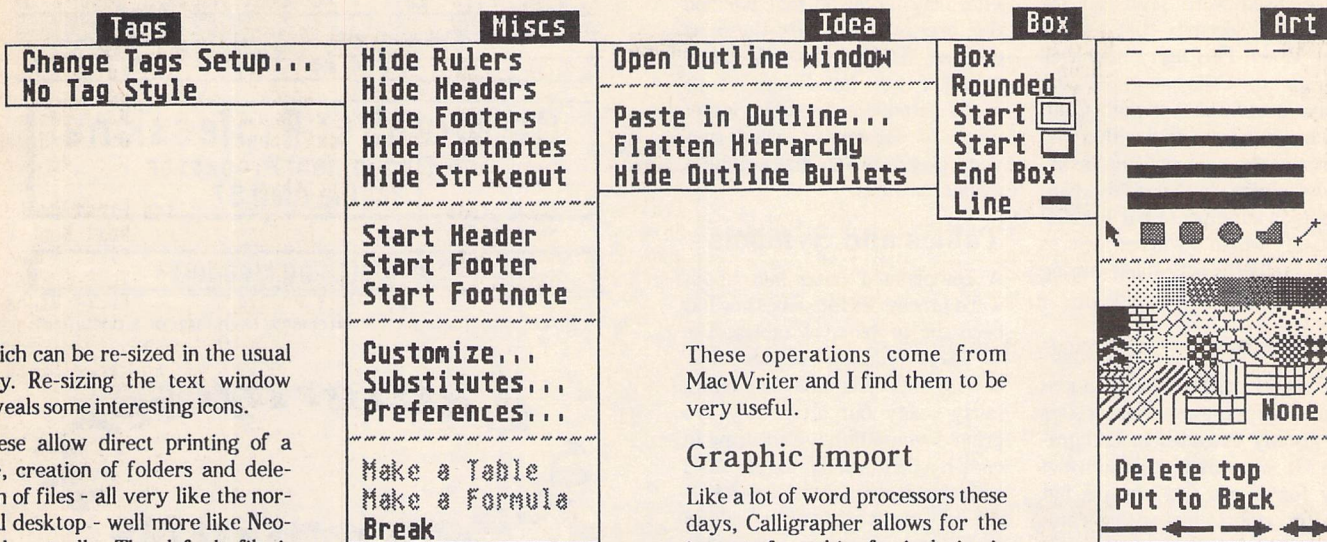
Ease of use

Unlike my beloved Signum2, Calligrapher is remarkably straightforward to get up and running if you have had some previous experience of another word processor. For normal WP, I use First Word Plus and experience of it was a great help in using Calligrapher. The ring-bound manual runs to 370 pages but contains a summary card which is a good idea. The manual is clear and easy to use and has tutorials at the end of each of the three main chapters. Failing all else there is an extensive on-line help facility. Press the HELP key and a fully indexed, extensive help window opens to guide you through the workings of Calligrapher. The first thing which strikes you is the number of pull down menus on the GEM menu bar - twelve in all! Calligrapher functions in a fairly standard GEM manner with editing being carried out in a conventional window

```
    Tags                    Miscs              Idea          Box          Art
 Change Tags Setup...    Hide Rulers      Open Outline Window   Box       - - - - - -
 No Tag Style            Hide Headers                        Rounded
                         Hide Footers     Paste in Outline... Start □     ━━━━━━━━━━
                         Hide Footnotes   Flatten Hierarchy   Start □     ━━━━━━━━━━
                         Hide Strikeout   Hide Outline Bullets End Box    ━━━━━━━━━━
                                                             Line  ━      ━━━━━━━━━━
                         Start Header
                         Start Footer                                    ↖ ■ ● ◗ ✦
                         Start Footnote
                                                                         ▒ ▓ ░ ▒
                         Customize...                                    ▒ ▓ ▒ ▒
                         Substitutes...                                  ▒ ▓ ▒ ▒
                         Preferences...                                  ▒ ▒ ▒ ▒
                                                                            None
                         Make a Table
                         Make a Formula                                 Delete top
                         Break                                          Put to Back

                                                                        ← → ←→
```

which can be re-sized in the usual way. Re-sizing the text window reveals some interesting icons.

These allow direct printing of a file, creation of folders and deletion of files - all very like the normal desktop - well more like Neodesk actually. The default file is called UNTITLED and you have to rename it when you save it. You can customise this default file using the Set Startup option from the MISCS menu; it allows you to set page length, page number offset, whether the cursor will flash or not, whether sizes are shown in cm or inches, whether backup files will be created if you save a file with an existing name and whether the program will start up in text or graphic mode and a variety of other useful odds and ends.

Edit Features

Calligrapher is very closely modelled on MACWRITE on the Apple Mac and emulates a lot of its keyboard shortcuts. Speaking of which, it really is about time that we had some standardisation of keyboard shortcuts in ST programs, and those used in Calligrapher appear to be very sensible. Programmers please take note! Calligrapher uses a ruler method to control the text format and double clicking on the rules displays a dialogue box which allows you to control justification, etc., and a wide variety of different types of TABS. I thought First Word Plus was good having decimal TABS but Calligrapher goes further in allowing four different types, all of which I find to be invaluable. Block manipulations in Calligrapher are handled in a fashion similar to First Word Plus. Hold down the left hand mouse button and drag downwards to mark the block which is shown in inverse video. Unlike First Word Plus, you can drag down beyond the visible page as it scrolls with you. There is also the option to mark the beginning and end of a block using the drop down menus when the area to be marked is too large to do it by the dragging method.

Once marked, a clipboard method (à la First Word Plus) is used for the standard CUT, COPY, PASTE, etc., operations which are pretty well universal to all decent word processors. One lovely feature of Calligrapher is that if you mark a block and then type, you replace the contents of the block if the cursor is inside the block. You might think that this gives scope for blunders - but in fact all Calligrapher operations are fully buffered and simply pressing the UNDO key will reverse the last operation. Double clicking on an individual word marks it, allowing you to change the word or to delete it by pressing DELETE. Case changes within blocks of marked text can be universal or intelligent, e.g. capital after a period, etc. The case of individual letters can be changed using CTRL U and CTRL L to switch to upper or lower case respectively. CTRL S will reverse the case of an individual letter.

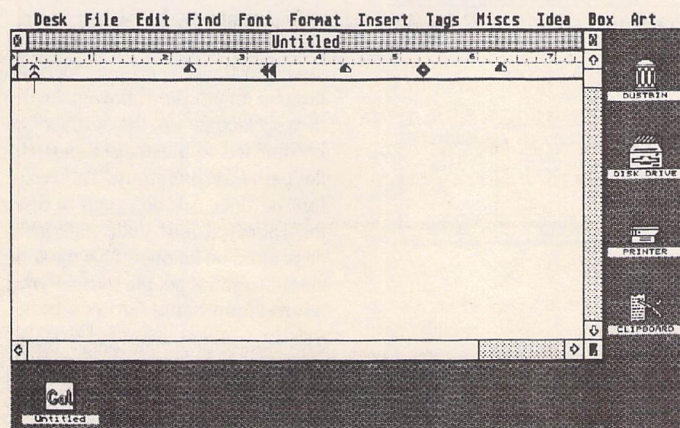These operations come from MacWriter and I find them to be very useful.

Graphic Import

Like a lot of word processors these days, Calligrapher allows for the import of graphics for inclusion in your document. Calligrapher deals with graphics in a much more comprehensive manner then any other program I have seen. Selection of Insert Graphic from the FILE menu allows you to import .IMG or .GEM files. Once imported, they can easily be re-sized. You are not restricted to these types of graphics, however. It is possible to import Degas .PI3 or Neochrome graphics using the Import/Export PAK - more on PAKS in a moment. Having loaded your art work you are presented with an impressive collection of options which allow you to apply dithering, re-scale it, alter the number of pixels per inch, smooth the transition between tones and alter the emphasis on any particular primary colour. Once you are happy with your handiwork, the image may be saved in .IMG format and then imported into the text as normal. The ART drop down menu provides a collection of simple tools to manipulate/augment your graphics. The usual circles, rectangles, polylines, fills, etc., are provided. While not designed with any pretentions to being an art package, it can hold its head up in the company of Timeworks DTP.

Extra Packages

PAKS are additional packages which will be loaded with Calligrapher and are selected from the OPEN PAK option within the FIND menu. In addition to the Import Degas/Neo Pak, two further PAKS are supplied. The first is Key Selector which opens a table of all available characters in the currently selected character set. Clicking on any of the characters in the table results in that character being inserted in the document at the current cursor position. This is the same method employed by First Word Plus to insert characters supported by your printer but which do not appear on the keyboard. The third PAK is Importexport. This is used to import ASCII code, both line-based and paragraph-based, into Calligrapher. ASCII export is also handled from this menu and the resulting ASCII code is saved as paragraph delineated code with all formatting and controls stripped. Two further import options are offered. The first allows for importing .DIF files saved from spreadsheets and the second allows direct import of First Word Plus documents. Documents so imported retain their settings from First Word Plus resulting in Calligrapher setting rulers to give the justification, pagination, etc., that was present in the original document. This option suggests to me that the programmers recognised firstly that First Word Plus is the most

```
Desk  File  Edit  Find  Font  Format  Insert  Tags  Miscs  Idea  Box  Art
┌─────────────────────────── Untitled ───────────────────────────┐
│                                                              │⌷DUSTBIN│
│                                                              │
│                                                              │⌷DISK DRIVE│
│                                                              │
│                                                              │⌷PRINTER│
│                                                              │
│                                                              │⌷CLIPBOARD│
└──────────────────────────────────────────────────────────────┘
 Col
 Untitled
```

Calligrapher's edit screen re-sized to allow the additional icons to be seen. Note that if you have more than one document open, then additional document icons will appear in the bottom left hand corner.

widely used word processor for the ST and secondly that a lot of First Word Plus users may well upgrade to Calligrapher. I certainly intend to! Although Calligrapher is not supplied with a thesaurus in the package, the distributors inform me that one is available as an additional PAK for £25. Probably worth the investment as this is really the only thing missing from the program.

Spell Check

The search and replace options offered by most word processors are greatly extended in Calligrapher. It is possible to search not only for words and phrases but also for rulers, formatting commands and even style commands. This really is a superb set of options and there are keyboard shortcuts for these routines, including 'find next occurrence of...'. The spelling checker supplied is very large (160,000 words) and is based on English, not American, spelling. Here is the first (and last!) case of First Word Plus being better than Calligrapher. Because the dictionary is held on disk rather than in RAM, the checking of even a fairly small document takes rather a long time. If you choose to check spelling as-you-type then the disk activity is frantic and even my typing speed is faster than the checker can keep pace with. When the checker encounters a word it does not recognise, it presents you with a selection of usually very intelligent alternatives. New words can be added to the dictionary and the result saved to disk and automatically incorporated into the dictionary the next time you use it.

Files may be linked together and the program regards these as chapters in a book. Any alteration to one of these linked files results in the automatic re-numbering of pages in subsequent chapters - very clever if you are writing a manual or thesis.

Tables and Symbols

A complaint I have had about word processors for some time has been the problem of tables. The WYSIWYG nature of word processors lets you lay out tables fairly easily but after they are printed you still have to draw in lines by hand. Calligrapher deals with this in a delightful manner. It not only deals with the box/lines problems but it creates the table for you! Type in the data, separating the columns with a vertical line, select MAKE TABLE from the MISCS menu and you are presented with a series of options for controlling the type of box, line thickness, alignment within the table, etc. The program then produces a perfect table for you.

From the same menu it is possible to create mathematical/scientific formulae in a similar manner. The formula is described in simple language using obvious terms and the formula is drawn out with scaling performed automatically. Although I recognise that this is a specialised option it is a great help to scientists/students and school pupils alike. Formulae so produced can even be incorporated into tables.

While mentioning science, I must point out what to me is a serious omission. First Word Plus v2 could only use sub and super-

Desk File Edit Find Font Format Insert Ta

Calligrapher Professional
A Document Processor
for the Atari ST

Eye Catching Headers!!

Boxes can make all the difference to the top of a document.

Calligrapher the Wordprocessor

There is the facility to curve text around various geometric shapes such as ellipses, splines and bézier curves.
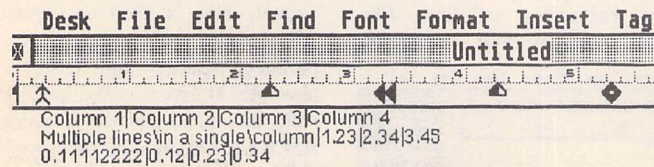
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scripts from the menus, which was rectified in v3. Calligrapher suffers from the same complaint and I hope that a keyboard alternative will be offered in a future version. A very DTP feature is the ability to generate boxes containing text. Simply select START from the BOX menu and choose the type of box (outlined, shadowed or rounded) and a box will be created using the current ruler for its size. Text is then typed into the box and the box enlarges as you type until you select the END option from the BOX menu. This is an eye-catching way to create a title for a poster or document.

Idea Outliner

A highly novel feature of Calligrapher is the Outliner. This allows for the generation of a free-form flow chart to help you plan your ideas. The chart is a hierarchical system with parents and kids (their word - not mine) represented as boxes and linked in the normal manner with limited annotation allowed in the boxes. Once set up, the outliner can be shuffled to illustrate a particular pathway or family. The resultant outliner can be saved to disk, incorporated into your document or printed on its own. This must be useful to some people, but as yet I haven't found a use for it.

The mandatory mail merge facilities are included in Calligrapher and as you must by now expect they are excellent. Everything is simple to set up and I was impressed by the speed at which it carried out mail merges. Calligra-

pher can directly handle its own mail format, Superbase ASCII export format, or a range of ASCII formats.

Columns

One feature which makes me put Signum2 and First Word Plus away and reach for my Timeworks DTP is the problem of multi columns. Unfortunately, if you just want a single page of multi-column text, then Timeworks is rather cumbersome and the output is not as good as I sometimes want. "Ah," said a friend, "you need Protext v5." Perhaps, but I like to see the result before I print it. Enter Calligrapher. Simply set the ruler to the width of the first column, position the cursor where the next column is to start, double click on the ruler and select NEW COLUMN. Repeat for as many columns as you want and start typing. When the page boundary is reached the text moves to the top of the next column. You can centre, or flush text to left or right, within each column. Absolutely brilliant!

Print Quality

When all is said and done, the manipulation of text is all very well but what really counts is what the final hardcopy looks like. In a word - excellent. The two supplied fonts are Zürich and Holland (Helvetica and Times to me). When you register your purchase you get Unitype (Courier) and a Maths symbols/Greek font. The third additional font is a clone of

---

Desk File Edit Find Font Format Insert Tag

Untitled

Column 1	Column 2	Column 3	Column 4
Multiple lines in a single column	1.23	2.34	3.45
11112222	0.12	0.23	0.34

~sum(x+0,x=~infinity,3 ~root({~over(zx,x+2r)}))

$$\sum_{x+0}^{x=\infty} \sqrt[3]{\frac{zx}{x+2r}}$$

Calligrapher generates tables and formulae from simple descriptions as shown above.

Zapf Dingbats (so my learnèd friend informed me). This is the font with the scissors, Access and Visa symbols, telephones, etc. - all very DTP. With justification switched on, your screen text is equally spaced between each word. On-screen proportional fonts look lovely and the display is as close to WYSIWYG as I have seen. Because Calligrapher uses its own outline fonts, you can have any point size between 6 and 128 in increments of 1, and the printed output will be smooth and less chunky than with normal GEM fonts. This is achieved by aliasing methods which smooth out the outlines. If you are lucky enough to have a 2MB machine and a hard disk, the outline fonts are shown on screen, but otherwise they are not as smooth as the printed output will be. Output on 24-pin NEC and Star printers was exceptional and even the output on an LC-10 was very much better than from any other program with the exception of Signum2. The difference in output between Calligrapher and Signum2? I really can't tell them apart in terms of quality.

Conclusions.

If you are feeling the limitations of First Word Plus or if you are starting out on the word processing game and want top quality ouput then look no further. I think that Calligrapher is destined to become THE word processor for the ST despite its rather high price tag. The rather slow screen re-

draw rate in version 2.12 is improved in version 2.14 which is now shipping and I can only find the spellcheck to criticise in what has become my favourite word processor.

Alternatives

Really, the only competitor is Signum2, which is almost £50 dearer and less well-featured than Calligrapher. Regrettably, I think my copy of Signum2 may not be getting so much use now that Calligrapher has finally returned.

Product:.........Calligrapher
                 Professional
Version:........2.12
Pulisher:.......Eclectron
Distributer:.. Working Title
                 P.O. Box 4
                 Eynsham
                 Oxford
                 OX8 1UD
Tel. 0865 883592
Price:...........£139
Manifest:......370pp ring-bound
                 manual;
                 3 d/s disks.
System:........1MB RAM;
                 high/medium res.
                 GDOS installed.
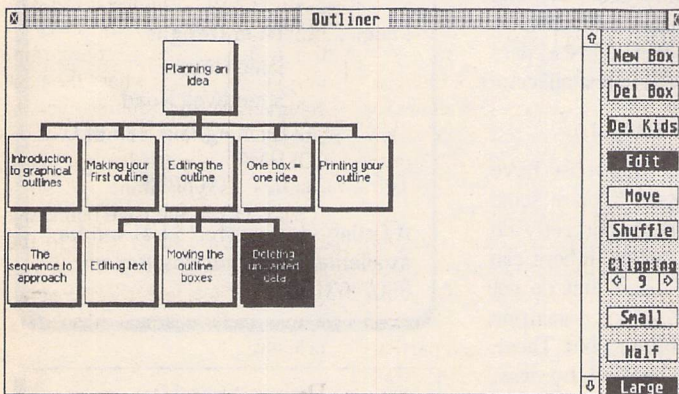
The Outliner method of planning your ideas is certainly unique to Calligrapher, and so simple to set up.

Different typefaces and different point sizes may be mixed on the same line.

Titan Designs' Reflex Board

"Take the road past the boarded-up pub," were the directions.
Hidden away in a scruffy part of Birmingham is a first-floor office
containing the designers of possibly the most exciting (and
affordable) add-on yet for the Atari ST. Paul Rossiter reports.

Designers Dave Encill and Dave Glasspoole, of Parsec fame of old, have turned their skills to more realistic ideas which should sell by the thousand, not merely by the tens. This latest brainchild is the Reflex board. The first batches will be available by the time this review is printed. At the time of writing (January '91) they are waiting for the first batch to be assembled. Germany wants over one hundred already, and demand for the next few months is likely to be high.

So what is the Reflex board, and what can it do? The board is an add-on graphics board which enhances the monochrome resolution dramatically without significant 'performance degradation', large amounts of cash or large-screen monitors.

Ultra-high resolution

The board simply plugs into a Mega's expansion port and provides monitor sockets on it for the standard SM124/5 or a larger screen monitor. The hardware consists of a Texas Instruments graphics processor, some high-speed video RAM, and essential 'glue' logic. When the system is booted up, a software driver tell the ST to use the board's memory for its screen, and patches GEM to make it think its screen is much larger. The base board can provide up to 1024 by 1024 resolution on a suitable monitor. The beauty of the system is that when it is seen on a standard unmodified SM124/5 it can display perfectly readable text at a resolution of 1024 by 800. An alternative mode of operation is similar to the PD program 'Hyperscreen' which provides a 'virtual' window on a much larger screen: as the mouse moves towards a border the whole screen scrolls until the edge of the screen is reached. The software versions are very jerky and slow, but to see this in operation on the Reflex card is nothing short of uncanny: the screen scrolls as if on wheels, and the speed of movement can even be varied by a small accessory.

The supplied accessory also allows customisation of the Reflex parameters such as monitor type and size, screen resolution, and even offers a screen-saver and mouse accelerator, essential if using the standard Atari dinosaur-mouse to swim across all those pixels!

The SM124/5 can also be pressed to give 1024 by 960 but only in 'interlaced' mode. This is similar to TV signals and halves the screen update rate, the side effect of which is considerable flicker, especially on certain fill patterns: unsuitable, I feel, for prolonged use. For the wealthy, a vertical A4 monitor can be used which is ideal for DTP work, as the whole of an A4 sheet can be seen at once. The very rich can have a 21" monitor which is more like an A3 size screen, especially with the 1024 by 1024 pixels option.

There are other boards available which offer similar specifications, but none of them can display on an SM124! Also, most of the others are incredibly expensive and require large-screen monitors with ECL inputs. The Reflex combination of price, performance and adaptability is unbeatable.

And now the bad news...

Something as amazing as this must have problems, right? Well, yes, it does: some programs that are not written correctly do not like the extra pixels, whilst others can handle large numbers of pixels but do not like the A4's 800 horizontal resolution (these include O-Line and Retouche). These, I hope, will have been patched by now. The other problem concerns the Mega's expansion port. Not all of us have Megas, but the guys at Titan assure me that they will soon be offering a fitting kit for ordinary ST's (which will involve both soldering and hacksawing). Bear in mind, also, that in most ST's that have an IBM emulator or 16MHz board fitted there will not be enough headroom in the case. Also note that owing to problems in early TOS versions, TOS V1.2 or higher must be fitted.

The future holds extra cards to allow 2048 by 2048 pixels, and Titan are working on other projects for the ST and TT which are at present under wraps. Let's hope they are as good as this one.

It is extremely gratifying to see British designers taking on the Germans, and for anyone interested in 'serious' use, especially DTP, this board is a must. It will give the ST a new lease of life, offering fast, flexible and clear graphics at VGA specification and above. After all, the TT can only offer 1280 by 960 and this only with an extra (very expensive) large-screen monitor. As the Reflex uses the blitter, an ST with a processor accelerator, a blitter and a Reflex card, will give the TT a very good run for its money.

Price: .... £199+VAT
(ST version slightly more)
Credit cards accepted.

From: .... Titan Designs
Jonic House
Speedwell Road
Birmingham B25 8EU

Tel: 021-706 6085

A fitting service (for ST's) will be available from Paul Rossiter on 0602-631631.

Alternatives

In the past, the only way to get a resolution better than 600x400 was to buy an SM194 monitor or equivalent, for the best part of £2,000; or engage in an ambitious DIY hack to make use of the border on an SM124/125 monitor - but this would not work on an STE, as Atari have further integrated the video circuitry. (See Overscan 3 on page 30.)
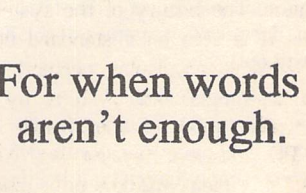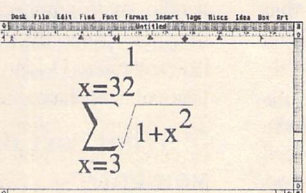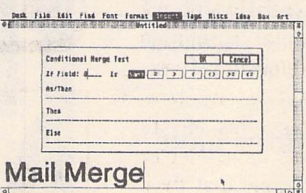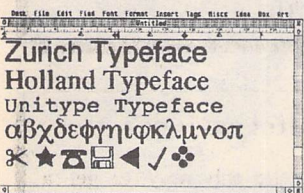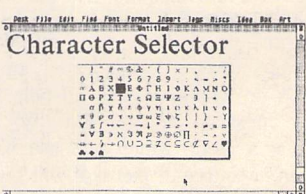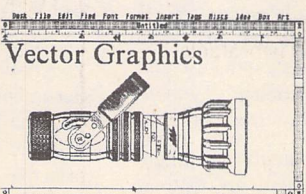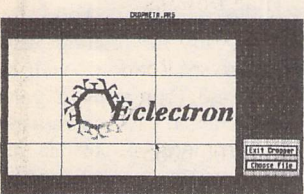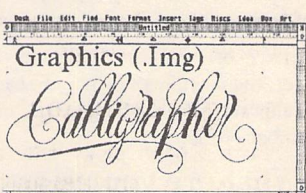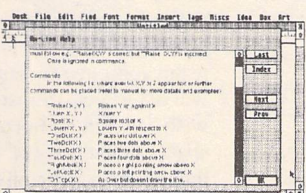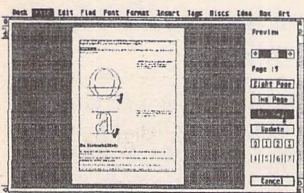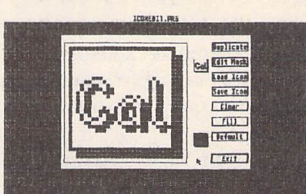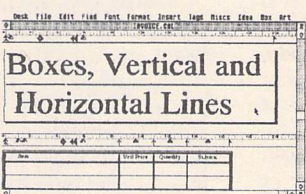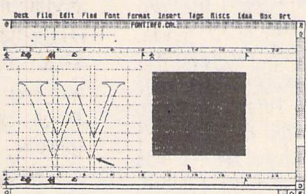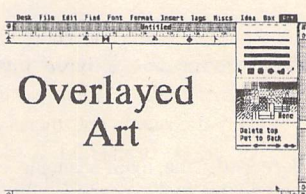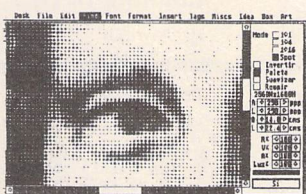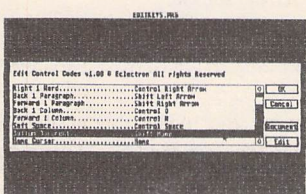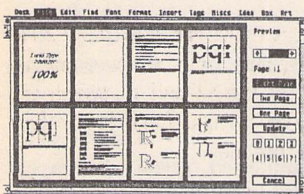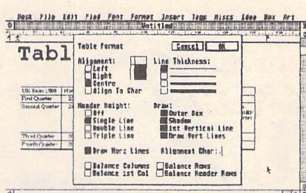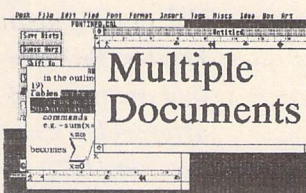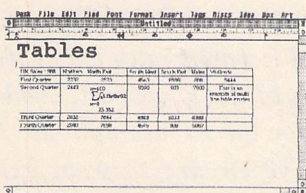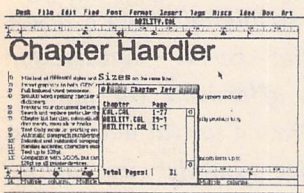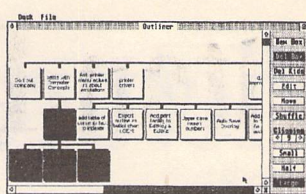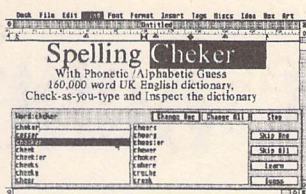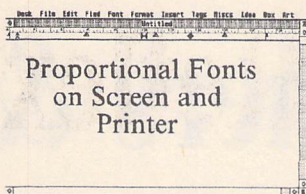
Pictures, Scanners & Pixels

Not so long ago, Scanners were expensive, and most folk only had a 9-pin printer. Pictures in DTP work really didn't look that special - neither, for that matter, did a lot of DTP output! Suddenly, affordable (or almost-affordable) scanners for the ST are with us. Are they a useful addition to the Art/DTP armoury? Or are they an expensive gimmick we can do without? Mike Kneen examines the possibilities for Scanning and Picture handling in DTP and other work.
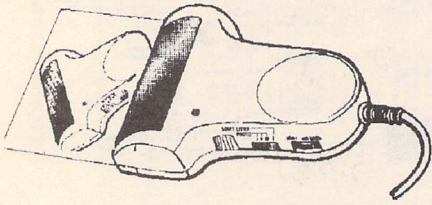
Until recently the main scanning contenders seemed to be the expensive offerings from Signa - the Hawk and the hand-held Colibri scanner, along with the famous Kempston DaataScan. The latter had the disadvantage of being limited to 200dpi (dots per inch), while the former 'professional' packages were considerably more expensive. A number of alternative options began to appear with scanners from Migraph and Genius, to name but two, allowing scanning at resolutions of up to 400 dpi. Kempston have come back with a number of exciting improvements to their scanner range, and prices remain keen.

So what? Are scanners really all that good? In fact, the usefulness or not of scanners, and of computer artwork in general, depends on a number of factors.

1: What are you using scanned artwork for?

Whether you are using a Word Processing program or a Desktop Publishing (DTP) package, images incorporated into reports, essays or whatever, can all help in getting your message across. Equally, if you're writing a game which will use pictures on screen, a source of pictures will be required. However, the quality of much of the so-called computer Clip Art in the Public Domain is questionable to say the least - perhaps your documents or games might just as well do without!

Scanning might allow you to use just the right pictures for your application. Or again, maybe you have skills with pen or pencil that you simply haven't got holding a mouse. A Scanner might allow you to incorporate your own line drawings into your work.

2: Do you need computer artwork at all?

If you are producing some sort of printed output, there are good alternatives to using computer-based artwork in the first place.

In most DTP work - whether for Church newsletters, fanzines or whatever - the output from your computer printer is going to be used as the master for some other printing process. Typically, photocopiers, old fashioned stencil-cutters or ink-duplicators, small-scale offset machines, etc., are all pressed into service for the final print run. Suitable artwork can be pasted directly into place on the single master copy - after it has been printed out on your computer printer, but before it goes to the final printing stage. In this case you can use glue and scissors with your own drawings, or the considerable amount of Clip Art in books. Your DTP program (or even a word processing package) will allow you to manipulate the text as you wish, leaving appropriately sized empty spaces in the body of the text to allow you to add pictures manually. If you need to adjust the size of pictures and diagrams, the cost of getting a reduced/enlarged photocopy at your High Street print shop is very small. It must be said that, if suitable artwork is to hand, this really is the easiest, quickest and cheapest option. Read no further - you've just saved yourself several hundred pounds...

...EXCEPT that you will be unable to juggle images, edit images, tidy them up, distort, mask, convert or whatever. Given a scanned image, the possibilities for its use are only limited by the features of the Art Package you use, your own imagination, and (importantly) what will look 'right' for the particular application.

3: What sort of printer have you got?

If you are still keen to use electronic artwork, will your printer do justice to the images you are using? It has to be said that a 9-pin dot-matrix printer may not give good enough illustrations for newsletters. On the other hand, if you are producing screen pictures for games, this will not bother you. Fortunately, the price of high resolution

printers has plummeted recently. If you still can't afford a laser printer, some ink-jet printers (e.g. Hewlett Packard's DeskJet) provide 300dpi output at a more affordable price.

Suddenly, good quality pictures are possible - without painfully obvious pixels (the basic building blocks of the picture) and that 'blocky' appearance. Line drawings can look splendid when reproduced at 300 dpi, and processed and re-touched photographs are also a possibility. However, this also leads to the next question...

4: How much memory have you available?

Pictures at 300 dpi consume a great deal of memory. Even if you have the disk space to store them, does your available RAM give you enough working space to be able to manipulate your pictures usefully? If you are using a DTP package such as Timeworks which uses slave files on disk to build up material for a page ready for printing, will you have enough disk space to deal with a document with pictures? Then again, if you have no hard disk, some of these operations will be painfully slow even if possible in principle.
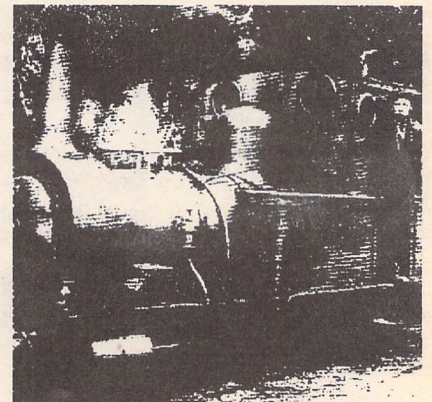
Line art setting - black/white
'soot and whitewash' effect.
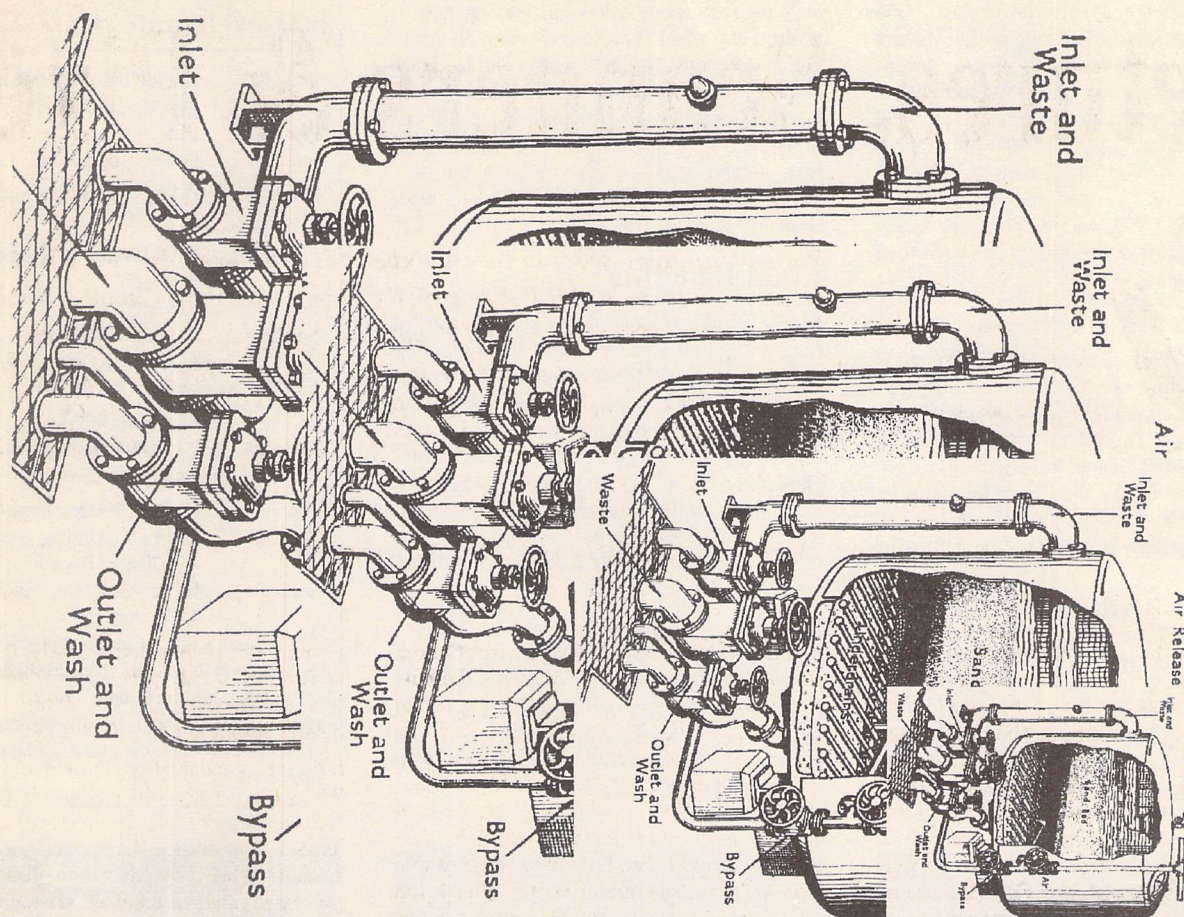
A nested set of scans of line art - a waterworks pressure filter. The largest image was scanned at 400dpi, the others at 300, 200 and 100dpi (the smallest). They are shown here at approximately 200dpi, giving scaling with absolutely no distortion. The memory requirement for the combined image is 106K.

Here again, falling prices for extra RAM and for hard disks will help, but if you're strapped for cash it's important to consider whether your precious pennies might be more usefully spent on memory upgrades, leaving scanners for a later stage.

5: How will you manipulate the images?

Capturing images by means of a scanner is only the first part of the process. You will almost certainly wish to adjust the picture before using it. Some form of art package will therefore be essential. Most scanners come with software for basic manipulation of picture files, and many include a full art package as part of the deal.

It's important to remember that electronic pictures are made up of very large arrays of dots. A fair-sized picture prepared for a 24-pin printer at 180dpi will only occupy a quarter of the area if output at 360dpi. Similarly, a full screen of artwork (at 72dpi) will look like a postage stamp on a 300dpi laser or ink-jet. It's essential that your art program is able to deal with images much larger than will fit on a single screen on the monitor, in order to allow sensibly sized pictures in your output.

To buy or not to buy?

A scanner is *not* one of those bits of kit you really *must* have. You can get along very nicely without. I have been using the Migraph scanner bundled with Touch-Up for some six months. What have I been able to do?

First, it's been possible to build up a library of frequently used images, logos and so forth, which are easily and painlessly incorporated into DTP documents. A great deal of fiddling with scissors, curling pieces of paper and glue (everywhere...) has been saved, and it's far easier getting things 'straight' on the page. When the final copy comes out of the computer printer, it is ready for bulk reproduction (photocopier, duplicator or whatever) without further ado. This repays in large measure the initial fiddle in setting up and learning to use the Migraph Touch-Up and scanner package.

Secondly, it is possible to process photographs. No computer printer, whether dot-matrix, laser, or whatever, is able to reproduce full tone artwork, such as a normal black and white photograph. Pixels are either black or white, and that is the end of the news. Much the same story is found when

you look at the possible processes for the bulk printing of your 'publication'. Few photocopiers or stencil cutter/duplicator combinations are able to do full justice to full-tone pictures.

The Scanner/ST combination is able to help here. Most scanners have facilities for 'Dithering'. This is a process for producing 'imitation' grey tones by means of a routine for grouping pixels into various-sized clumps. When reproduced on a 300dpi printer this gives a quite realistic, if 'grainy', impression of a full tone original. Given a suitable original, this will also allow colour prints to be processed, although some experimentation is required, and the results may be less worthwhile. Not only can one use this process to incorporate a photographic original into a DTP document, but equally importantly, it allows one to process a photograph into a form that can be tackled by a duplicator.

Thirdly, many scanners (the Migraph offering among them) allow scaling of images by resolution. Scanners operating at 100, 200, 300, or 400 dots per inch allow this. Basically, an IMG image file is simply an array of dots. The size of the image will be determined by the resolution of the output device. Using a 300dpi printer, the 300dpi scan

setting will produce an image that will reproduce at the same size as the original. One can, of course, scale the image within the art or DTP package, but this can lead to unwanted 'blockiness', tartan patterns, and other horrors. If, however, you scan at 100dpi and set the resolution of the IMG file appropriately (e.g. in Touch-Up), then on a 300dpi outfit you have a one-third sized image. Clearly 1:3, 2:3, 3:3, and 4:3 sizes are available without any of the distortions produced by normal scaling.

A Purchase?

The current offerings and prices are shown in the table right - bear in mind that good offers are often available. My own choice of Migraph/Touch Up works well, but having shelled out £400, it's a little galling to see such excellent offers (one including Touch-Up!) for £150 - £250. *Now* is always the wrong time to buy anything in the computer world...

Features I would regard as essential? Dithering (several settings for preference), variable resolution from 100 to 400dpi (beware - some scanners don't give true 400dpi operation but a sort of ersatz impression by means of an algorithm...), and a good interface/software. Some scanners come with minimal software allowing basic image

handling only. These can have the advantage of being fast in operation and leaving you to acquire the pixel cruncher of your choice. I am stuck with Touch Up as combined art package and 'Scanner driver'. It's a powerful combination, but s-l-o-w, to say the least! Some of the latest pixel-crunchers look good (e.g. Arabesque, see ST Club demo disk DEM.47) and may have advantages of speed, economy and features.

Final thoughts

I have no information on the strange, optical fibre gadget offered by Ladbroke Computing to clip to the print head of a dot-matrix printer. It may give a good budget solution to the problem of image grabbing, but it looks fiddly and will only handle single sheet original material. Similarly, Flat Bed (A4) Scanners and Optical Character Recognition (OCR) are beyond my experience. Maybe there's a Signa Colibri/OCR user out there who can fill us in?

If you are not sure you need a scanner, if you can't yet afford the scanner you fancy, or if you don't need it for six months, sit tight. If you haven't yet got the 'kit' (enough memory or a high-resolution printer), save for those items first. If you're **still** determined to buy, have fun!

Possible buys
(all hand-held 105 mm scan width)

Product ....Golden Image Scanner
            (400dpi, mono)
Price £149.99
Supplier ....Power Computing

Product ....DAATAscan Personal (200dpi)
Price £219.95

Product ....DAATAscan Professional
            (400dpi)
Price £249.95
Supplier ....Pandaal Marketing
(both reviewed by Adam Boocock, ST Club Newsletter 31, Oct. 1990)

Product ....Migraph (400dpi)
Price ....£399.99 (includes Touch-Up)
Supplier ....Computer Express

Product ....Colibri (400dpi, mono)
Price ....£454.25 including good image
            handling software
Supplier ....Signa Publishing - also supply
            OCR version

A4 Scanners are available - prices begin at about £600 with the Mitsubishi Scanner from Pandaal Marketing. This is nominally hand-held, but the optional sheet-feeder makes it more stable in operation.
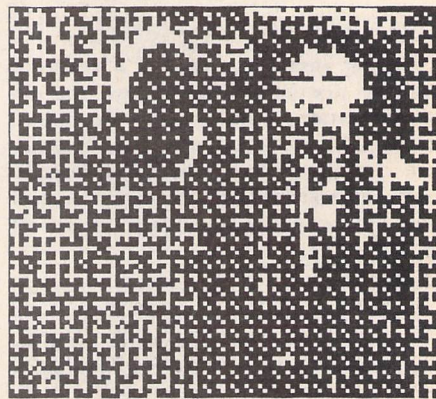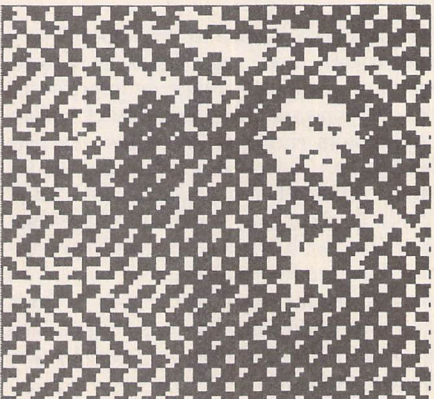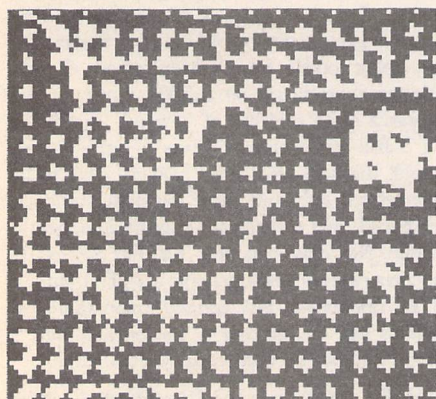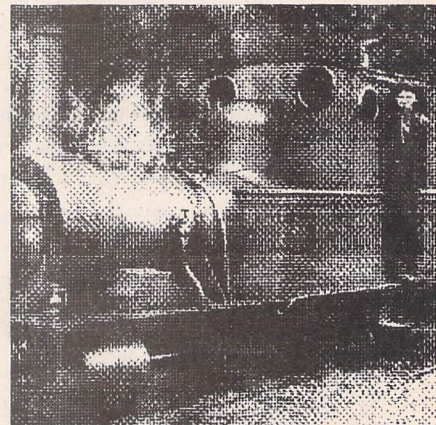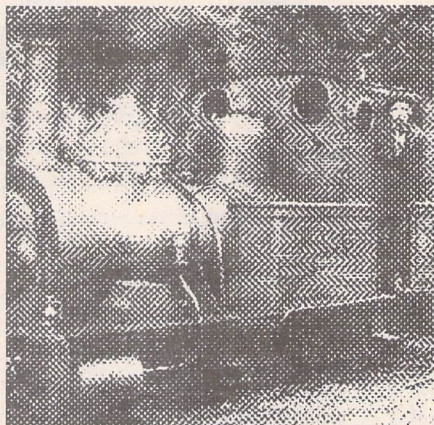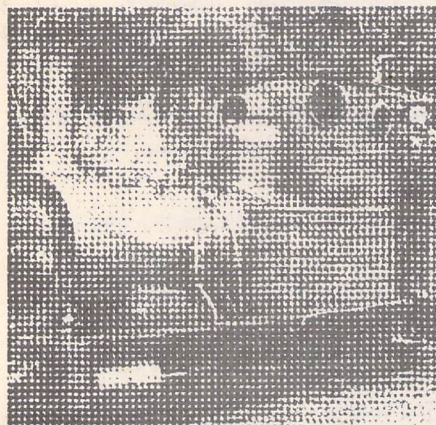
The pictures in the top row were taken from a photograph in a magazine. They show the effect of different dither settings. In each case the scan was made at 100dpi, and they are reproduced here at a greater resolution, giving a proportionate reduction in size. They could be given further 'treatment' in your chosen art package. The locomotive is Dolgoch of the Tallyllyn Railway.

The pictures in the bottom row are enlargements of those above and show the different dither patterns in detail. The area of the picture shown is around the driver's head and shoulders.

YOUR FIRST BASIC

Recently, Atari commissioned HiSoft to produce FirST BASIC, a cut down version of its other BASIC languages. Since then it has been bundled with the ST. Now, HiSoft under the guise of Bookmark Publishing have released Your FirST BASIC, an 'invaluable and exhaustive guide', but is it worthy of that claim? Lee Corbin has the answer.

If the original ST BASIC was given away with your ST when you bought it (as it was when most of us did), then you will know how bad the language is. If, however, you have bought your ST more recently, you will be lucky enough to have been given a copy of FirST BASIC instead. FirST BASIC is a cut down version of HiSoft and Power BASIC, arguably the best available for the ST. Now the book of the program, **Your FirST BASIC**, is available. So if you would like to learn more about the language, or already know a bit about BASIC and want to go further on your ST, should you buy this book?

It costs £14.95 and is mainly available from HiSoft. For that fifteen pounds you get a neatly laid-out ring-bound book of almost 400 pages. These are rather crammed in, and although they are thin they sometimes get crumpled under the ring when you are reading or referring to something near the beginning or end of the book. It contains over a hundred pages of tutorial, followed by chapters covering the FirST BASIC editor, programming concepts, commands and libraries, and several appendices.

It is now that the most fundamental fault of this book becomes apparent, because with the exception of the addition of a tutorial, the book is almost a duplicate of the FirST BASIC manual. Although there are several differences, few of them are of much importance. If you do not have the FirST BASIC manual (although I assume all FirST BASIC owners would), this will not matter, but otherwise it could be argued that you are paying fifteen pounds just for the tutorial. If this is the case, the tutorial would have to be pretty good. I am therefore going to examine the rest of the book first, and then spend some time looking at the tutorial in more detail.

Last Things First

The FirST BASIC Editor chapter is, of all the chapters 'copied' from the manual, the most different. The text is almost word for word identical to that in the manual, but there are many more screenshots and illustrations which make it easier for anyone who is as much a beginner to GEM as to BASIC itself. It is neatly laid out, and accurately covers all the editor's features.

The next chapter is simply entitled 'Concepts'. It sets out to explain the concepts of programming which are very complex. This must have been a difficult chapter to write, as it needs to cover all concepts thoroughly, and at the same time manage to be relatively easy to follow. A beginner to the language will still find it difficult to grasp, but with great concentration (and perhaps careful reading before and after practice), the potential programmer shouldn't have too much difficulty in picking up most of what is written. It does clearly explain variable types, computer logic and FirST BASIC's rules perfectly adequately, and so is probably as good as it could be.

The 'Command Reference' section lists all FirST BASIC commands alphabetically, instructions explaining how to use each, and examples or sometimes complete programs to illustrate them. This section is not by any means perfect, but it certainly does the job it sets out to do. The two chapters on libraries firstly list all the operating system routines available (which are standard 'C' format), then present an advanced 'mini-tutorial' explaining how to use some of them, enough to get many readers interested, and writing programs using them, but not enough for very serious use. (In any case, the manual advises the reader to get a dedicated book for advanced use with the operating system routines.)

Finally, six appendices include a character set table, a bibliography, and then go on to explain how to convert programs from other BASICs. A summary of the GEM and FirST BASIC error messages follows. There is also an appendix about the extra features of HiSoft BASIC and one on those of the STE (which also plugs HiSoft BASIC yet again in the process).

An excellent index is included, which when combined with the lengthy contents section allowed me to find anything I wanted in little time.

Again, I must emphasise that the book so far covered is almost exactly the same as the manual. The first hundred or so pages, however, make up the tutorial. I have always liked to leave the best to last, and this review is to be no exception.

The Tutorial

This is without doubt the chapter which totally changes the way I feel about the book. It really is good enough to begin to make up for the 'duplicated' parts of the book. It teaches much of the language clearly, accurately and, quite simply, with excellence.

I can imagine that certain parts of the tutorial could be difficult to pick up, and the most inexperienced user could probably get lost occasionally, but with enough dedication, it will quickly help the reader to understand the language, and indeed to think in a logical way. It encourages good, modern programming methods, and although it sometimes explains how to cheat, it then immediately ensures that the reader doesn't do it too often!

The authors have obviously been very conscious of the beginner: when the authors use a piece of computer jargon that has not hitherto been explained, they not only apologise but also say where to look up the phrase concerned. This, of course, is what all technical books should do, but all too often they don't. Other areas of ST computing, such as graphics or printers, are explained along the way either to help the reader understand, or just for the reader's interest.

The Authors' Audience

Obviously, beginners to the ST, or simply anyone who wants to start writing their own programs, be it for a practical reason, or simply for enjoyment, will immediately be interested in this book. Of course many ST users won't have a copy of FirST BASIC, but most of the book (and certainly almost all of the tutorial) is relevant to either of HiSoft's excellent Power or HiSoft BASICs. Even ST users who are competent in BASIC will find this book helpful. It will allow them to discover commands which they didn't know existed, or to emphasise the differences between older BASICs and HiSoft's ST version. Although it doesn't set out to do this, the tutorial does this just as well as it teaches, making this book equally appealing to anyone who has just upgraded to an Atari ST.

Summary

A few years ago, all computers had one standard (built-in) version of BASIC, and could only hold a few kilobytes of program at once. This meant that dedicated computer magazines used to be filled with type-in listings. This was, perhaps surprisingly, a very good way to pick up BASIC. The ST, however, has several versions of the language, and since useful programs tend to be far too long for inclusion in magazines, they are usually relegated to the cover disk. This means that another method of learning has to be found.

All too often manuals don't include a tutorial, and so a programming book is often the only way to learn an ST BASIC. This one comes from the authors of FirST BASIC itself, and as the tutorial section is excellently written, it must be the best available book for use with this version of the language.

The only real factor against this book, as you may by now have guessed, is that it is so similar to the manual. I realise I keep making this point, but at first I found it almost unbelievable. It is, admittedly, useful to have the command reference at hand when studying the book (the tutorial encourages the reader to refer to this section fairly often anyway), but I'm not sure it is such a hardship to have to pick up the original manual to do this.

If the authors had decided not to repeat so much of the manual they could instead have extended the sections on GEM libraries, perhaps, or the errors section, which in practice is less helpful than it could be. Although this would make the book more complicated in places, it would automatically become an essential book for many more people. Perhaps the language could be bundled with the book. I realise this is a rather radical suggestion, but FirST BASIC is a sufficiently restricted version to make this a viable option. In any case, the authors give enough adverts for HiSoft's other BASICs throughout the book to ensure a lot of extra sales for them.

It really is a shame that so little of this book is original. If other sections of the book had been extended or re-written, or parts of the duplicated chapters were streamlined or removed and the price reduced, I would have no hesitation whatsoever in recommending it. Any potential buyer though will have to consider what I have said, and decide if the book is worth its cost.

It is, however, excellently written: there is nothing written which shouldn't have been, and very little not written which should have been. I have presented you with the facts, and so I'll leave the decision to you.

ST Internals

Figure 1: ST Block Diagram

This is the first in a series of articles by Paul Rossiter which are intended to help explain what you have inside that grey box (grey cells, perhaps?). It is hoped that these articles will both remove some myths about the ST and provide some answers to common questions. As this is a dynamic series, any feed-back on what you want covering will be much appreciated. Each of the articles will attempt to cover ground starting from the very basic level, yet containing considerable low-level detail.
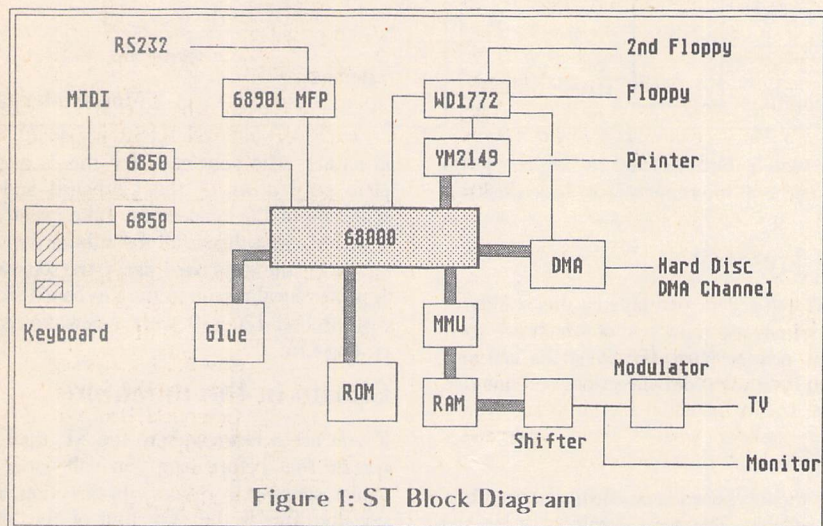
As the parts in the ST are all inter-linked, there is no obvious place to start. Figure 1 above shows a 'block overview' diagram of the machine, together with the interconnections. The rest of this article covers the keyboard and the things it controls. As there are so many variants of the basic ST, the version explained in detail is the most common, i.e. the ST-FM. Where there are differences in ST-M's and ST-E's or Megas, these will be explained separately.

The Keyboard

In most micros the keyboard can be dismissed as just a collection of switches and an encoding circuit. The ST has to be different! To save the main processor from the overhead of having to scan the keyboard, the keyboard has its own fully-fledged micro processor on it. This processor is a 6301 running at 1MHz derived from a 4MHz crystal. The 6301 is an 8-bit micro with onboard ROM and RAM (4K of ROM and 128 byte RAM). The ROM holds the custom program for the keyboard driver written by Atari. In order to communicate with the ST, the 6301 has a serial communication line, and the ST has a 6850 USART communication device to control the keyboard by sending and receiving data. Any action from the keyboard such as a key-press or a mouse movement is grabbed by the 6301 and sent to the main ST at a bit rate of 7812.5 bits per second. The ST sends data to the 6301 to change parameters (such as mouse scale rate), or to set the keyboard real-time clock. The data from the keyboard is initially stored in a register located at hex FFFC02; the 6850's control data is at location hex FFFC00.

Whenever the ST is powered on or the reset button pressed, the 6301 executes its built-in diagnostic routines. How these show up in the event of a failure is unknown to me as I have

yet to come across such a failure. The 6301 can operate in many different modes and memory models: these are selected at switch-on time by the status of some input lines. If both mouse buttons are held down whilst switching on, the 6301 enters the wrong mode and thus crashes.

In the early days of the ST some people tried to keep the 6301 running with a re-chargeable battery even when the main ST was switched off, the idea being to keep the real-time clock going. These devices were not very successful, however, as the battery always ran down much too quickly.

The Switches

Like other keyboards, there is a matrix of keys which switch through scanning signals whenever they are depressed. Fig 2 shows a sample of the keyboard schematic; the diodes are there to isolate the matrix lines from each other. When a key is pressed it switches the scanning signal from one output to an input and thus generates a unique combination for each key press.

Top quality keyboards use individual switches for each key such as 'hall' effect switches or reed relay switches. Low end keyboards use a 'membrane' keyboard. The ST uses a mid way form of keyboard where the key contact is a rubber cup with a graphite top. This is pressed down onto two

metal fingers covered with a non-oxidising layer of conductive material. The back pressure is that provided by the rubber cup itself. The only exception to this is the Mega keyboard and some really early ST's which have individual switches. Considering the apparent crudeness of the system it works very well apart from the clackiness of the keys.

The keyboard connects to the ST's main board by some short lengths of wire; these carry +5Volts for power, ground, data in, data out, disc drive power light lead and the reset line. (The ST-M had a different arrangement with the mouse and joystick port mounted on the main board, and as a consequence of this the keyboard has many more wires on it.) The Mega of course has a separate keyboard which connects via a curly lead and plug.

The 6301 also takes inputs from the joystick and the mouse, manipulating these inputs to send to the ST. Both of these are fed in from a 9-pin 'D' connector and buffered through a 74LS244.

The mouse

The mouse works by having a large rubber-coated ball which is free to rotate within its housing as it is moved around on a flat surface. The ball's movement is transferred to two small rollers which are mounted at 90° to each other. See Figure 3 for a diagram of the mouse's internals. On the end of each roller is a disc with radial slots in it, and an infra-red photo-coupler senses the disc's movements as its infra-red beam is interrupted by the slots'

movements. These are converted into digital signals and sent to the 6301. The 6301 can work out which way the mouse has been moved because the two discs are staggered slightly: the timing of the pulses determines the rotational direction. The movement is then scaled by the 6301 and sent to the ST to move the mouse pointer on the screen. The mouse also has two buttons which are just simple switches. These tend to wear with use, and a neat trick is to swap over the left and right buttons: as the original right button would have had hardly any use, this will give you an almost new left button, and this operation can prolong the life of the mouse considerably.

Some other computers use 'optical' mice where the mouse has no ball but is slid over a ruled grid: the mouse emits light which is reflected back from the grid and thus produces pulses. I have a left-hander's aversion to this kind of mouse: the grid is always glued down on the wrong side of the computer!

For those people who are dissatisfied with the Atari offering there is a vast choice of alternative mice. The Naksha is a good choice: it offers a much better design with

Figure 2

Keyboard Schematic

Figure 3

Mouse Internals
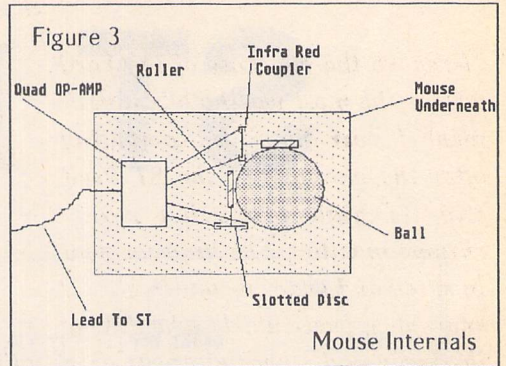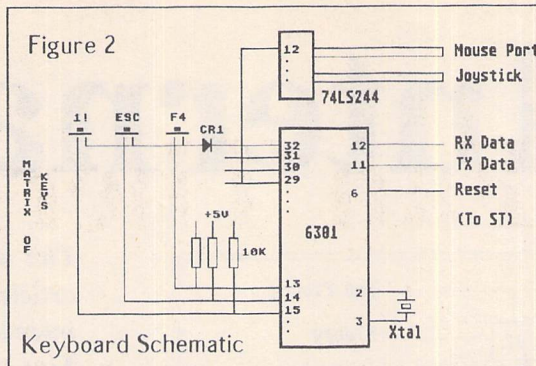
micro-switch buttons and a higher gear: more screen movement for less desktop travel.

The Joystick

The ST can accept two joysticks as standard. Some games use four, two of which are used via the printer port. The joysticks are any normal type with four directions and one fire button.

Faults

Unless the keyboard is physically abused it is very reliable. The most common faults are mouse/joystick problems, which are caused by the solder joints around the 9-pin D connectors breaking and becoming intermittent

in nature. The only cure for this is a complete strip down of the keyboard and re-soldering of the connectors. Take great care if you attempt this as all the rubber cups fall out when the keyboard parts are separated. A professional repair to the keyboard should cost around £20-£30 with a new keyboard costing £75.

Ghosts in the machine

If you are a newcomer to the ST, then it is certain that before long you will notice the mouse starting to reverse its direction occasionally. This is the symptom of the 'ghost' virus and is incredibly annoying. Get a copy of the ST Club's Virus Killer and immunise all of your disks.

Fan Thermostat

"I regard the purchase of my hard disk as the most worthwhile investment I ever made in computing after the purchase of the ST itself and its high resolution monochrome monitor. The improvement in speed and general convenience is enormous, particularly when using the large and powerful applications which are becoming available for the machine as its true potential in serious use is belatedly recognised. However, like others before me, I have found that a hard disk cooling fan with its high-pitched pneumatic whine is not the most socially acceptable adjunct to a domestic living room. I know that some people have permanently disconnected their fans without apparent ill effect, but a recent occurrence sharply alerted me to the potentially disastrous effect of heat on magnetic media...." - Jim Cruise

A Cautionary Tale

I recently bought a commercial software package via mail order. I was out when the courier delivered the parcel, and so he left it with my neighbours. Not knowing what it contained, they put the parcel on a shelf near their Rayburn stove and it was thoroughly warmed through by the time I received it. On putting the first disk in the drive I got the dreaded "drive A is not responding" message: half the disks in the package had been wiped. Hand on heart explanations to the software house concerned resulted in their prompt replacement, but after an experience like this there was no way I was going to permanently disconnect my cooling fan. All the same, the noise was a nuisance, and so I decided to construct a thermostat that would only switch on the fan when the temperature of the hard disk approached a dangerous level; this has proved to be infrequent but not never - during a normal evening session of a couple of hours or so the fan doesn't usually come on at all, but if the unit is on continuously the fan usually cuts in after about three hours and periodically thereafter.

The circuit to be described will switch on the cooling fan whenever the ambient temperature within the hard disk's housing exceeds 45° C and will keep the fan running until the temperature has been reduced to 35° C, after which it will switch the fan off again. Because of manufacturing variations in the thermistor used as the sensing element, the temperatures at which individual examples of the circuit operate may deviate slightly from those quoted above, but provided the specified 1% tolerance resistors are used the deviations will be small and unimportant in practice. The completed unit measures 1.5 x 1.5 x 0.5 inches and it should fit into any hard drive housing. It costs approximately five pounds to make and is suitable for any hard drive which uses a twelve-volt fan.

The Circuit

The thermistor TH1 is the temperature-sensing element. It is a special type of resistor whose resistance falls with increasing temperature. The changes in resistance undergone by TH1 are converted into voltage changes by the bridge network consisting of R1, R3, & R4 and are applied to the input of the operational amplifier chip IC1 which boosts them to a sufficient level to operate the relay RLA1. This relay controls the power supply to the fan motor. Resistors R2 and R5 provide hysteresis to prevent the fan being switched rapidly on and off when the temperature is hovering around the critical level, D1 and D2 protect IC1 from reverse voltages, C1 stabilises the power supply, and C2 absorbs any transient voltage spikes caused by the switching of RLA1.

In developing the circuit, my initial worry was that voltage transients caused by the sudden switching on of the fan might affect the logic circuitry of the drive, and could possibly cause data corruption if the fan happened to switch on whilst data was being saved to disk. I accordingly carried out some tests on my own installation. These were of a highly improvised nature and involved much split-second marksmanship with a fan-heater at point blank range. I failed totally to stimulate any data corruption and so I feel justified in declaring that to the best of my knowledge and belief the circuit is utterly safe.

The Components

If you're buying your components from a local electronics shop you may have a problem with R1, as 24k is an uncommon value and may not be stocked. You can replace R1 with a 27k resistor and a 220k resistor soldered together in parallel - these are both common values. You should stay with the specified type of relay for RLA1 as alternatives may be insufficiently sensitive. The amplifier chip IC1 has a basic type number of 741; it will probably have various letters before and after this number, depending on the manufacturer, and can be ignored; if it carries the number 741 and has 8 pins, it's OK. The 741 is an industry-standard chip and should be available anywhere, as should all the other components in the circuit.

Construction

It isn't necessary to understand the circuit theory in order to complete this project, but it is necessary to have reasonable skill in precision soldering. The circuit is based on 0.1 inch matrix verostrip which provides most of the benefits of a proper printed circuit board whilst avoiding the messy process of copper etching. The copper conductors on the back of the verostrip are very close together and if you aren't careful with your soldering it's all too easy to leave minute whiskers of solidified solder bridging across adjacent tracks. If you're at all unsure of your abilities here then buy a few extra resistors and practice soldering them into an offcut of verostrip. You will need a fine-tipped soldering iron and some flux-cored solder of the type intended for electronics work. Note also that you must use verostrip for this project - not ordinary veroboard.

Begin by cutting a piece of verostrip 1.5 inches long. It should have 15 pairs of copper conductors - make sure you start with it the right way round: the arrow X in Fig 2 shows where the line of breaks in the copper conductors should run. First fit the 4 pins: these

are pushed through the board from the copper strip side and soldered in. Solder in the various other components as indicated in Fig 2. Note the orientation of D1 & D2 which is indicated by a painted band at their cathode ends. Mount TH1 about half an inch clear of the circuit board so that the air will be able to circulate round it. In addition to the components there are 17 wire links on the board. If you leave these until last you will be able to make them out of the offcuts from the component leads. When everything is soldered in, examine the back of the board minutely for bad joints and bridged tracks (a magnifying glass helps). Finally, when satisfied that all is well, push IC1 into its socket. IC1 is not a static-sensitive chip and needs no special precautions in its handling - but do make sure you put it in the right way round: the pin 1 end of the chip will be indicated by an identation in the plastic.

Testing

It's a good idea to test the unit for correct functioning before installing it into your hard drive. To do this you will need a source of 12 volts DC and a low wattage 12-volt bulb (< 10 watts). A car battery and a car sidelight bulb could be used. Connect the bulb between pins C and D and the battery between pins A and B with its positive terminal connected to pin A. Initially, the bulb should not light. Now bring the tip of your hot soldering iron up close to TH1 and after a few seconds the bulb should light. Now remove the soldering iron and after a few more seconds the bulb should go out. If the bulb wouldn't light the most likely cause is bad joints. If it stayed lit all the time the most likely cause is bridged tracks.

Installation

The highest ambient temperatures within your hard drive are likely to occur in the upper part of its housing, making it the best area to choose for fitting the thermostat. You should avoid mounting the circuit board too close to the interface circuitry as RLA1 emits a weak magnetic field which could possibly affect the latter: a separation of an inch or more should be OK. A final point is that no metallic part of the circuit board must come into contact with any metallic part of the drive, including its housing if this is made of metal. Fig 3 shows the method I used to attach the circuit board. This method has the advantage that the drive does not have to be marked in any way. Fig 4 shows how the unit is wired in to the existing circuitry. You may wish to repeat the hot soldering iron test to make sure everything is working as it should before finally putting the cover back on the drive. This time the application of heat should cause the fan to start - be careful here as the drive will need to be switched on and open, and you may be within touch of lethal voltages. If the unit passed the bulb and battery test but fails this one, the only possible cause is that you have got the positive and negative fan wires the wrong way round. Reverse them and all should be well.

PARTS LIST

CIRCUIT REF	DESCRIPTION	QUANTITY
TH1	Bead thermistor – 47k at 25C	1
R1	24k 1% miniature resistor	1
R2,R3,R4	100k 1% miniature resistors	3
R5	1M 1% miniature resistor	1
C1	0.1uF polyester film capacitor	1
C2	1000pF polystyrene capacitor	1
D1,D2	1N4001 rectifier diodes	2
IC1	741 op-amp chip in 8 DIL pin package	1
RLA1	12-volt reed relay (Maplin Cat. No. JH13P)	1
	Verostrip	1 piece
	Single-ended 1mm pins	1 packet
	8-pin DIL socket for IC1	1

Available from:

Maplin Electronics
PO Box 3
Rayleigh
Essex SS6 8LR
Tel: 0702 554161

Figure 1:
Circuit
Diagram
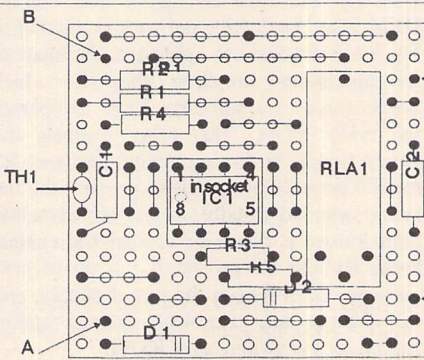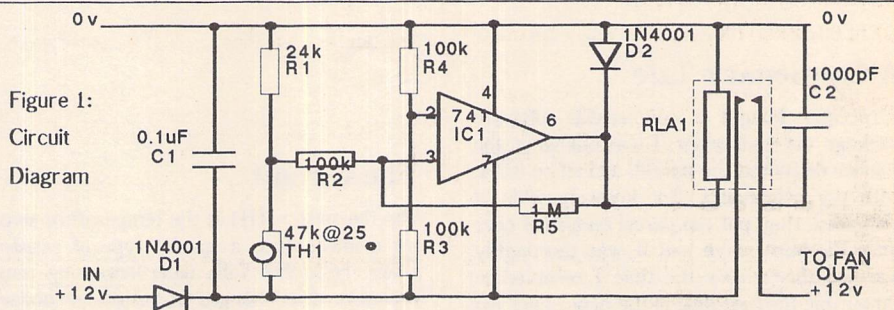
Figure 2:
Layout of components on the circuit board. The arrow X points to the row of breaks in the copper strips on the underside of the board. A, B, C, & D are terminal pins for connection to external circuitry. The pin numbers shown on IC1 are for reference only; no numbers will be printed on the actual chip, but the pin 1 end will be indicated by an indentation in the plastic.

Figure 3:
A suggested method of attaching the circuit board.

Figure 4:
This diagram shows how the thermostat is wired into the existing fan circuit.
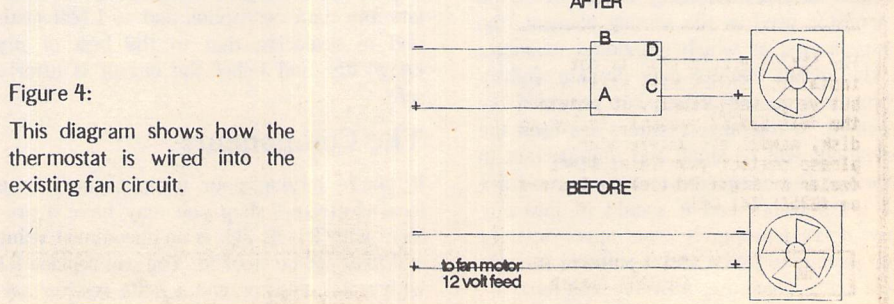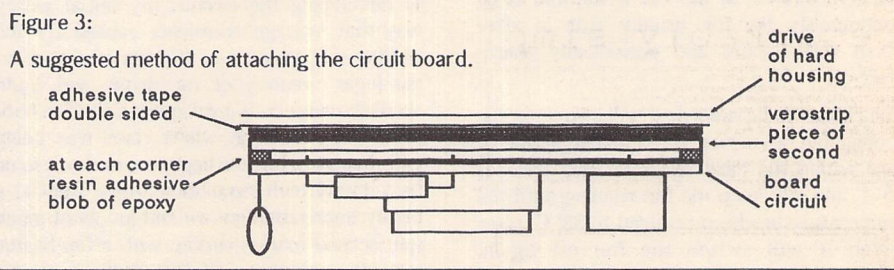
PD UPDATE

Commercial Software Demo's

DEM.62: MonoChrome v1.0β - Monochrome paint package, written in GFA basic and assembler. Loads and saves a variety of picture formats including Degas PI?, PC3, IMG, NEO, DOO and ECH. Includes file functions such as folder create and file delete; good printer control; plus a wide variety of drawing tools. Selecting a tool with the LH mouse button puts you onto the work screen whilst the RH mouse button can be used to edit some tools. A very comprehensive program which is easy to use. (DS:M)

DEM.63: PROTEXT v5.0: A fully function-

ing demo of this well respected £150 text processor. This demo limits you to files no larger than 2K. (DS)
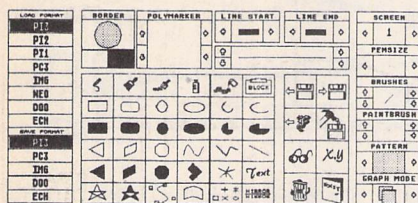
DEM.64: STNTEX: demonstration disk from from Signa - very impressive OCR package. Comes with two scanned document IMG files which demonstrate well the level of accuracy possible. The software is fast - but it is
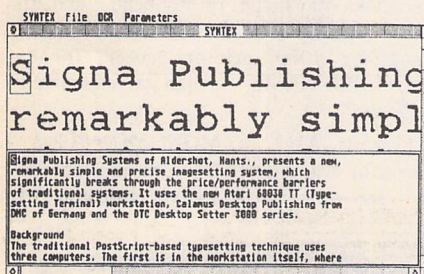
SYNTEX User Information

The SYNTEX accelerator is not installed, SYNTEX will still work, but very, very slowly. To obtain the full SYNTEX product, including disk, manual and accelerator, please contact your local Atari dealer or Signa Publishing Systems on (0252) 341 600.

OK © 1990 by Marvin AG CH-8050 Zürich

Version 11.4 March 1991

memory intensive and 2MB of RAM is recommended for the full version. (DS:M:1Meg)

DEM.65: SCORE PERFECT - a German score-writing program for MIDI. (DS:M)
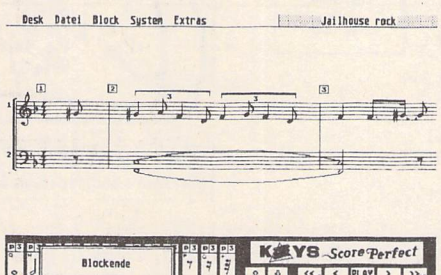
DEM.66: MASTER SOUND II DEMO - Sequence of sampled sounds and the Mastersound software from Microdeal. (C).

Educational

EDU.27: KEYBOARD KAPERS: program for young children - includes facilities for typing, algebra and shape recognition; SLIMMING - question and answer program about habits and diet.

EDU.28: WIZ TEK Educational Software: 5 SHOT - shooting game - hit all 5 targets to complete a level (C); COMPUTER SCHOOL 1: Addition and subtraction tests for basic arithmetic - various levels of difficulty (C); COMPUTER SCHOOL 2: Spelling - beat the computer's car in a race by getting all the spellings correct (C); COMPUTER SCHOOL 3: Memory Trainer - memorise the pictures and then match them up from memory - can be very difficult even for adults! - Match up pictures or numbers with other pictures of numbers; DE-ANAGRAM - from a set of letters the program will (blindly) list all the possible combinations of those letters; FIND

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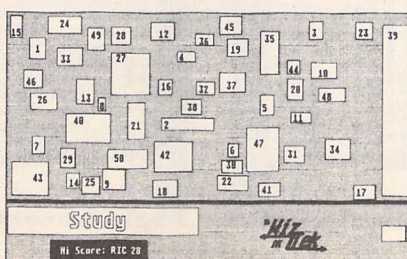
50 - find the 50 numbers on the screen before the time runs out (M); GALLERY - 2 pictures, TNY format.

Games

GAM.160: WIZ TEK Games: JACKPOT - solve riddles to win the jackpot prize; TWO - vertically scrolling shoot 'em up created with SEUCK - jerky graphics, but fairly difficult. (C)

GAM.161: STUMPED - Cricket simulation - select your players and their positions - no animated graphics and written in STOS. (C)

Doubled Up

GAD*71: GAM.160 + GAM.161

Graphics

GRA.132: FUTURE TIME 1: An assortment of Space Craft in CAD 3D2 files, and DEGAS PC1 format. Also included are files for Cybercontrol, and Cybermate. (DS)

Information

INF.29: OVERSCAN 3: Hardware modification details and software for an Xtended Graphics Mode by Stefan Hartmann and Carsten Isakovic. Uses just a simple switch, two rectifier diodes, two resistors, an NPN Transistor and a capacitor to give a visible 59640 Bytes of screen memory in 50 Hertz Mode; resulting in 420 by 284 pixels in Low resolution, 840 by 284 pixels in Medium resolution, and 688 by 480 pixels in High resolution on a well adjusted SM124. Patchy translation from the original German article, needs TOS 1.4, and we have - as yet - to find anyone outside Germany that has got it up and running. For dedicated/brave hackers only!

Music

MUS.82: EARTRAIN - an interval tutor - music test and teaching program for recognition of note lengths - needs ST Basic ($BAS); GUITAR ST - play a guitar with the mouse (C:$C); METRONOME - set the Beats Per Minute, and start the metronome clicking away! ($BAS:M); MUSICALC v2.0 - performs various calculations associated with MIDI: SMPTE and film timing, different time base modes are accommodated (C); SOUNDER - creates sound waves from the STs Yamaha sound chip and calculates the ST Basic program line needed to reproduce the sound (C); SOUNDEX - another sound wave creator. (C)

MIDI

MID.48: INSTRUCT - text files on how the MIDI communication format was born, its uses and implementations - very informative;

PIC 1 — Modification

Overscan → Normalmode
change over switch
6 5 4 Modulatorpins of the old ST 520
7 5 4 Modulatorpins at the 520 STM
+5Volt HSync VSync
100 n
10 K
2 * 1N4148
BC 550 or simularly type
cable 3 Composite Sync
1 K Ohm
MFP 68901
MMU
cable 2 DE-Input to MMU and Shifter
cable 1 DE-Signal
Glue
solder cable 2 here
cut trace here
solder cable 1 here
Circuit Board Reversion F

PIC 2 — Overscan Screen in 50 Hertz mode

new Video-Basis-adress installed by Poke.PRG (adjusts the pointers in adress FF8201 and FF8203)
visible area per line 210 Bytes
visible screen area
210 Bytes * 284 scan lines = 59640 Bytes
840 * 284 Pixel (Midres)
420 * 284 Pixel (Lowres)
horizontal flyback blanking period, still 26 Bytes per scanline displayed
26 Bytes * 284 lines = 7384 Bytes
total scan line 236 Bytes * 284 scan lines = 67024 Bytes screen memory

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MINIMIDI - lessons on MIDI plus information about sequencers, differences between keyboards, synthesizers, keyboard functions, and why to bother with MIDI at all! An interesting read for the novice; MIDIMIKE - loads and plays standard .MDI files; MIDISE - basic MIDI sequencer with no editing facilities (C:Not TOS 1.4+); SCOPE v1.0 - reads and displays any MIDI data received - displays the data as binary, hex and decimal; MIDI THRU - simple MIDI thru port facility patch; ARPEGGIATOR - MIDI desk accessory that cycles through a series of notes - similar to a sequencer, but not as flexible, Arpeggiators were in common use before sequencers became more affordable; EZSEQ - simple sequencer - records MIDI events, and plays them back on all 16 channels (C); RAND PLAY v0.11 - plays a random selection of notes from the parameters set.

MID.49: FOUR OP ED v2.55: voice and performance editor for the Yamaha TX81Z FM and DX11 synthesizers. Can also be used with a DX21. Comes complete with a comprehensive library of voice bank settings for use with the above synths.

Doubled Up

MUD*52:   MID.48 + MID.49

Utilities

UTI.156: SUPERBOOT 6.0: Updates disk UTI.59. A very good boot-up utility - allows a choice of desktop ACCessories, AUTO programs, Desktop.Inf files, Assign.Sys files, and other files at boot up. Plus: a welcome screen,

PIC 3 — Overscan-modification inside Mega ST 2/4 board Reversion 5.0

Three diagrams from Overscan 3 on disk INF.29

solder here
SHIFTER
cut trace 1 here
32Mhz Clock
R116
R115
Comp. Sync
Ground
D10
GLUE
Overscan-switch can be installed at the front of the Mega ST
solder here old DE-Signal)
cut trace 2
board view from above
right corner
solder here
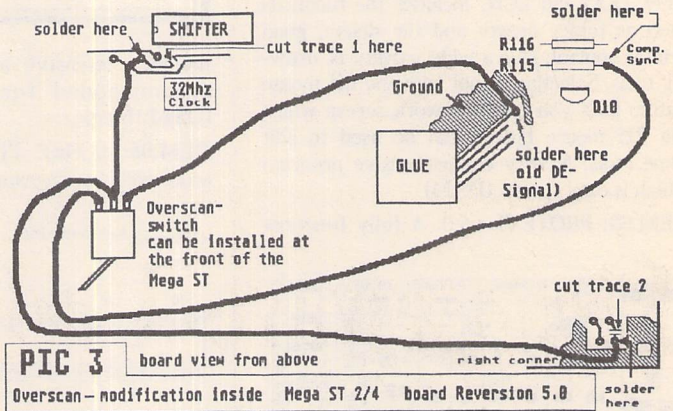
set date and time, restricted access to hard drives and up to 30 pre-set configurations. New features include support for auto booting GEM programs, with Headstart, Startgem, or TOS 1.4+; DC SHOWIT v1.0 - Hijacks the GEM Show file routine and allows text files to be scrolled up and down (Not TOS 1.4+); LG SELECT - Little Green file selector - replacement file selector.

UTI.157: Atari Interface Magazine (USA) compilation disk 1A: BACKUP ST v1.0 - hard disk backup program with a variety of options, and a GEM interface to make the use of the command line a lot easier; BIG BUX v1.01 - financial program for handling your finances - 20 different functions covering investments, item depreciation, and various sorts of loans; DC SLICK SHIFT - utility to emulate the mouse button actions from the keyboard. The author originally wrote this program because his Stacy's track ball was

giving him hand cramps!; DTERM - VT52 emulator - many more features than ST Term.

UTI.158: AIM 1B: GOGO ST v2.1 - very nice GEM shell for launching programs without the need to search through folders for the executable files; GRAM SLAM v2.31 - grammar checker - searches through text files, and sorts out badly phrased wording or exceedingly long sentences. This demo version, although fully working, delays for 10 seconds after every operation, as an incentive to register your copy; MORTGAGE - calculates mortgage re-payments, and the interest charged for the loans; PAN 1080i - Panasonic 1080i printer drivers for 1st Word; PIN GAME - simple game similar to solitaire.

UTI.159: AIM 2: MONOMON v2.2 - powerful disk editor with a variety of functions for examining and modifying disks (M);

Desk File Extras Performance

VOICE BUFFER A   VOICE BUFFER B

1 17
2 18
3 19   EDIT
...
32   32

TX81Z/DX11 PATCH EDITOR/LIBRARIAN
TX81Z
By John Davis
Version 2.55
With Help from Walter Holding and Michael Waters
Patch Librarian/Editor for
YAMAHA 4-OP FM Synthesizers

STATUS
Waiting for Voice Selection

Desk File Extras Performance

A:\TX_BANKS\FIL\VG1Z001.BNK   A:\TX_BANKS\FIL\VDX1V12.BNK

1 SineWood1   17 HornTouch   1 Hollowlead 17 S/H Synth
2 SineWood2   18 <Ensemble>   2 FullSynth   18 Nasty Syn
3 Vocsssound 19 TusonThndr EDIT 3 Clickorgan 19 Farfeeza \
4 VoiceChine 20 ChildrnVoc   4 VibElectro 20 MarimbHorn
5 Synphonic! 21 AnnaLeead? COPY 5 Full Ranks 21 Hoot Glock
6 Synphonic2 22 AlChemist1   6 Thik Thing 22 Voices :)\
7 TX~81Ztar2 23 *Chikish*   MOVE 7 Rich Strg1 23 Storn Wind
8 BlueGuitar 24 BowedEnsmb   8 Orchestra\ 24 Fuzz Clav
9 Shaker1!   25 <Vocalize> SWAP 9 Strings 2\ 25 INIT VOICE
10 Tinpani2   26 AGITATO!2   10 Horns   26 INIT VOICE
11 MOOG-FBass 27 DreamRoads DELETE 11 Flute 2   27 INIT VOICE
12 FretlsSolo 28 Plukd*Harp   12 An.BR.Ens\ 28 INIT VOICE
13 Jays,Bass3 29 *Oboe3*   13 Brit Rodes 29 INIT VOICE
14 Lo-^-^HiBs 30 We*Sing*4U   14 8va Sweep\ 30 INIT VOICE
15 4opBsDlux2 31 Carr`nbia   15 Wha Brass1 31 INIT VOICE
16 Slap*appy2 32 Big & Ugly   16 Bella   32 INIT VOICE

STATUS
Ready to Select Voice

Four Op Ed v2.55 on disk MID.49

STATS - The Statistician - reports ST's memory allocation, disk usage and general system parameters; ST TYPEWRITER v0.5 - keyboard input is echoed on the printer character by character; XYZ - comms utility for file transfer - handles X and Y modem protocols and part of the Z modem protocol; KV GEO 2 - very interesting program about the Sun, Earth and Moon, and the way they affect each other - lots of information on this disk, including animations of the moon landings. (C)

Doubled Up

UTD*74:   UTI.156 + UTI.157
UTD*75:   UTI.158 + UTI.159

Demo's

XXX.217: THE WORLD OF STARTREK: Information and pictures from the Startrek series. Lots of information about the crew of the Enterprise from both the original series and the Next Generation, plus interviews with some of the characters and a slideshow of digitised and drawn pictures. (DS)

XXX.218: STARTREK - The Picture Show: Digitized pictures from the Star Trek series. (C)

XXX.219: STARTREK COMMERCIAL: Digitised pictures from the National Power and Powergen share offer commercial. (C:DS)

XXX.220: TURTLE DEMO 2 - sample of the Turtle Power song from the film. (C:DS)

XXX.221 A-TEAM - sample of the theme tune with a static logo; THUNDERCATS - cartoon series theme tune. (C:DS)

XXX.222: THE GRAPHIC DEMO - selection of picture files created with Quantum paint. Requires the viewer program from disk SSC.46. (C)

XXX.223: TEENAGE TURTLES - sample and digitised pictures from the turtles cartoon series. (DS:1Meg)

XXX.224: FX SHOW - Sampled rhythm sound, with fractal pictures being faded onto the screen. A good selection of fractal screen shots, but the music can get repetitive; SUPERGEM - utility to load programs at boot up, into their correct resolutions. (DS)

XXX.225 + XXX.226: Disk 224 on two single sided disks.

XXX.227: CHRISTMAS - selection of music and pictures with a festive theme ($STOS); FIREWORKS - flashing graphics with palette cycling ($STOS); STOS RUNNER - file selector for selecting STOS basic files to be executed. (DS)

XXX.228: WALKER 2: conversion from the Amiga of this excellent demo by Radical Systemz. (DS:C:1Meg)

Licenseware Update

These disks are all Licenseware: only authorised distributors are allowed to sell these disks. You are free to copy them, but not to to sell them. Licensed Distributors pay a fixed royalty for each disk sold, and all of this money goes to the Budgie authors. The ST Club was the first PD service to join the Licenseware scheme, and with the exception of one quarter we have been the largest contributor of royalties to the authors of these programs.

Budgie Games Disks - still just £2.95 each

GBU.53: FROM LITTLE ACORNS - by Simon Brown - A most delightful adventure, set in Goblins country. The mouse is used throughout, but for a few text inputs where the game will prompt you. This version runs in medium resolution colour; a mono version is available on Budgie Compendium disk GBD*50.

GBU.54: AUTORAMA by David J. Thomas - Drive an automobile around a maze, collecting flags, whilst avoiding other cars chasing you. Several levels of increasing chaos. Your only 'weapon' is a smoke screen to delay your pursuers. Also included is Budgie's third Einstein brain-teaser and Goth's latest demo. (C)

GBU.55: CHIROPODIST IN HELL by Gareth Lucas - You find yourself stranded on a mountain path with, nearby, a wrecked hang-glider. Unlucky pilot? If you are to rescue the chiropodist from hell, this is where you start. A STAC adventure with 26 illustrations and a wide vocabulary. (C)

GBU.56: SUPER LEAGUE SOCCER by Adam Medley - A friendly management game with the usual features: team selection, substitutes, transfers, banks, league table and match highlights; music by Goth and the Shapeshifters. (C)

GBU.57: FOOTBALL GENIUS by Camy Maertens - Four hundred questions on the world's greatest sport. Each correct answer drives the ball towards the opponents goal. Win the FA Cup or play a friendly against any of the ninety two league teams. Free kicks, penalties and full statistics on all clubs. Database-type question editor is supplied. (C)

GBU.58: BERT the SQUIRT by John Shepherd - An 80-level game designed to help Bert get fatter. Collect the fruits, use fire to bounce on the springs and don't touch the aliens or the spikes. Tremendous fun and super graphics! (C)

GBU.59: G-ORB by Gavin Thornton - Gravity Orbital Research Balls are the only means to explore inhospitable galactic cells. Use your FDM space mallet to activate cosmic levers. Preserve your energy and secure shield charges. There are ten levels of eighty screens creating a most absorbing space epic. A truly professional program by one of Budgie's most talented authors. (C)

GBU.60 GUIDED MISSILE by Gavin Thornton - A two-player game in which each player guides his missile towards enemy sites. Several levels of strategic theatres. Patriots v. scuds... A demo version of the

torches illuminate this main hall, drunken revellers leaping in and out of the light. Exits are north to the bar and east to the entrance hall.
Alvin sits at a bar table here with you. He mutters some rubbish which you try to avoid listening to. He drinks from a huge beer mug. There is a mug of beer here.
You are hopelessly drunk.
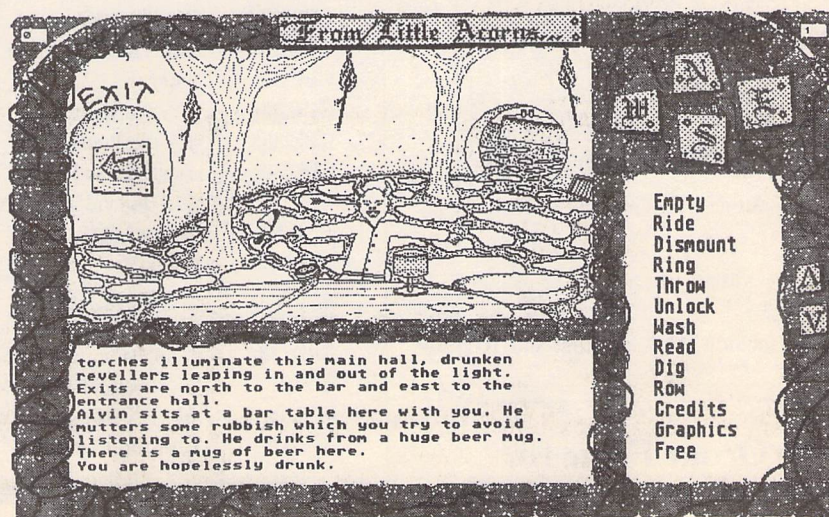
KEY

(M) - Runs in High Resolution Mono.

(C) - Runs in Medium or Low Resolution Colour.

(DS) - Double-Sided Disk

(1Meg) - Needs one megabyte of RAM.

(Not TOS1.6) - Will not run under TOS 1.6 (STe) or TOS 1.4 (most recent STFMs).

($) - source code included.

($C) - C language.

($ASM) Assembler.

Doubled Up: With the exception of a few specially formatted disks, all single-sided disks in this catalogue are now available on double-sided disks. Doubled-Up disks have a disk code in the format: AAA*NN. All PD disks are the same price - there is no surcharge for double-sided disks.

Copyright: To the best of our knowledge everything on the disks in this catalogue may be freely distributed. If you know otherwise please let us know and the offending software will be immediately withdrawn.

This catalogue is originated and copyright the ST Club.

Ordering Details

Please note that we do not accept orders by credit card. Orders accompanied with a cheque or postal order are dispatched by 1st Class post on the day we receive them.

All PD disks are copied onto high quality disks from known manufacturers. The price you pay us for PD disks covers only the costs of acquisition, duplication, cataloguing and distribution.

Disk Prices

PD Disks: Standard and Doubled-Up disks.

	up to 6	7+
Non-Subscribers	£2.80	£2.50
Magazine Subscribers	£2.50	£2.25
Disk-Mag Subscribers	£2.35	£2.05

Licenseware disks cost £2.95 or £3.95 each.

All prices include VAT, packing and 1st Class post.

The Order Form for these disks is on Page 57

superb G-ORB (with one level) is also included. (C)

Budgie Compilations - £3.95 each

GBD*49: Two adventure games by Dave Blower: Death Camp and The Village.

GBD*2O: Mono Compilation: Little Acorns, XW Puzzle and Space Duel.

Budgie UK Productivity - £3.95 each

BPR.01: THE BUDGIE UK PROGRAMMER'S LIBRARY - now updated to version 44 (DS). Upgrade: return original disk plus £1 upgrade fee.

TLB Source Codes

All these source disks require DEVPAC2 if you are to assemble them. In all cases, the source is fully documented, the sprite and music data are held in their respective folders, and an assembled PRG is included, ready to run.

BPR.13: SOURCE CODE from The Lost Boys A: MINDBOMB - Main Menu. Tim Moss (Manikin of The Lost Boys) has at last agreed to release this phenomenal piece of code: full hardware scrolling in ALL

directions. What's more, it is all explained and thoroughly documented. Music, sprites, scroller and the irreverent monkey: all running at 50 frames a second! (DS)

BPR.14: SOURCE CODE from The Lost Boys B: MINDBOMB - Red Sector Screen The 'Red Sector' 3D balls demo originally on the Amiga and improved on the ST by Manikin. Includes the famous helicopter routine. Full reflection in the lower border, with the MFP chip pushed to its limit. Great music to accompany. (DS)

BPR.15: SOURCE CODE from The Lost Boys C: MINDBOMB - Digi-Synth screen. Quartet music playing with a spectrum analyser, great 3D star field, and the inevitable scroller. Six tunes from function keys including Paninaro, In the Night and the Mindbomb theme. (DS)

Budgie Magazines - now just £2.95 each

MAG.08: MAGGIE 4 by The Lost Boys (January 1991): A re-vamped Maggie, with a much better text scroller, more moderate language(!) and a huge choice of articles, reports, interviews, GFA and Assembler tips, the charts by NeXT, demo's, source codes, packers and twenty games reviewed. (C)

TOS 1.62

Some Budgie disks include programs that will not run under TOS version 1.62 (fitted in STE's sold in the UK from December 1990). This is a result of incompatibility problems with STOS the 'programming language' from Mandarin Software. These incompatibility problems are not the result of bad programming by the authors of the titles affected, nor does the fault lie with Atari! The most recent version of STOS is now compatible with TOS 1.62 and the affected disks will be made compatible as soon as possible.

At the time of writing the following disks are NOT compatible with STE's fitted with TOS 1.62:

GBU.04:	Tablit
GBU.15:	Perils of Penfold and Line of Four
GBU.23:	Space Blob
GBU.24:	Slippery Sid
GBU.25:	Scary
GBU.27:	Psicotic
GBU.28:	Sea Fisherman
GBU.31:	Inferno
GBU.33:	Crystal Caverns
GBU.35:	Hostile Reception
GBU.36:	Dogfight and Light Cycles
GBU.37:	Mr Dig and Tank Battle
GBU.40:	Dizzy Lizzy
GBU.50:	Detonator
GBD*31:	Compendium disk
GBD*39 to	
GBD*48:	Compendium disks
BPR.01:	Electronic Bank Statement
BPR.08:	Music Cassette Maker
BPR.10:	Classroom Maths

Fontswitch 3

In the seventh tutorial on Fontkit Plus, Jeremy Hughes outlines the uses of Fontkit's companion utility, Fontswitch. This month, the area covered is the installation of alternative screen and printer fonts. Next month, in the final article, Fontswitch's ability to use different keyboard set-ups will be explained.

```
Desk  File  View
Desktop Info...
═══════════════
G+PLUS Mini
Cliché
Fontswitch
Control Panel
Install Printer
```

Fontswitch is a desk accessory which allows you to use new screen and printer fonts in place of the standard fonts which are normally displayed or printed. New fonts which are loaded and selected in this way can be used with any program which normally uses standard screen and printer fonts (First Word, Protext, etc.). There are various reasons for using Fontswitch:

＊ You might wish to replace the standard screen font with a more graceful screen font for purely aesthetic reasons.

＊ You may want better-quality output than is provided by your printer's standard NLQ font.

＊ You may need to be able to use Greek or Cyrillic (or some other foreign language), or to use scientific symbols which are not available in standard screen and printer fonts.

The second and third of these requirements could also be met by buying Signum. However, Fontswitch is cheaper and can be used with your normal word processor, which may have better general editing facilities than those provided by Signum. In addition, Fontswitch provides extensive keyboard configuration facilities that are not available in Signum, but are useful if you wish to type foreign languages.

The following tutorial is intended to provide you with the basic information you need to use Fontswitch effectively. It does not cover all aspects of the program, which are dealt with in the program manual.

System requirements

To be able to use Fontswitch, you need to have a medium- or high-resolution monitor and an Epson-compatible printer (9-pin or 24-pin). If you are not sure if your printer is Epson-compatible or not, you can assume that it is (almost all dot-matrix printers are Epson-compatible). Fontswitch can also be used in low-resolution, but only the screen-fonts option is available in this mode; the

dialogue boxes for the other options are too large to be displayed properly in low resolution.

Installing Fontswitch

Fontswitch (FSWITCH3.ACC on the program disk) is a desk accessory which should be copied onto your boot disk (the disk you have in drive A: when you switch on your computer, or the boot partition of a hard disk). There is also a configuration program called FCONFIG3.PRG with an accompanying resource file (FCONFIG3.RSC); these should be copied onto your boot disk along with Fontswitch. If you have a 24-pin printer or a non-standard 9-pin printer, you should double-click on FCONFIG3.PRG, and then click on 'printer type' to select the appropriate printer type. (Select 'Epson LQ' if you have a 24-pin printer, or 'NEC 24-pin' if you have an NEC 24-pin printer or an NEC-compatible 24-pin printer.) If you have a hard disk you should double-click on FCON-FIG3.PRG and change the default disk drive from A: to C: (or another hard-disk partition which you will use to store folders containing screen and printer fonts).

```
Desk  File  View
┌─────────────────────┐
│     Fontswitch      │
├─────────────────────┤
│    Screen fonts     │
│    Key tables       │
│    Printout         │
│    Fontprint        │
└─────────────────────┘
```

If you click on Fontswitch in your accessory menu, you will be presented with the Fontswitch sub-menu shown above.

Once you have done this, reboot your system and you should find that Fontswitch is listed under the Desk menu at the top left of the menu bar. If it is not listed then you should check that you have not already used up all the available menu slots: GEM loads a maximum of six accessories at a time. If you click on 'Fontswitch' in the Desk menu, you will be presented with a submenu containing four slots labelled 'Screen fonts', 'Key tables', 'Printout', and 'Fontprint'. The first three slots are more or less self-explanatory: they allow you to change the current screen font, alter keyboard layouts, and change printer fonts (along with other print parameters). The 'Fontprint' slot tells you whether a print program called 'Fontprint' had been loaded (the slot is greyed out if Fontprint has not been loaded), and allows you to switch it off and on if it has been loaded. Fontprint is described below in the section dealing with printer fonts.

Screen fonts

The ST has three built-in screen fonts: an 8x16 font which is normally displayed on high-resolution monitors, an 8x8 font which is used in medium and low resolution, and a 6x6 font which is used with icons. Some programs also use the 8x8 font as a half-sized font in high resolution, and First Word Plus uses the 6x6 font for superscripts and subscripts in high and medium resolution. Fontswitch allows you to change these fonts for

```
┌─────────────────────────┐
│     Screen fonts        │
├─────────────────────────┤
│   System font           │
│   Chicago                │
│ ✓ Roman                  │
│   american uncial        │
│   Clearface             │
│   Chicago                │
│   Bauhaus Bold          │
│   IBM Standard Set      │
│   Ranks New Fancy       │
├─────────────────────────┤
│     Load diskfont       │
├─────────────────────────┤
│         OK              │
└─────────────────────────┘
```

Clicking on the Screen fonts option will bring up the Screen Fonts dialogue box, shown here with 'Roman' selected.

alternative screen fonts, which are distinguished by their first two filename letters: 8x16 fonts begin with 'A1', 8x8 fonts with 'A2', and 6x6 fonts with 'A3'.

Changing screen fonts is a simple matter: if you select the 'Screen fonts' option from Fontswitch's submenu, you will be presented with a dialogue box which lists fonts which have been loaded at boot-up, and also allows you to load new fonts from disk. To select a new font you simply click on the name of the font you wish to display. To load a new font from disk, you click on 'Load diskfont' and select a font from the GEM file selector: look in the STFONTS folder on your Fontswitch program disk for alternative screen fonts, and select fonts with an A1 prefix if you have a high-resolution monitor, or fonts with an A2 prefix if you have a colour monitor. Fontswitch contains a built-in Chicago which is automatically available, and also loads fonts from disk at boot-up if they are copied to a FONTS folder (a folder named 'FONTS' on your boot disk or in a hard-disk partition which has been selected as the default disk drive in FCONFIG3.PRG. (If you're not sure how to create a folder, see the inset box on auto folders.) You can also use FCONFIG3.PRG to replace the Chicago font with a different built-in font, or to select a particular screen font as the default screen font.

If you wish to copy fonts into a FONTS folder so that they are loaded automatically at boot-up, you should be careful to copy the correct type of font. Fontswitch will normally

```
 D:\2PUBLISH.PRG\
605581 bytes used in 53 i
  PUBLISH   APP    15006
  PUBLISH   HYP      568
  PUBLISH   LAS     1074
  PUBLISH   RSC     4719
  PUBLISH   SEC     1001
```

```
 d:\2publish.prg\
605581 bytes used in 53 i
  publish   app    15006
  publish   hyp      568
  publish   las     1074
  publish   rsc     4719
  publish   sec     1001
```

Two snaps of an Atari Desktop window: the standard Atari screen font has been replaced with 'Clear Face' on the left, and on the right by an American Uncial font.

load A1 (8X16) fonts in high-resolution, and A2 (8X8) fonts in low or medium resolution. If you have a high-resolution monitor, Fontswitch will also load matching A2 and A3 fonts alongside A1 fonts if they are present in a FONTS folder; in medium and low resolution, it will load matching A3 fonts alongside A2 fonts. Any font which is loaded in this way uses up some of your computer's memory, so there is no point in loading fonts which you are unlikely to need.

One point which you should be aware of is that some programs (including Protext and Rédacteur) use Line-A routines to display screen fonts. These routines bypass the font addresses which are used by Fontswitch (and normal GEM/TOS programs), so screen fonts which are loaded by Fontswitch are unavailable. If you encounter this problem, you can correct it by using a program called LAFONTS.PRG, which is supplied with Fontswitch. This patches the Line-A vector so that it uses the same font addresses as Fontswitch. To install LAFONTS.PRG, simply copy it into an AUTO folder on your boot disk and reset your computer. (See inset box for further information on AUTO folders.)

Printer fonts

Fontswitch's Printout option allows you to replace the standard fonts used by Epson-compatible 9-pin and 24-pin printers. New fonts can be loaded from disk in the same way that new screen fonts are loaded. The top right corner of the Printout dialogue box contains a 'RAM font' button which is initially greyed out, meaning no RAM font has been sent to the printer. There are also some 'ROM font' buttons which can be configured (using FCONFIG3.PRG) to select built-in printer fonts, and a 'standard' button which selects the standard printer font. The way to send new fonts to the printer is to click on the button labelled 'Download font' and select an appropriate printer font from the GEM file selector. Once a font has been 'downloaded' (sent) to the printer, the 'RAM font' button ceases to be greyed out and is updated to display the name of the font. If you click on this button, the downloaded font is selected as the current printer font, and

any text printout which is sent to the printer will automatically be printed in the new font.

There are, unfortunately, a number of problems which can complicate this process. Firstly, many 9-pin printers are unable to download NLQ fonts of their own accord, or require extra RAM to be fitted before they will do so. Secondly, most printers which can download NLQ fonts require dip switches to be set up in a particular way before downloading is possible. A third problem is that some printers which can download NLQ fonts can only download a limited number of characters. Finally, some programs send printer initialization codes which may erase or corrupt downloaded fonts in the printer's memory.

Downloadable fonts vs. GEM fonts

Downloadable fonts are fonts which are sent (or 'downloaded') to the printer, where they are used to replace one of the built-in printer fonts. By contrast GEM (GDOS) fonts are kept in the computer's memory and used to convert text into bitmapped graphics data which is then sent to the printer in graphics mode. This technical distinction between downloadable fonts and GEM fonts is blurred, however, by the fact that Fontprint intercepts downloaded fonts and stores them in computer memory, where they are used to print out text in graphics mode in the same way that GEM fonts are used. From a user's perspective the difference between downloadable fonts and GEM (GDOS) fonts is that downloadable fonts do not require GDOS and can therefore be used with ordinary word processors and other text programs (downloadable fonts are also printed at a higher resolution than standard 9-pin and 24-pin GEM fonts). On the other hand, GEM fonts can be used in a range of point sizes, and GEM-font (GDOS) programs allow different fonts to be mixed within the same document.

Font filenames

Fonts which are used with Fontswitch have filenames ending in '.FON' (in contrast to GEM/GDOS fonts, which have filenames ending in '.FNT'). They are further distinguished by a set of filename prefixes. Screen fonts begin with an 'A' (for Atari), followed by '1' (for 8x16 fonts), '2' (for 8x8 fonts), or '3' (for 6x6 fonts). Printer fonts (mostly) begin with 'Q', 'S', or 'J': 24-pin fonts begin with 'Q' (which is short for LQ in Epson LQ), and 9-pin fonts begin with 'S' (for 'Star') or 'J' (for 'Juki'). Juki fonts print with a higher resolution than Star fonts, but both types of font can be printed on a standard 9-pin printer if Fontprint is installed. The numeral following the first letter of a printer font is usually a '1', which indicates a proportional font, or a '2', which indicates a monospaced font. (On a 9-pin printer, this distinction is not fixed: monospaced fonts can be printed with proportional spacing, and vice versa.) The third filename character of printer fonts is either an underscore, 'L', or 'I': 'L' fonts contain a full set of 224 characters, and 'I' fonts are (24-pin) Italic fonts which are automatically loaded whenever a matching non-Italic font is loaded.

"Fontprint"

There is a simple way around all these problems, and that is to use Fontprint. This is an NLQ print program which is supplied with Fontswitch, and which allows NLQ fonts to be used with any 9-pin or 24-pin Epson-compatible printer (including 9-pin printers which do not have a built-in NLQ font). Once Fontprint has been loaded into memory from an AUTO folder, it intercepts any font which is downloaded to the printer and then uses this font to print NLQ text in graphics mode. To the user, this is no different than if the font had actually been sent to the printer, but there is no longer any need to fiddle with dip switches, or buy a different type of printer, or edit printer drivers to stop them re-initializing the printer. Another advantage is that the 9-pin version of Fontprint can use high-resolution fonts which are better than standard 9-pin NLQ fonts, and the 24-pin version can use genuine italic fonts in place of the slanted non-italic fonts which are normally used for italic print. Finally, Fontprint allows you to use 224-character fonts which contain matching characters for all the printable characters in an ST screen font.

To install Fontprint, simply copy the appropriate version into your AUTO folder: if you have a 9-pin printer copy FPRINT9.PRG, or if you have a 24-pin printer copy FPRINT24.PRG. If you have previously installed Fontswitch on your boot disk, all you need to do now is to reboot your system. This time, when you click on 'Fontswitch' in the Desk menu, the final slot should say 'Fontprint' in black letters and there should be a tick beside it. Once Fontprint has been installed in this way you can just forget about it. Your printer is now able to download NLQ printer fonts, or (more accurately) it appears to have this ability; in actual fact Fontprint will intercept downloaded fonts before they ever get to the printer. If you click on the 'Fontprint' slot in Fontswitch's submenu, Fontprint will be disabled (the tick will disappear) and your printer will lose its ability to download fonts unless it has a built-in facility for doing this. (Be sure to disable Fontprint when using a GDOS application such as Timeworks DTP.)

Auto folders

An AUTO folder is simply a folder called 'AUTO' which is on your boot disk (if you haven't got a hard disk, this is the disk you insert into drive A: when you switch on your computer). Programs which are copied into this folder are loaded automatically when you start or reset your computer, but you shouldn't normally run programs in this way unless they are designed to be used as auto-folder programs. If you don't have an AUTO folder on your boot disk you can create one by selecting 'New folder' from the Desktop File menu and typing 'AUTO' in the dialog box which is displayed at this point.

Once you have installed Fontprint, as described in the last paragraph, it is easy to download new fonts. Switch your printer on, reselect 'Printout' from Fontswitch's submenu and click on the 'Download font' button at the bottom left of the Printout dialogue. Now use the GEM file selector to choose an appropriate font to download. If you have a 24-pin printer, choose a font with a Q1 or Q2 prefix (such as Q1LBKMAN.FON in the Q1LFONTS folder). Alternatively, with a 9-pin printer, you can choose a font with an S1, S2, J1, or J2 prefix (such as J1LSOUV.FON): J1/2 (Juki) fonts differ from S1/2 (Star) fonts in that they are printed at a higher resolution, which is actually the same quality as 9-pin Signum output. Once the font has been loaded, the 'RAM font' button will be updated to say 'Bookman' or 'Souvenir' (or whatever the name of the font you loaded). Click on this to select it as the current printer font and exit the Printout dialogue.

From this point on, all NLQ text will appear in the new font which you have just downloaded and selected, although you can revert to the standard NLQ font by clicking on

Character translation

Fontswitch has facilities for translating screen characters into different printer characters or a sequence of printer codes. This can be used to mix characters from the built-in printer font with downloaded characters, in cases where a downloaded font contains a limited number of characters. In general you should avoid using this facility: it is much easier to use matching screen and printer fonts so that there is no need for character translation tables. If you have installed Fontprint in an AUTO folder, you can download printer fonts which contain equivalent characters for all the printable characters in an ST screen font. The need for translation tables only arises if you try to use downloading facilities which are built into your printer: in most cases, printers which have these facilities cannot download fonts which contain more than 95 characters with ASCII codes from 32 to 126.

Sample Printouts with NEC 24-pin:

In the beginning God created the heavens and the earth. The earth was without form and void, and darkness was upon the face of the deep, and the Spirit of God was hovering over the face of the waters. And God said, 'Let there be light', and there was light.

[Palatine]

In the beginning God created the heavens and the earth. The earth was without form and void, and darkness was upon the face of the deep, and the Spirit of God was hovering over the face of the waters. *And God said, 'Let there be light', and there was light.*

[Souvenir with *Souvenir Italic*]

Два человека на улице нашли вместе книгу и стали спорить кому её взять. Третий щёл мимо и спросил: "Кто из вас умеет читать?" "Никто." "Так зачем вам книга? Вы спорите всё равно, как два плещивых дрались за гребень, а самим чесать нечего было."

[Cyrillic]

בראשית ברא אלהים את השמים ואת הארץ: והארץ היתה תהו ובהו וחשך על פני תהום ורוח אלהים מרחפת על פני המים: ויאמר אלהים יהי אור ויהי אור:

[Hebrew]

Εν αρχη εποιησεν ο θεος τον ουρανον και την γην. η δε γη ην αορατος και ακατασκευαστος, και σκοτος επανω της αβυσσου, και πνευμα θεου επεφερετο επανω του υδατος. και ειπεν ο θεος Γενηθητω φως, και εγενετο φως.

[Greek]

Sample Printouts with Panasonic 9-pin:

Jackdaws love my big sphinx of quartz. (Korinna)

Jackdaws love my big sphinx of quartz. (Souvenir)

Jackdaws love my big sphinx of quartz. (Uncial)

Printout's 'standard' font button. Test things out by starting your normal word processor and printing a paragraph or so in NLQ mode. This will now appear in Bookman or Souvenir or whichever font you downloaded. If you have a 24-pin printer, try including italics in the text you are printing. Then if you have downloaded a font which is accompanied by a matching italic font, the italic text will print out as genuine italics instead of slanted non-italics. (A true italic font has a semi-cursive appearance as well as being slanted.)

Proportional printer fonts

Proportionally-spaced printer fonts produce better-looking output than monospaced fonts, but require a little more care on the part of the user. Some of the more expensive word-processors which are available for the ST (such as Protext and Word Perfect) have provision for tables which list the widths of each character in a proportional font. This allows proportional fonts to be printed with full (left and right) justification. If you have a word processor which has this facility, you
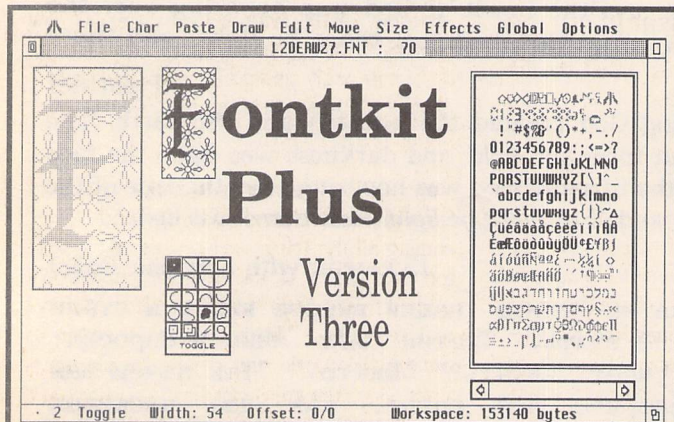
can use the 'Width table' option in Fontkit Plus to list character widths for a downloadable font, and then use this data to create a width table for your word processor. If your word processor does not have a width-table facility for tracking character widths, you can still use proportional fonts, but you should switch off text justification and type around 80 characters to the line for A4 printout. It is also better to use fixed spacing rather than proportional spacing for text in tabular form or for right-aligned text.

The Printout dialogue box shown here has settings for a draft print using the printer's inbuilt font at 10cpi. A 'soft font' has been loaded from disk - 'Bookman' - and if this box is highlighted the standard (inbuilt) printer font will be over-ridden by it on the next printout.

Additional fonts

You can extend your collection of screen and printer fonts beyond the fonts which are supplied with Fontswitch by ordering additional font disks in the ST Club's 'Fontpac' series. There are over 50 different Star fonts available, and a growing number of Juki fonts and 24-pin fonts, plus disks containing foreign and scientific fonts. You can also use Fontkit Plus to design your own fonts. Designing fonts is less difficult than many people believe, and requires only a limited amount of artistic ability. Once you get the feel for it, it is also enjoyable and addictive!

Fontkit Plus 3.2

The latest upgrade to Fontkit Plus includes the following new features:

- Conversion of HP laser fonts into GEM fonts,
- the ability to save GEM fonts in a compressed format,
- a resolution parameter to simplify the process of altering GEM-font resolution,
- a 'show font' option for non-GEM fonts,
- an option to run external programs from within Fontkit Plus,
- the ability to edit downloadable fonts for the Cannon Bubblejet,
- options for saving the contents of the paste buffer to disk,
- an option to save and load drawing nibs,
- automatic cell-height adjustment for global effects,
- global operations may be performed much faster if you have at least one megabyte of memory,
- having been recompiled with Lattice 5 Fontkit Plus 3.2 is smaller than its predecessor and disk reads and writes are much faster,
- Fontswitch 3.2 is smaller than version 3.0 and uses less memory when loading screen fonts from disk.

Upgrade prices:

E: Fontkit 1 to Fontkit 3.2 (£11.95)
F: Fontkit 2 to Fontkit 3.2 (£7.95)
G: Fontkit 3 to Fontkit 3.2 (£4.95)
H: Fontswitch 3 to Fontswitch 3.2 (£2.50)

When upgrading please specify the upgrade code (E, F, G or H) and return your master disks; all upgrades include new manual pages.

Fontkit Plus is published by: The ST Club,
49 Stoney Street, Nottingham, NG1 1LX

from the ST Club
Price: £19.95

Major Features of this powerful and sophisticated font editor include:

- ❑ Font Format Conversions from Signum, Calamus, Degas, Macintosh to GEM, and from GEM to Signum;
- ❑ Global Effects: Shadow, Shade, 3D, Contour, Pattern, Lighten, Thicken, Slant, Smooth;
- ❑ Grid Edit facilities: freehand, straight line, geometric shapes, bezier curve, nibs, block move and block copy, fill, zoom;
- ❑ 256-character Buffer;
- ❑ Show font to screen and Print font to paper;
- ❑ Re-scale font by point size, by resolution, and by a combination of the two;
- ❑ full keyboard shortcuts.

Jeremiah's Journal

Splinterbone

Breathing fresh new life into a long dead genre, the Bitmap Brothers launch CADAVER - the first true isometric adventure. Jeremiah examines the body and declares that rumours of its demise have been greatly exaggerated.

I've got to be honest and admit that I never played Knightlore. Ultimate Play The Game's mould-breaking title may have been a classic in its time, but the high degree of hand/eye co-ordination, and the acute manual dexterity required in order to make progress in it, were totally beyond my agèd and crackly bones! Text-only adventures with simple verb/noun input were much more my kind of pace.

However, the publication of Knightlore did mark the birth of the 3D isometric style of game. That's the kind of game where you travel through a series of rooms, each containing a number of obstacles, tricks and traps, and you view each room from a perspective originating in one of the top corners, as if you were looking down on the scene from above. As it was a new game style, and one that proved immediately popular, it spawned a host of imitators in almost no time at all. So it was hardly suprising that I did eventually succumb and try my hand at one of its many clones.

It was a game called Sweevo's World and the one reason, probably above all others, that I decided to give it a go was because it came from a company called **Gargoyle Games** who I have always had a soft spot for (but that's another story). So, I duly bought a copy of Sweevo's and gave it my best shot.

It turned out to be everything I'd expected - it needed pinpoint accuracy and perfect timing if you were to make progress, and not lose a precious life by falling into one of the treacherous traps which proliferated throughout. Good fun, but completion of it was way beyond the scope of my meagre arcade skills. I played for a while, died an

awful lot, made a little headway, and eventually put it aside, promising myself that I would return to it again as soon as someone discovered an infinite lives poke for it! Somebody eventually did, but I never went back anyway.

Rampage and Ransack

So, where is all this leading us? Well, the 3D isometric game came, enjoyed a brief boom, and then disappeared for a while. Now it is back again in the shape of a game called Cadaver, and, if your previous experience with this type of game is anything like mine, you may be tempted, as I was, to simply dismiss it out of hand. That would be a terrible mistake as Cadaver may share the same style of presentation as games like Knightlore, Movie, the first Batman and Head Over Heels, but that is where all similarities between it and its predecessors start and end. Cadaver is a very different type of game from these. It's an honest-to-goodness adventure!

The plot is fairly standard fantasy fare (wiser souls than I claim that it has been lifted straight out of Tolkien), which is explained fully in a short, four-page story within the small booklet that accompanies the game. Briefly put, it tells the tale of "a feud between the kingdom's heirs, a battle won by magic, and a massacre that stained the battlements of Castle Wulf red with blood. The Necromancer now awaits his next victim deep within the castle walls. No valiant knight or swarthy soldier but a liar, a mercenary and a thief. Karadoc the Dwarf is destined to go where men have failed, to come face to face with the Necromancer and probe the darkest mystery known to man.

His motive? Not honour or love, but treasure! Castle Wulf is bursting at the seams with it!"

So there you are - short, dumpy, fat and none too handsome! Karadoc the Dwarf - possessor of very few riches and even fewer scruples. Gifted with a keen sense of low cunning, a talent for survival in the face of desperate odds, and a love of bright yellow gold! You appear to be perfect for the job in hand!

Your task in Cadaver is to make your way through the five levels of Castle Wulf, overcoming all the tricks and traps lying in wait for you, gather all the treasure you can lay your greedy little hands on, then confront and defeat the Necromancer in order to escape the castle and enjoy the pleasures your ill-gotten gains can buy. You start in a subterranean level - the catacomb passages beneath the foundations of the castle - populated now only by the dead, the ghosts of the dead, and some venomous creatures of the dark and dank. You must find your way through this labyrinth, discover the secret rooms and byways, and somehow reveal the route into the castle proper. Then, your problems really start....

As you travel, you will find innumerable objects strewn about the various rooms. Some will be useful tools and other implements, others will be the battered debris of long-forgotten battles. There will be books and parchments, scrolls and tomes. Some provide valuable information, others reveal the secrets of dark sorcery. Learn the lessons well, heed the advice given, you're going to need all the help you can get! Oh yes, there's the treasure too, of course!

The graphical presentation of Cadaver sets new standards for isometric games. The tunnels, passageways and caverns are depicted beautifully and in great detail. Each room, object and monster is lovingly created. You can almost hear the water dripping down the granite walls as you stumble through the various locations that make up the catacombs, and then, later, your footsteps echo hollowly as you cautiously edge your way through the deserted corridors of the castle proper, the mocking laughter of the unseen Necromancer softly taunting you at every step. The graphics create a wonderfully involving and believable scenario. You can really imagine yourself exploring a castle like this.

Icons and Indicators

The main playing screen is occupied principally by the graphic depicting your current location. Each room is richly illustrated with a large variety of intriguing objects and features. There are levers to pull, buttons to press, chests to open, potions to investigate, parchments to ponder, altars, bars and barriers to puzzle over. Objects can be freely pulled around the room, stacked one on top of another or placed inside each other. Control over Karadoc and his environment is exercised mainly through use of the joystick, but some operations do require the odd keypress also. This is complimented by two small status areas - one in the bottom left hand corner and one in the bottom right.

The left hand area contains a number of operating icons. Usually this area is blank, but when Karadoc moves close enough to an object to touch it with his feet, this panel lights up with the appropriate icons. You then press fire to activate the first of the icons displayed, move your joystick left and right to activate other icons in turn, and when you have activated the one you want you press fire again to execute the action represented by it. There are icons which allow you to pick up, drop, insert, open, examine, read, pull, etc. Not all of these will appear on every occasion, In fact, the icons that do appear when you touch an object often give you a clue as to what you need to do with that object.

The status area on the right contains a Health/Stamina Bar (when it reaches zero, you die, to the accompaniment of suitably mournful music), details relating to how many days have passed since your quest began, the name of your current location and the name of any object you may be touching or holding. With a keypress you can alter this area so that it displays your inventory item by item. Alternatively, by pressing another key, you can display an inventory

The Bitmap Brothers

The games software industry has always been different from other entertainment media. After all, you usually buy a record because it's by Dire Straits, Dylan or Domingo. Nobody buys a record just because it's on the EMI label! Similarly, you buy a book because you are interested in the author or the subject matter, not because it's published by Hodder & Stoughton or Corgi, and you go to see a movie because it stars Sean Connery or is directed by Spielberg, not because it's distributed by Cannon or 20th Century Fox!

So why is it that the computer games industry is full of praise for all its various labels, with very little credit, and even less mention, ever given to the actual creators?

You see the big names plastered all over the place - Ocean, U.S. Gold, Mirrorsoft, Electronic Arts - but nowhere amongst all those names is there a games designer or programmer to be found! The marketing companies which dominate the industry don't actually produce anything - they commission projects, or buy in products, from freelance programmers and design teams. They then publicise these games extensively through advertising and tame magazine reviews (mostly no more than extended advertising themselves) and, although they ensure that their name is prominently placed, you will hardly ever find the name of the actual development team referred to at all!

This is one reason why the industry is so heavily reliant on licensing and tie-ins. They represent the kind of deal that the marketing men can understand - a big name, saturation advertising, shift a lot of units in a little time, and who cares if the game is any good or not? Why bother with carefully thought out, original products when they take so much longer to develop and there's a risk that they may not sell in the end anyway? It's easier to buy a license and grab a quick buck instead! Such has been the philosophy of the computer games industry up till now.

The Bitmap Brothers (originally Eric Matthews, Mike Montgomery and Steve Kelly) are a games design team who are only too well aware that this is the way the industry has traditionally tended to operate. They therefore rewrote the rules and took pains right from the start to ensure that they themselves were promoted as strongly as the games they produced. This could have been a dangerous course of action as, if the games had turned out to be stinkers, they would have undoubtedly taken a lot of flak and, as a team, would probably not have lasted very long. However, the games were not stinkers. They were, almost invariably, very good indeed. Result? The Bitmaps became as famous as their games and established a reputation for producing quality, original software. A reputation they have strived to maintain and develop. They became, in fact, the first "superstars" of the computer games industry. They have spearheaded a drive aimed at taking the industry away from the "money men" and returning it to the "men of imagination" who created it in the first place.

It is good to see that other teams, notably Bullfrog, are now developing along similar lines and establishing solid reputations of their own.

It no longers matters any more which label markets the Bitmaps games; the game will sell on the strength of its creators' reputation for quality and value. The artistes have finally become more important than the distributors. However, the Bitmaps are still not happy with what they have achieved and have recently set up their own software company - Renegade - to give themselves, and other producers whom they also hope to take on board, even more control over their work. What does this mean for the average game player?

Well, it's early days yet (this is still a very young industry after all), but the development and publicising of innovative new design and programming teams, committed to providing stimulating software, coupled with a decline in the power of the marketing companies, can only be good news for games players. The creation of strongly motivated and artistically creative teams will lead to a growth in the number of original, high-quality games available as the teams pursue the projects they really believe to be worthwhile, rather than churning out another dollop of platform action which is exactly the same as the last dollop of platform action, except that the main sprite wears a different costume. (Can anybody really tell the difference between Batman, The Untouchables, Dick Tracy and The Turtles games? Damned if I can!)

An exciting and dynamic future lies ahead with many more imaginatively different games coming to the fore. This will benefit all gamers and will also benefit the industry itself in that many more talented people will be drawn towards it. We can only hope that the Bitmap Brothers will remain at the forefront of that movement - we will have much to thank them for!

screen showing all the objects in your possession at the same time.

The final indicator is actually an object which you find in the first location. It is a Diary and, throughout the game, it will keep you informed as to your progress in terms of gold gathered, experience gained, percentage of the current level completed and the ranking you have acquired. As you would expect in a game of this size and complexity, you are free to save and restore your position at any time (and it is recommended that you do so frequently) but, as an added wrinkle, it will cost you a sum of gold each time you save. You need to balance carefully your greed for booty against the danger of an imminent demise waiting just around the corner.

The Cadaver control system is not one that you will have come across before and it does take a little bit of getting used to. It can also prove to be a little tricky at times. However, the required skills are quickly gained and you are soon able to guide Karadoc quite accurately around the game world. All in all, it is a pretty good system and, although joystick driven, it requires extremely little by way of arcade talent.

Puzzles and Pyrotechnics

The crowning glory for Cadaver, however, is the sheer wealth and number of the puzzles to be solved in it. The game fairly bristles with them - every room seems to contain a puzzle or part of the means for solving a puzzle. Despite the hundreds of rooms, there appears to be very little waste or padding. The variety of the puzzles is also compelling. They range from the relatively simple locked door which requires a key in order to be opened, to the much more complex and involved conundrums which may require the manipulation of several different objects in several different rooms located widely apart before the whole thing falls into place. On top of that, the designers have tried to use the players' own experience against them by presenting a short series of puzzles which can be solved by using variations on the same technique, and then providing a final puzzle which appears to be part of the series, but which actually requires a totally different approach and becomes unsolvable if the player invokes the previously used strategies. Diabolically devious, and wonderfully enjoyable!

Magic also plays a large part in Cadaver, usually in the form of spells or potions. These are found all over the castle - sometimes hidden, sometimes in plain view. Often, examining the flask or parchment containing

Hints & Tips: Level Two of Cadaver

The first level of CADAVER is a stimulating introduction to the game, but it's Level 2 where the pace really begins to hot up! Jeremiah gives a brief guide to help you through some of the rougher spots you are likely to find.

In order to complete this level, you will need to find the Ashes of Captain Axel, an Urn to put them in, an Emerald, and six Teleport Orbs. Once you've got all those, you will be ready (and able) to enter the Captain's Room.

Blinking eyes: there are a lot of these on various walls throughout the level. They usually provide the key to solving a particular problem. Cast the SLEEP spell to close the EYES, and at least some of your troubles will be over. But be careful! On some occasions, putting the Eyes to sleep can actually create difficulties you never had before!

Secret room: there are two parallel walls here with a small gap between them. The top half of each wall moves up and down in a steady rhythm. You need to throw an object through the gap created when the top half of the first wall is raised. If you time the throw correctly, the object will land in the space between the walls. This area is actually a pressure pad, and an object landing on it destroys the top half of each wall. This creates space at the top of the room into which the bottom halves can now rise.

Lost room: access to the Lost Room is through the Granary. There are three levels to the Granary. On the middle level is an EYE. At the lowest level, pulling a lever will lower a chain (allowing you to climb back out again) and also moves a part of the wall releasing a second Blob Monster into the room (there is already one there when you enter). If you cast Sleep on the EYE on the middle level, the second Blob Monster does not appear. However, you must kill BOTH Blob Monsters in order to be transported to the LOST ROOM. This is one instance where doing what appears to be the right thing is actually the wrong thing! Oh, you do need the Lost Room Key as well...

Cook's room: a strange room this one. All the objects in it slowly float up to the ceiling as you enter. Weird! However, there is a Key you need in that chest which bobs along just above your head. Use the objects in the room, or other objects, to build a ladder up to the chest. Then it's easy to open it.

Chapel armoury: a barrier rises behind you as you enter this room, thus blocking off your exit. In order to escape, you must pull the lever on the wall when both the buttons above the door turn dark.

the spell or potion will reveal its name, and hence its purpose. Other times you will simply be told that you have found an unknown spell or potion, and uncovering its purpose will be a case of trial and error, unless you have found another spell which will reveal it for you. There are spells and potions which will provide you with, among other things, the ability to take giant leaps, protect you with a fire shield, cure you of poisoning, equip you with magic missiles, and a huge assortment of other interesting and essential effects. Each magic item has a limited life - a number of charges which indicates how often it can be cast or used. It is also given a power rating and spells with weaker ratings may need to be cast several times in order to achieve the desired effect.

There is no doubt that Cadaver is a tour de force. The Bitmap Brothers have taken an old game style, dusted it off, and proved that

its potential has hardly been tapped by previous exponents of the genre. Instead of concentrating on the run, jump and fire of the arcade scenario, they have slowed the action down, injected a heavy dose of adventure, piled in the puzzles and created a game which transcends its predecessors by being much more immediately playable, much more thought-provoking and involving, and with much longer-lasting appeal. It is a smashing game. It may herald a resurgence of the 3D isometric style, but if they are all as good as this, it will be a resurgence to be welcomed.

Product: .... Cadaver
Created by: .... The Bitmap Brothers
Publisher: .... Mirrorsoft
Price: £19.95

STicks and STones

In this month's issue, Günter Minnerup aims a few sticks at faceless suits and flings a few stones in the general direction of arcade games. There is more to the concept of fun, he maintains, than indulging in repetitive and destructive mayhem.

Computers are boring. That, at least, is the message conveyed by the vendors of the 1001 Dosmatians - all identical but for a slightly different arrangement of the spots, running Lotus 1-2-3 and Word Perfect in air-conditioned offices with wall-to-wall carpets, hessian screening and the odd spray-polished cheese plant. As boring, in fact, as work is for most people. Nobody actually enjoys spreadsheets or gets a kick out of boiler-plating business correspondence on a word processor. Yet when I confessed my ownership of an Atari ST to one of those faceless suits in a big-city business computer shop during a general conversation about the general merits of IBM and Apple, the sneering overtone in his description of the ST as a "fun computer" was unmistakable.

"Now what's wrong with fun?" I thought afterwards. The suit, of course, said "fun" and meant "games". You can easily imagine his sales patter. "Ah, you want fun, Sir, as well as productivity? No problem - we have the Flight Simulator, Leisure Suit Larry, Teenage Ninja Mutant Turtles, in fact, thousands of games to while away the idle hours on your Super VGA screen." But you don't need a computer to have fun playing games. When I was a few years younger, we used to roam around the garden, arms spread wide, throats roaring like Spitfires, engaging the enemy planes in deadly dogfights, and would undoubtedly have enjoyed emerging from (imagined or even real) sewers painted green and screaming "Cowabunga!" As to our Leisure Suit Larry exploits after school, I leave this to your imagination...

Anyway, neither the spreadsheeting productivity tool nor the alien-blasting games console really deserves to be called a "fun computer". In my book, fun is more than idly whiling away the hours. It is real excitement, not the artificial thrills of multi-coloured sprites in low resolution; discovery and creativity rather than repetitive and usually destructive mayhem. This kind of fun is not counterposed to work, indeed it is often connected with it: but by making it enjoyable rather than merely reducing it. It is essentially about widening horizons, opening up new possibilities, generating fresh adrenalin.

Computers can play a big part in that, of course. But most are not designed for it.

Instead, they are designed to reduce staffing, increase throughput, improve balance sheets and productivity. Fine. Some are designed to keep the kids quiet and provide a few hours of mindless distraction for overstressed wage-earners. Also fine. But excitement, discovery, fun?

The first to be explicitly designed, and then noisily launched, as something like a "fun computer", was the Apple Macintosh - the "computer for the rest of us". For its creator Steve Jobs, the Mac was going to be a new departure in personal computing: truly user-friendly, graphics-based, affordable and fast, opening up new and creative applications far beyond the deadening dualism of number-crunching and video games. We have been bored to tears by the evangelism of the Macintosh devotees, but they did have a point. Unfortunately for them and the fortunes of Apple Corporation, the Mac flopped in the UK and Europe as a mass machine. It never caught on except as an expensive yuppie toy and it was left to the expensive upmarket models to establish a user-base in high-end desktop publishing and some other high-end niche markets.

The Macintosh revolution failed in Europe because there is another important ingredient in any definition of "fun". Quite simply, being broke is no fun, and Apple's pricing was way above the purchasing power of most of us Europeans. Instead, we bought Sinclair Spectrums, Acorn BBC's, Amstrad CPC's, Amstrad PCW's - cheaper alternatives, worthy in their own ways for both word processing and alien-blasting, but hardly exciting. And then came the ST, not for nothing dubbed the "Jackintosh". The ST was just the ticket: powerful, fast, user-friendly and cheap, it succeeded in what could have been Apple's market had its pricing policy been sharper and its cultural appeal less Californian.

Word processing turned from a chore into real fun with multiple fonts and graphic illustrations. Penniless musicians acquired multi-track recording studios through the MIDI port. Veteran scissor-and-paste editors of countless parish magazines and club newsletters moved into desktop publishing. This is what I call true fun! And for those with a higher-than-average purchasing power, the

ST could and can take these and other activities up to quite a serious level, and has indeed found its way into professional offices, recording studios and publishing houses.

In this sense, the ST is one of only two true "fun computers", the other one being its arch rival, the Commodore Amiga. Perhaps even the mutual taunting of ST and Amiga adherents in the columns of the computer press is part of that fun: for my part, I have never been close enough to an Amiga for long enough to pronounce on its merits relative to the ST. It may have better sound and graphics and, of course, multi-tasking, while the ST has a better monochrome display, more mature software and more stability in daily operation - whatever, the two are sufficiently similar to fall into the same "fun!" category.

It is in Germany (Atari's largest single national market with something around a third of the Tramiels' world turnover) that the positioning of the ST in between the gamesters and the suits can be most clearly observed. Even in that Mecca of the dedicated ST freak, it has not, of course, pushed Big Blue out of the office blocks or Apple out of electronic publishing. Instead, it is the preferred tool of the academic and the student, the hacker and the hobbyist, the freelance and the small entrepeneur. Atari Germany may have smart DTP Centres scattered over all major cities, but it is not seriously attempting to combat the Compaqs.

The more I think about it, the more I come to the conclusion that the category of "fun computer" is an important market segment in itself, not some kind of hybrid between a Nintendo and an IBM. Rather like the family saloon between the small hatchback and the high-powered performance car, only less boring. If the mass sales of 520ST games bundles at Christmas stabilise Atari's commercial position, good. If, at the top end, some Atari products find their way into the professional and business environments, even better. But the company should never forget the real essence of its success, neatly encapsulated in the slogan that launched the ST: "Power without the price". Or, to put it my way: affordable fun.

Günter Minnerup
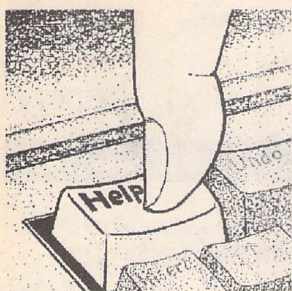
FORUM

The Forum pages are a regular feature of ST Applications, enabling readers to exchange ideas and help each other out with problems. Whilst we attempt to briefly answer questions here, if you have additional information or ideas please do submit them for publication. What you consider to be trivial information can often be of considerable use to other readers!

Please send your letters on disk if possible. Disks will be returned with a PD of the writer's choice. Longer submissions may appear as articles, in which case you will receive payment at our standard page-rate.

You can now post messages for inclusion in the Forum via the CIX bulletin board on 081-390-1244. All messages posted onto our **stapplications** conference on CIX are considered to be for publication. Private mail can be sent to us with **mail to paglo**, but do not expect an instant reply! Messages reprinted in the magazine Forum pages are identified by the CIX stapplications conference message number after the author's name.

CIX is a commercial system with a £15 joining fee and on-line charges of between £2 and £3.10 per hour. For more details see the introduction to CIX in issue 3 of ST Applications.

Key:

The following codes are used for each Forum entry:

J Pringle - Forum 29: Author who first raised the subject, and in which issue. In this case 29 refers to the Forum pages in Issue 29 of The ST Club Newsletter.

Q Question

A Answer

I General information or 'Input', advice, discussion, hints and tips, etc., with or without reference to previous Forum pieces.

● Editorial reply

FSP3 / Timeworks DTP

Mike Kneen - STA2
John Wilkinson - STA3
Dyfrig Davies - STA3

I I would like to respond to the article on Fleet Street v Timeworks DTP by saying something in favour of the former. I suspect that one's attitude, including my own, is primarily influenced by what one is used to. I started with Timeworks, found Fleet Street difficult to assimilate, but once I had got the hang of it there was very little that it would not do.

The beta version of Fleet Street 3 in December 1989, although pretty buggy and without the Ultrascript facility and the vector fonts, was still a very great advance on 1.1. The final version is very good indeed, although there is still room for development. The main thing is, it works. The vector fonts, to which I have added Helvetica Narrow, print out perfectly on my Nec P6+. The rest of the 35 fonts, in their Gem form, are simply rubbish, included only as a come-on for the purchase of the vector fonts, which are quite expensive.

The point made in the article about adding GDOS fonts with Timeworks is a valid one, but exactly the same can be said about Fleet Street. A well-designed GDOS font prints perfectly at its designed point size and almost as well at other sizes because of the excellent scaling automatically done by the program. Moreover, GDOS is not required, and the addition of fonts, through 'Set Defaults', is simplicity itself. There is no limit to the number of fonts that can be installed.

Another facility which I find invaluable is the overlay which allows material prepared in Protext to be merged into a page with all its settings intact, provided one remembers not to save it in Protext as proportional.

I think that it is unfortunate that Mirrorsoft's launch and marketing of the program has been so terrible. It took me 6 months to get Helvetica Narrow - with no acknowledgements of my order. We have been told nothing about our orders for Ultrascript proper, and I understand that some people actually paid for it in advance! So it is not surprising that at the moment it is short of defenders. At least it must be evident that I like it! I even use its excellent graphic capabilities to print out documents scanned with my Hawk scanner,

Hawk's own NEC driver being very poor.

Eric Fox

Protext 5 Review

Paul Rossiter and Piper - STA2

I As someone who has used Protext for several years, I would like to congratulate 'Piper' and Paul Rossiter on their reviews of version 5. Too often in the past Protext reviewers have been so concerned about the command line interface that they have been unable to perceive the programme's power and convenience. Two additional features your reviewers didn't mention: what other word processor has such an easy-to-use and flexible mail merge which retains justification and even allows 'personalised' headers and footers? What other processor on the ST apart from Word Perfect allows right justified printing of printer resident proportional fonts? (Script? - Ed.) Incidentally, what is it about Word Perfect that all I hear from users is how difficult it is to use?

Why do people object to command line instructions when they are as simple and memorable as on Protext? Even now that I use version 5, I still think it is easier to type 'p' on the command line when I want to print a document, or 's' to save it, than to make choices from a drop down menu using the mouse. In addition, few reviewers mention that Protext stores the last few commands so that they can be recalled (using the cursor keys) and either used again or edited to suit new requirements. It was rather amusing for me to read the review of NeoDesk CLI on page 7; whenever I have needed to do batch work using wild cards, I have used the Protext command line. Protext lets you store collections of commands as exec files which can be called up by simply typing 'x' followed by the file name. Logical commands (like 'IF' or 'ELSE') are not very practicable, but many useful things can be done. I have no difficulties using UIS III with Protext and have been able to do all the file handling tasks I wanted with that combination.

Stored commands which appear in the text (preceded by an '>') are, I think, helpful, not only because they are extremely powerful and simple, but also because I can see what I am doing at any time. For example, when preparing a long document, I enjoy being able to add comment lines to remind me of what I wanted to say next.

Of course, there are still problems with Protext: the price is one, but I am prepared to pay something for the excellent dictionary and the greatly improved dictionary algorithms. The lack of a Thesaurus is indeed a nuisance which should be rectified before long; Kuma's K-Roget works, but is not very convenient. A small problem is the way that underlined spaces do not come out properly now that proportional or microspaced printing is standard. For me, though, the big problem lies with the way that proportional printing has been implemented on the screen. With my NEC printer, two of the proportional fonts have very narrow characters so that a ruler of around 95 columns is needed to have a line length of just over 6"; the ST will only show 80 columns, so I have continual sideways scrolling - very irritating. Can anybody help please?

In my opinion, something which is very badly needed on the ST and is not provided by any word processor I know of, is a programme like Grammatik; at the moment it runs only on Unix, the PC and the Mac. This programme sorts out one's English by looking for grammatical errors, stylistic oddities and even simple verbal mistakes like 'their' instead of 'there'. I sorely need such a programme. Judging by the review of Le Rédacteur, it appears to have a rudimentary version, but I doubt if it has the impressive utility of Grammatik. Does anyone know of an equivalent, or similar, programme for the ST?

Dr. J M Bowsher

● Le Rédacteur's analysis feature gives information on the length of words and sentences used in the text; it also has the ability to conjugate French verbs in all tenses/moods. It does not correct your syntax. There is a programme available in Canada called "Gramslam" which works with Ascii files: it costs C$34.95 from Phil Comeau Software, 43 Rueter Street, Napean, Ontario K2J 3Z9. (DFS)

▣ The indignant astonishment that Protext is too expensive is, I feel (with all due respect), somewhat naïve. Protext is not just for the "occasional letter", it is a professional piece of software. The price reflects the ongoing costs of development and gives very good value for money. I don't consider it expensive. It is less than twice the price of First Word Plus, not three times as stated. Otherwise, I found the review quite interesting and accurate. Piper certainly seems keen to have a thesaurus!

One correction: the line/box graphics do not require an IBM printer but work on any Epson or LaserJet compatible (i.e. just about any dot matrix or laser printer). You certainly don't need to re-set any DIP switches.

Further to the Jet Setters article in the same issue, we can confirm that Protext now has full printer drivers for both the DeskJet 500 and the Canon BJ-10e which support all the proportional fonts.

Mark Tilley, Arnor
CIX #74 #76

NeoDesk (and Protext 5)

B H Hills - Forum STA2

Ⓐ We have discovered the cause of the problem affecting the mouse when using Protext and Neodesk 3. It was neither entirely Gribnif's fault nor ours, but we have been able to modify Protext to overcome the problem. Those using Neodesk 3 and Protext 5 should contact Arnor for an update. Protext 4 and Prodata will incorporate the fix the next time they are updated.

Mark Tilley, Arnor
CIX #89

C Matters

Keith Jackson - Forum STA2
Les Bessant - Forum STA3

▣ Alcyon does not include wfparts.h or windows.h; nor, to the best of my knowledge, does any commercial compiler on the ST. The files you are referring to are actually part of the envelope described, with their listings on Page 45. The book sadly shows very poor style in using angle brackets for both system-supplied and user-supplied includes.

Alex Kiernan, HiSoft
CIX #87

DeskJet for Macs

Nigel C Love - Forum STA2
Daniel E Cohen - Forum STA3

Ⓐ Probably the best advice is to read a book called 'Macintosh Printer Secrets' by Larry Pina and published by Hayden Books (part of Sams) in the USA. The ISBN is 0-672-48463-3 and it cost £32.50 (including a disk). It covers all connections between Macintoshes and printers. As well as Jetlink Express (Forum STA3) it also mentions a product called Printer Interface III which is produced by: DataPak Software, 14011 Ventura Boulevard, Suite 507 Sherman Oaks, California 91423:(800) 327-6703

John Watkins

Ⓐ I've used two DeskJet drivers with Spectre. First was the PD driver which is available on the Lancaster PD software service (0524-843878) complete with source and documentation, or on CIX mac/files topic (but no source). This works, but not that well. It's a useful go-between while you buy:

Macprint: a set of drivers for HP printers, including DeskJets. It allows you to use Mac fonts, internal DeskJet fonts (though not all those on the 500 yet, more's the pity), and Adobe Type Manager. It costs about £70 if you shop about a bit, probably a bit less if you

get it direct from the States.

Pete
CIX F#3

A new can of worms?

▣ Surely the correct spelling is "disk" (short for "diskette") rather than "disc"?

Derryck Croker

To me a disk is a floppy while a disc is a gramophone record!

John Higham

● Both 'disk' and 'disc' are accepted English spellings for any kind of disk. Take your pick. I fail to see, however, why words such as 'programme' and 'dialogue' should lose their final two letters when used in Computerese. 'Programme' has more than one meaning in ordinary non-computer English, but we don't consider it necessary to spell it differently for each meaning. One meaning of the word is a 'list of events'; this is very close to what a computer programme is in any case... (DFS)

LaserFace

▣ Paul Rossiter's footnote to my article (STA3) is accepted in the spirit it was made, but perceived wisdom on powering additional devices (c.v. second disk drives powered through, for example, the joystick port) is that this may not be a practice to be encouraged. I realise that this will contradict my upcoming FastFire project, but this uses only minimal current, and that only when it is in action.

Derryck Croker

Living with the Atari Laser

Graham Thomas - STA3

▣ After the revelation that the Epson Emulator in its V1.31 guise is now freeware, anyone contemplating buying the "old" version at £24.90 must now stop and think. I'm pretty sure that I have seen this new version in Page 6's PD catalogue. Any chance of adding it to the ST Club's collection, Paul? And whilst on the subject, has anyone been able to use the 24-pin emulation successfully in applications? The main problem is that it doesn't use the standard 24-pin graphics code, and although I have been able to draw a small square from Basic, attempts to modify non-Laser programs' drivers to suit result in garbage.

Derryck Croker

● In the absence of any cries of foul from Atari (UK) following the article in last month's issue, the DMC Laserbrain Epson emulator for the Atari Laser is available on disks PTR.12 and PTR.13 (two double-sided disks).

UltraScript

for the Atari Laser

I Ultrascript is available in the UK from Network (0375-859103) at £150 including VAT. We did a deal, through our US subsidiary, last autumn with QMS - who bought out Imagen. The product will not be developed further, but we can keep it going for the foreseeable future. It functions marvellously.

The Ultrascript driver you get with Fleet Street Publisher 3 is not compatible with the normal Ultrascript. Imagen part-worked on a special version for Mirrorsoft, and then it all went wrong.

Frank Sheen
Network News Services

Campus Draft

Q Has anyone been able to get Campus Draft's laser driver to work? Power Computing didn't know that there was a problem and weren't able to help.

Derryck Croker

Using German Software

G Plain - Forum STA2

I have written a program to do a brute force translation from German into English. I did not send it in to the ST Club straight away, because I felt that it needed a complementary program to translate the text embedded in binary files (programs, resource files, etc). But if I can save other people a bit of programming effort, here are the goods!

The documentation includes an address for correspondence. The obvious kind of correspondence will be updates to the dictionary: if lots of people use the package and send me their dictionary updates, we could soon build quite a respectable vocabulary.

Graham Steel

● Graham's translation program is on this month's Disk Mag: PD disk DMG.22.

Mac Emulators

Franco Turra - Forum STA1
Ian Fogg - Forum STA1

Q I noted your comments in 'Forum' regarding Spectre formatted discs. Yes, I too would be in the market for these discs. I use the word 'would' because I bought a Spectre Macintosh emulator just before Christmas and I can't use it. Why, you might ask? Because no one tells you before you purchase it that you have to have a 'Mac System/Finder' program disc. Where do you get one? From an Apple dealer of course. You know the rest of the story without me needing to enlighten you.

Perhaps in your next issue of ST Applications you could advise members of the need for Apple software before the product can be used. If any of your members know of any source of official Apple software who will supply to Atari users I would be grateful to have the address. Until I can find a supplier, I'm snookered.

C Singleton

Three in One

Q I am a prospective Atari user who is looking into configuring a 1MB STE with a monochrome monitor, 20MB hard disk, and both PC and Macintosh emulation, such that all three formats can access the same hard disk drive. Do you think that this is possible?

Raymond Henry

● No problem: the emulators can all access the same physical drive; but there are limitations on accessing Mac partitions from within PC and ST modes. Your real problem is going to be deciding how to partition the drive so that all three modes have access to a usable portion of the hard disks. Just over six megabytes per mode is not a lot! A larger hard disk, say 60MB, will make life much simpler once you start to accumulate software and data that you cannot live without having on your hard disk.

GEM File Formats

John Watkins - Forum STA1

Q Are there any experts out there who can explain the GEM Metafile format and how to use it? ST World's I/O column almost got there, but left me none the wiser. No book on the ST or GEM (including PC GEM) that I have found gives any details on Metafiles. BSTAT (a statistics package) uses very similar files - incomprehensible to Hyperdraw. A sample OPUS GEM (Metafile) is included, together with a printout produced by OPUS. Can Timeworks cope with this file?

John Watkins

● Yes, Timeworks will quite happily load the OPUS.GEM file; and does not appear to mind whether it is loaded as a 'Gem Draw .GEM' or 'Easy Draw .GEM' file.

Maxidisk and TOS 1.6

Adrian Crewe - Forum 31
Keith Jackson - Forum STA3

I Something funny going on here! I have had an STE since January 1990, and I have never had any problems with Maxidisk, except for one curious 'feature'. When using the COPY.TTP program (via the Maxidisk .Inf file) only whole folders, and not individual files can be transferred; ie: 'COPY.TTP A:\COPY C:\COPY' will create a FOLDER called 'COPY' on the RAM disc C, and copy the contents of the FOLDER 'COPY' on drive A into it. I don't think this is what is intended!

John Watkins

Dosacc and Maxidisk

Q I have tried installing Dosacc together with Maxidisk but find that the screen display becomes inverted. I could probably use a screen inversion utility, but is there any other way of solving the problem?

Alan Kennedy

BBC Drive

G Bourne - Forum 31

A Yes, it is perfectly possible to connect a BBC 3.5" drive to an ST. I am using as a second drive an NEC unit that was supplied to work with my Spectrum (with a Plus D disc drive interface). It originally had a BBC-standard cable from the drive to the interface.

Apparently all modern disc drives have a standard connector, called a Shugart connector, attached to the drive's own logic. All I required was the cable to connect the ST with the drive. ST FORMAT recently (the issue is not to hand) published the connections necessary to connect an ex-internal drive to the external port. The wiring is essentially the same.

The only foreseeable problems are: a) finding the lead and getting someone to fit it, and b) the power supply. Most BBC drives are powered from the auxiliary power supply under the machine. If this is the case then finding a suitable power supply may stump all efforts (but you can sell it to an Amiga owner, or use it as a replacement internal drive).

The cable should be relatively easy to make up, and only the connections may be difficult to find. It may be easier to deliver the drive to an ST repair shop. Microsnips (051-630-3013) sell the relevant lead as a 'Disk (sic) Drive - Shugart Interface' cable, but at the extortionate price of £28.95! At the January 1990 16-bit show I got my lead for a mere £10 - still a high price, given that the components cost little more than half that (but labour costs, etc...).

Incidentally, I got my drive done by The Atari Workshop (071-708 5755), as I thought it safer that way, because the drive might have needed servicing after 3 years of use. They charged me £15 for half-an-hour's work, which included testing the drive, soldering the earth, etc. They are certainly an interesting company of ST-bashers, importing all sorts of ST hacks from abroad.

For STE owners, the Overscan device (which uses the borders of the monitor) cannot be used: according to The Atari Workshop, Atari have integrated the video circuitry too far!

John Watkins

Migraph GDOS Drivers

Q Has anybody else had problems with the Migraph GDOS printer drivers? I have a Citizen HQP40 24-pin printer, which as far as I know is fully Epson compatible.

When I bought EasyDraw2 (ED2) I also bought the 24-pin printer driver for it. When it comes to print out, it first sets the printer into Letter Quality mode (why?), then usually prints the first 2-3 lines, then a few blank ones, then maybe a few half lines, then just blank ones until the end. Having contacted Softline, all they could suggest was that some of the DIP switches on the printer needed adjusting! Obviously, the problem's with the driver, not the printer, as it works fine with all my other graphic programmes.

Just by chance, I once booted up using the ASSIGN.SYS file that I use for Word-Up. Unbelievably, when I come to do a print in ED2, it worked perfectly. After much experimentation I have found that the Word-Up GDOS printer driver works OK with ED2, provided that I save the ED2 drawing with a page size of 8.5" by 11" and I just do a straight printout (i.e. no centring on the page, no rotating or scaling). Any other option gives unpredictable results.

Having just purchased Touch-Up (also from Migraph), I was hoping that this printing problem would have been solved. But no, it's still the same. When using the Migraph drivers, I can get a printout only if I use the 'scale to fit page' option. If I then try a printout at normal size afterwards, the programme crashes.

Therefore, I'm going to contact Migraph directly; but I was just wondering if anybody else had had (or solved) this problem. In the meantime I'll just have to carry on using the Word-Up GDOS printer driver for printing ED2 and Touch-Up files.

Richard Boyles

Gem Calc

I I am very impressed with the Gem Calc spreadsheet on DMG.21. It's very easy to use and the graphics are great. But I have found one mistake in the Gemcalc.Doc file: the description of Function key 2 is back to front. 'F2' sets the Block Bottom Right while 'Shift' 'F2' sets the Block Top Left.

In the same folder as Gem Calc is Look.Prg, which turns out to be the best file-viewing utility so far. It's always nice to get pleasant surprises like that.

Charlie Lloyd

Parallel Port Buffer

I I've received a suggestion for improving the ST parallel port buffer that was published in ST Applications 2. The load on the ST strobe line can be reduced further by the following modification: replace the wire link which connects pin 1 of the 25way plug (ST Strobe output) to the top strip on the board (base terminal of 2N2907), with a 4K7 resisitor. The value is not critical, but 4K7 works happily in my buffer unit. Thanks to David Wicks for suggesting this alteration.

Jon Ellis

First Compiler

I In his article "In The Scheme of Things" (ST Applications Issue 3), David Harvey says that Fortran is the oldest of computer languages. This is often said, but in fact the first compiler pre-dates Fortran by a number of years. It was called A-0, and was developed in 1952 by the remarkable Grace M. Hopper (also known as "Grandma Cobol") for the early Univac machines.

Mike Brown

Quotes

Q Why, in program listings, do you use two single quotes when you could use one double quote?

E.g. in a C listing you print:

```
*include ''header.h''
```

when you should print:

```
*include "header.h"
```

D Leeming

● The odd results you've spotted are the work of the 'helpful' way in which Timeworks DTP attempts to sort out pairs of quote marks. The absence of any configuration options in Timeworks means we will have to fix the problem by modifying the fonts. (Ed.)

● Timeworks insists on using inverted 'opening' quotes as the first of a pair. It therefore replaces all double quotes, both opening and closing, with two single ones, inverting the first pair. This is a nice touch for standard text purposes, but is a pain in the bum when I'm laying out listings - I have to search and replace all the inverted quotes with ordinary ones. I had assumed, perhaps unreasonably, that if you understood the rest of the gobbledygook you wouldn't be fazed by the quotes... Double quotes from now on! (DFS)

AMC GDOS

Q I have found a few incompatibilities with AMC GDOS, the German PD version of GDOS. It takes a while to track the problem down because it seems that only non-GDOS programs are affected.

The two troublesome programs I've found are Uniterm and STOS. With Uniterm, the problem is very mild - when you try to quit the program you get an error alert telling you to quit! But in STOS, these alert boxes pop up all the time and they need to be acknowledged about twenty times before they disappear,

making the program unusable.

The official Atari GDOS doesn't have this problem. It is a pity, because AMC GDOS is better in several ways. For example, if you hold down Ctrl-Alt-Shift while autobooting, it doesn't load. (This is useful for dealing with rogue ASSIGN.SYS files.)

You may be using AMC-GDOS because it comes with the very fine shareware desktop Gemini. If so, there is further bad news. When you try to use Atari GDOS, the console window translates everything into Tibetan! The problem is that the Gemini font is in Motorola format, and Atari GDOS doesn't understand this. If you have Fontkit Plus, the remedy is simple. Load Gemini.Fnt and go to Parameters on the Global menu; you'll see that "M68000 format" is checked. Click on this box (to turn it into Intel format). Then save the font. The result works in Gemini with either GDOS installed.

Incidentally, Gemini will use its own or Degas fonts, but not most other GEM fonts. Does anybody know why?

Peter Cameron

FSM GDOS

I It seems that the new GDOS (FSM GDOS) is now finished, with Atari putting finishing touches and working out how to release it (either as Freeware or by selling it). The only UK magazine that has gone beyond just mentioning it is issue 53 ST WORLD, where it is lurking around in the article about the new TT desktop (TOS030). I hope the scalable fonts will release disc space occupied by the larger point sizes. It's bad enough with a 9-pin printer, but it must be hell with a 24-pin at 360 dpi. GRRR - we want FSM GDOS now!

There is also a direct replacement for GDOS being developed in Germany. Apparently it is a complete VDI replacement and is called NVDI (presumably Neues VDI).

John Watkins

● Our position as Registered Atari Developers restricts what we can say about FSM GDOS, so thanks for the letter! The FSM GDOS specification looks impressive and flexible. But, having seen FSP3 slow to a snail's pace on an ST when it is displaying large amounts of text with outline fonts, I have some doubts as to how big the pay-off will be to have outline screen fonts on an 8MHz ST. Font caching should help - but this will eat up as much memory as the old bit-mapped fonts do. I think that FSM GDOS will be more at home on the Mega STE and the TT.

Calamus and Hyperpaint

I If you use Hyperpaint to touch up IMG pictures, when you save your work the alert box 'Save palette with file' comes up. The default option is 'yes'. If you choose this option and try to load the IMG into Calamus you will

get a fatal error. At best, you will get faults like being told you haven't enough memory to load a subsequent picture (on a 4-meg machine with nothing else loaded!). At worst the program will freeze and you will lose your work. So when saving IMG in Hyperpaint always choose 'No' to saving the palette.

Paul Bates

Chinon Inkjet

I I have recently bought a Chinon ink-jet printer in Japan. It is quiet: the only noise is that of the head moving. It is small: 12" x 7" x 2". It is light: half the machine's weight is either the battery or the AC adaptor. It is cheap: 49,000 yen (£188). Its output is beautiful: it has an 8K buffer and it happily emulates most of the 24-pin dot printers. (Some of the NEC 24-pin printers actually only have 22 pins, but this is truly a 24-'pin'.) Although the ink cartridge needs to be replaced after 300 pages or so, a pack of four ink cartridges costs just 10,000 yen (£38). The rechargeable battery can be used when the printer is used as a true portable, but the batteries don't last for more than a few hours. The battery recharger is built-in, but as the battery is pretty heavy I always use an AC adaptor. This machine may be even cheaper in the US (Chu Ito is the vendor), and you might have already seen them sold in the UK?

Dr Yoshimasa Tsuji, Japan

Timeworks Virus

I After buying a copy of Timeworks DTP I checked the disks for any viruses. (The first thing I do with ANY disks I get is run Richard Karsmakers fine Virus Killer program over them.) I was NOT amused to find the Ghost Virus on Master disk two. You can expect to find a virus on something like ST User's cover disk, but on a £100 program!?

I do think that ST users in general should be made aware of this problem, and suppliers, if they value your custom, should take steps to prevent viruses from entering disk duplicating plants in the first place. They are fast enough to put copy protection onto disks when it suits them. Unfortunately, there will be some unsuspecting users who may not find out that their system has been attacked until several weeks later, when it is probably too late to find the culprit as by then half of their disk collection will have been infected.

R A Culverston

ST to PC

Q Will any of your font packages (PD or Commercial) allow me to set up screens which can then be saved onto an IBM formatted disc which in turn will allow me to get the screen printed at the Poly?

I suspect that this will be very difficult, if not impossible, since printer-drivers are needed

which I can't run on the PCs. but I will wait to hear it from a pro!

Suresh Ananth

● You can readily print 'screens' from the ST on a PC. There are (PD) PC utilities that will convert Degas PI? files into formats more commonly used on PC's. At best the results are going to be at a lowly 80dpi, the resolution of the ST's screen in High Resolution.

For better results you could create your page with a package that will save in IMG or GEM format files, such as Hyperpaint and Hyper-Draw. These are supported by a number of PC packages, including the PC version of Timeworks DTP. (You may find that DTP files created on the ST version of Timeworks can be loaded into the PC version of the same program - ?) There are lots of other possibilities: Postscript to disk from Fleet Street Publisher 3 or PageStream, IMG files from FSP3, Touch Up or Megapaint, etc.

PageStream Fonts

Q I would like to buy a selection of Public Domain or Shareware fonts to use with the PageStream desktop publishing package. I already have all the fonts listed in your catalogue as Publishing Partner fonts and have converted them using the Fontedit program supplied with PageStream. I would be grateful if you could supply me with any information which would help to get fonts for this program.

R Cornish

● Now that SoftLogik have set up shop in the UK they are the best place to start; you can write to them at: Five Chancery Lane, Cliffords Inn, London, EC4A 1BU. No phone number yet as it seems that this is not yet a manned office; but you can telephone SoftLogik in the US on: 0101-314-894-8608. They can supply a number of font sets for PageStream, including PD fonts, the PageStream versions of the old Font Factory Publishing Partner fonts, as well as some other reasonably priced commercial fonts.

Shareware

I On PD disk WPR.48 there is a programme called Manual Maker. I have used it and it has a lot going for it. It is Shareware from the States and to anybody interested in it I would caution to beware of promises to register and update for $15. I have not received a reply after six months of waiting for registration and updates and I think we can safely say 'Buyer Beware'. I have written twice and sent a disc and promise of payment of postage and packing.

Jos Milton

Q Do you know anything about a Swiss company named "Prosoft Informatique"? I have a shareware midi sequencer of theirs called Alchimie Junior. On the disc it tells you to send $25 and get information on Alchimie

Senior, which I did, but have heard nothing back. (They didn't pay my cheque in, so presumably they didn't get it!) I obtained a phone number but there never seems to be any answer! If anyone has any further information I would be most grateful.

P Holton

Q Has anyone had any experience of paying shareware fees to the USA, etc.? If so, what is the best method of payment and what is the success rate? A feature on this from someone with experience would be helpful and instil a little more confidence in the shareware ideal.

Tim Garwood

● Before attempting to register shareware it is always wise to make contact with the author first and confirm that they are still at the same address, and supporting the software. At the same time check out with the author what forms of payment are acceptable and enquire as to the surcharges payable for mailing the updates to overseas destinations. It's worth asking authors if they are interested in trading PD disks, magazines, etc., in exchange for registration and updates; some authors will also accept payment by credit card.

To the USA it is usually cheapest to buy US Dollar travellers' cheques or currency notes and send these by registered post; this is particularly cost effective if you are planning to register with a number of authors. Banks can supply foreign bank cheques, but at a cost of at least £5 each. Make sure that foreign currency cheques are drawn on a bank in the country you are sending them to: otherwise the recipient will have to pay bank charges.

Within Europe, Eurocheques are the simplest way of making payments, and the bank charges for them are typically less than £1 per cheque. If you are making payments to countries in Scandinavia and Benelux ask the author for his Post Giro account number and make the payment direct to his account at the Post Office; if you have a Girobank account just fill out a transfer slip and send it to Girobank.

If you have no bank account (or just object to paying yet more bank charges!) and want a foreign currency cheque, you can arrange at most larger Post Offices for one to be sent direct to the recipient; they charge around £5 per cheque. It's also worth asking at the Post Office for a list of countries in which UK Postal Orders may be cashed over the counter. Canadian Sterling Postal Orders are valid for payment in the UK so this may be a cost effective way of making payments to authors in Commonwealth countries. (You used to be able to buy UK Postal Orders in Indian Post Offices!)

If readers would like to send us details of successful and unsuccessful shareware transactions across the globe we will be happy to hold a list of active shareware authors. Articles on Shareware products and experiences will be most welcome.

Programmers' Forum

Welcome to another edition of ST Applications' regular programming column. This month we begin a two-part examination of the interrupt system of the ST. In the first part we will look at the more theoretical aspects; next month there will be some practical code examples. To save space, a basic familiarity with 68000 assembler is assumed.

Introduction

Interrupts are a method of linking the processor to events in the real world which may happen at any time, not just when the processor is waiting for them. Their operation might best be explained by analogy: consider the operation of a telephone. If telephones responded to incoming calls by changing temperature, you would have to keep touching the handset frequently to check for a call. This would occupy a great deal of time and effort. With a bell, you can get on with another task in the knowledge that you will hear if the telephone requires attention. Similarly, the 68000 in the ST does not have to keep checking the keyboard to see if there is a character present: the keyboard system will signal this occurrence when necessary.

In general, the 68000 responds to such a signal by suspending the current program and jumping off to special 'subroutine' to deal with the situation. Afterwards, it returns to the program in such a way that the program need never know anything happened. The current program has been *interrupted* and then resumed.

This basic procedure is common to almost all microprocessors in use today. Naturally there are refinements to this; firstly, there might be occasions when an interrupt would be unwelcome (the telephone rings while you are in the middle of tracking down the last bug in your programming masterwork). Such a situation might arise if a program requires a precise timing loop, when the extra time consumed by handling the interrupt would cause problems. Therefore, we would like some method for disabling interrupts during critical tasks, and then re-enabling them at the end. Those of you who know any Z80 assembly language will be familiar with the Z80 *di* and *ei* instructions to do precisely this.

On the 68000 this facility has been extended, so that a program may choose to ignore some interrupts, but allow others (you are ignoring the telephone, but the cat is showing signs of destroying your furniture). This is done by having 7 different interrupts, each with a different priority (coded as 1-7, 7 highest), each with a different subroutine to handle it. Which interrupts are accepted, and which ignored, is determined by three bits in the 68000 status register which form a mask against which prospective interrupts are assessed. An interrupt is accepted if its priority code is greater than the mask value.

As a result, a mask of 0 allows all interrupts. Also, a priority 7 interrupt cannot be ignored, and is sometimes called a *non-maskable interrupt* for this reason. One last wrinkle: when an interrupt is accepted, the mask is set to the interrupt's priority level. This means that a higher level interrupt can still break into the first interrupt handler (you answer the telephone, and then the cat begins shredding the carpet), but equal and lower priority interrupts are blocked. Blocked interrupts are put on hold until the mask drops to such a value as to permit their handling.

A clarification of a point arising from last month's presentation of a form_do replacement: in the text describing Listing 3, I noted the rather odd order of arguments in Lattice C v5.06.00. Apparently, Hisoft have corrected this for v5.06.02, which is now consistent with the description in the compiler system documentation. If you cannot get Listing 4 to work with your compiler system, it is probably worth checking the arguments to form_keybd thoroughly.

Implementation

So much for the theory, but how is this made into something useful? External devices request an interrupt by placing a priority code (1-7) on three 68000 pins (IPL0, IPL1 and IPL2). Assuming that the mask (bits 8-10 of SR) permits this interrupt type, the current program counter and status register (including all condition codes) are placed on the supervisor stack and the processor enters supervisor mode. A long word is fetched from a table of vectors starting at $64 and placed in the PC; execution continues from this address. These addresses are called *autovectors* because their selection and utilisation is done in hardware. The level 1 autovector is at $64, level 2 at $68 and so on up to level 7 (NMI) at $7C. In the ST, the IPL0 pin is not used, so the only interrupt levels used are 2, 4 and 6. Therefore, setting an interrupt mask of 7 will disable all interrupts in the ST. This is usually done by the supervisor mode instruction or.w #$0700,SR.

Level 2 - Horizontal blank (HBL)

This interrupt is connected to part of the video circuitry of the ST, and is generated after every monitor scan line (approximately every 50μs). HBL is normally masked out in the ST, which operates most of the time with an interrupt mask of 3. This is because the interrupt occurs so frequently that handling HBL would consume a significant amount of the processor's time. The default HBL handler simply checks to see if the mask is 0; if so it sets the mask to 3 and returns, thus preventing any further HBL interrupts.

HBL is used occasionally by programs wishing to display more than 16 colours at a time on the low resolution screen. This is done by letting the monitor draw one scan line, catching the interrupt at the end, then changing

the contents of the palette registers before the next scan line is drawn. Needless to say, this is rather tricky, and is definitely a case where the higher priority interrupts should be disabled while the HBL handler is running, as an interrupt during the HBL would result in the next scan line being started before the palette registers were changed.

Level 4 - Vertical blank (VBL)

This is also related to the screen: it occurs after every frame is finished, therefore 70 times a second for monochrome systems, and 50 or 60 times a second for colour. This makes it extremely useful for performing periodic tasks. TOS uses the VBL to check for media change on the floppy disk drive, to display the mouse cursor, to move the video RAM address if required and to check for the ALT-HELP screen dump. In fact, this is so useful that there is a way to access the interrupt for your own programs without having to write a full blown interrupt handler (the VBL queue: see next month).

Level 6 - MFP 68091

This is where life gets really complicated! The ST has too many possible interrupt sources to make do with the 7 possibilities offered by the 68000. To cope with the extra demands, interrupt level 6 is connected to the MFP 68901 chip. A full description of its operation is rather beyond the scope of this article, but it is involved in most of the I/O port operations of the ST as well as handling all I/O interrupts. All keyboard, MIDI, mouse, floppy, hard disk, RS232 and Centronics interrupts are processed by the MFP.

The MFP can handle 16 different interrupts,

again each with a different priority. All appear to the 68000 with priority level 6, so using the 68000 interrupt mask will enable or disable all at once. Since so many functions are affected by disabling the MFP interrupt, it is a good idea to keep the time spent with a mask of 7 to an absolute minimum.

If all MFP interrupts are level 6, how does the processor differentiate between them? The answer lies in the ability of the MFP to tell the processor where to find the address of the appropriate subroutine. There is a separate table of vectors for MFP interrupts (see Figure 1); when an interrupt occurs; the MFP presents the 68000 with the correct vector address. This bypasses the level 6 autovector completely in hardware.

Writing interrupt handlers

Generally, this is best done in assembly language, but for an exception see next month's column. There are slight differences between MFP and 68000 autovector handlers which will also be explained next month. For now though, there are some general points which apply to all interrupt handlers.

For any but the most simple handler you will need to think very carefully about interactions between your handler and the rest of the system. You cannot make any assumptions about the environment that will be current when the handler is invoked. The only starting conditions are that the processor will be in supervisor mode and that the interrupt mask will be equal to the handler's priority level. The previous mask and condition codes (flags) will have been saved on the stack when the SR was pushed as part of the

interrupt. However, any registers which you want to use should have their existing contents stacked first. Failure to do this will cause damage to the process that was interrupted. Also, if your handler requires that it should not itself be interrupted by a higher priority interrupt, you should set the interrupt mask appropriately.

Once these preliminaries are performed, the handler can perform its particular tasks. These should be kept to a minimum, otherwise you run the risk of upsetting various time-dependent processes in the operating system. This becomes especially important if your handler raise the interrupt mask to 7. Note that you cannot assume it is safe to use any operating system calls. In particular, AES, VDI and GEMDOS calls are out of the question. The BIOS and XBIOS are alleged to be re-entrant to a limited degree, so theoretically it might be possible to use them, but this would require very careful exploration and testing. Not recommended! It is probably safest to keep the handler totally self-contained.

Afterwards, the old register contents should be restored, and a return made to the current process using the special instruction rte. This pops the first word on the stack into SR, then the next long word into PC. If you use rts by mistake, you will copy the SR and half the PC into the program counter, causing a crash. Most errors in interrupt handler code will prove disastrous for the system, and are usually rather more difficult to track down.

A word now about installation of handlers. At its simplest level, this is done by pointing the appropriate autovector or MFP vector at

Address	Priority	Function	Default
$100	0	Centronics BUSY line	Disabled
$104	1	RS232 Data Carrier Detect	Disabled
$108	2	RS232 Clear to Send	Enabled
$10C	3	BLIT done (Blitter STs only)	Disabled
$110	4	Timer D (baud rate generator)	Disabled
$114	5	Timer C (system 200Hz clock)	Enabled
$118	6	IKBD/MIDI ACIA	Enabled
$11C	7	FDC / DMA controller	Disabled
$120	8	Timer B (scan line counter)	Disabled
$124	9	RS232 Transmitter error	Enabled
$128	10	RS232 Transmitter empty	Enabled
$12C	11	RS232 Receiver error	Enabled
$130	12	RS232 Character received	Enabled
$134	13	Timer A	Disabled
$138	14	RS232 Ring Indicator	Disabled
$13C	15	Monitor detect/STE DMA sound	Disabled

Figure 1

MFP interrupt vector table. Note that many of these sources are not enabled by TOS, but that applications may do so: e.g. a printer buffer might enable the Centronics busy line, or a comms program might require the DCD and RI lines. Naturally, a handler should be installed before enabling a source that is not supported by TOS. Priority 0 is the lowest level.

your new code. However, this needs to be done carefully. You should assume that the handler might be called as soon as the system vector is pointed at the routine. Accordingly, all initialisation of internal flags, etc., should be done before plumbing in the routine. Also, if you plan to install several handlers as part of a package, consider what might happen if an interrupt occurs halfway through the installation process. The safest course is to make the installation code *atomic*. This is done by disabling interrupts during the critical part of the installation (atomic = indivisible), and re-enabling once all is set up.

Another point which requires consideration is how to get the interrupt handler code into the system. The easiest and most common way is to make the code part of a program which remains resident in the machine by calling Ptermres (so-called TSR, terminate and stay resident, programs). These are usually loaded from the AUTO folder. If the handler is to be part of a normal program, it will need to be removed when the program terminates. In most cases, the old handler will need to be reinstated; therefore, its address should be saved during installation. Naturally, handler removal is subject to the same sort of problems as installation. An added complication is that of an abnormal

termination: without proper precautions the handler code will be removed from the system, and the vector will be left pointing into 'empty space': a jolly good way to cause a crash. One solution is to grab the etv_term vector ($408) which the system jumps through to terminate the program, and point it to a routine which removes the handler before allowing the termination to proceed. This should catch most unexpected exits from the program. An example listing will be given next month.

Traps and bombs

An interrupt is a specialised form of a 68000 operation called an *exception*. Most of you will at some point have encountered the bombs that the ST produces when a low-level error condition arises. These are the result of an error exception handler in TOS. When an error occurs, the current process is interrupted, PC and SR stacked, the processor switched into supervisor mode, a vector from low memory selected and a handler jumped to. The handler determines the type of error, prints an appropriate number of bombs on the screen (two for a bus error, three for an address error and so on), and then attempts to exit the program gracefully. The last operation usually fails (particularly

when GEM is involved), so a system re-set is often required. Now, if we were able to change the operation of the TOS routine so that it simply fixed the error and returned to the program transparently, we would have a process very like an interrupt. The trap instructions also use the rte calling mechanism, but since they are designed to allow a program to call operating system functions, trap handlers do not preserve all registers; allowing them to return values.

Gruesome details of coding next month; meanwhile, send in your experiences, source code fragments, etc. Submissions should be sent to the address below. Those containing large chunks of text or source code (ASCII only please) should be sent on disk which will be returned if an SAE is included.
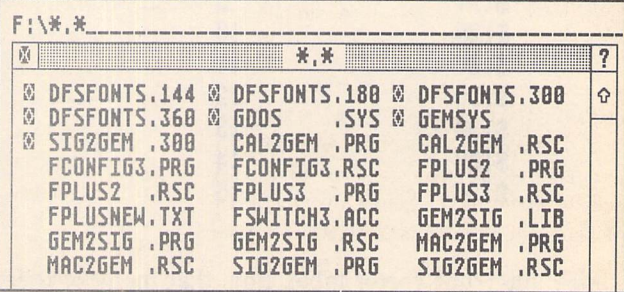
Jon Ellis
Programmers' Forum
29 Ashridge Drive
Bricket Wood
St. Albans
Hertfordshire
AL2 3SR

Giving it the WERCS

Part 2

In Part Two of his series on getting the best out of HiSoft's Resource Construction Program, John Durst gives advice on the efficient use of the FORM_DO and FORM_DON'T commands, and ends with a piece of code to demonstrate the use of Radio Buttons in dialogue boxes.
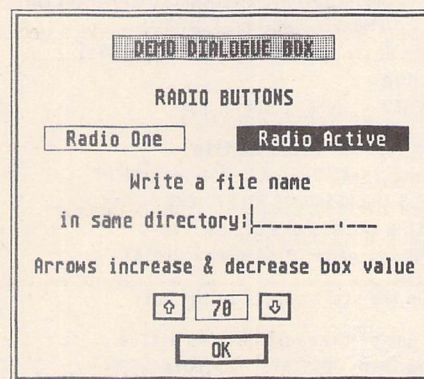
Most people haven't really any trouble producing beautiful and elaborate Dialogue Boxes with their WERCS construction sets. The problems begin when they want to use them to do something. There are some careful explanations in the manual and Dave Nutkins' demo program, "WTEST", gives examples of the usual ways of getting results from various types of object. But it can still be quite tricky, finding one's way through a forest of trees, while the GEM routines which do the work are not always as clearly documented as they might be.

Desperate times call for desperate measures; one correspondent was so puzzled by the "FORM_DO" function - which is the key to handling Resource objects - that he put the entire section of his program into an "event" loop, so as to get the Dialogue box to modify and repeat itself. It worked, but it doesn't have to be so complicated, if only the books explained it properly. Well, here goes...

FORM_DO incorporates its own "event" loop; that is, it waits for some appropriate input and then returns a value. The value it returns is always and only the number of the object which caused the exit. This is fine if all you need to know is whether it was "OK", or "CANCEL", as in a "FORM_ALERT", which is a simple pre-programmed Dialogue box.

But suppose you want to know more? Suppose you need to see which of a series of Radio Buttons was selected? Worse, suppose you would like the box to modify itself in some way, before exiting - by changing some text, in response to your input, or highlighting some other object?

The Radio Button problem is quite simple: there is a clever little routine in "WTEST", to deal with just that, which operates as

```
┌─────────────────────────────────┐
│     DEMO DIALOGUE BOX            │
│                                 │
│         RADIO BUTTONS           │
│                                 │
│   Radio One      Radio Active   │
│                                 │
│      Write a file name          │
│   in same directory:|_____.___│
│                                 │
│  Arrows increase & decrease box value │
│                                 │
│        ⇧  70  ⇩                 │
│        ┌──────┐                 │
│        │  OK  │                 │
│        └──────┘                 │
└─────────────────────────────────┘
```

soon as "FORM_DO" has exited. It's perfectly straightforward to lift the routine out bodily and put it in your program, even if you don't understand how it works. But it is worth while studying, because it demonstrates neatly the sort of methods you can use to explore the values in a Tree of objects.

Radio Buttons are usually grouped in an "I_BOX": an Invisible Box. Now, if you look at the WERCS manual - or another text on GEM - you will see that the first slot in the object structure is called "OB_NEXT" and points to the next object in the chain. The second slot, "OB_HEAD", points to the number of the object's first child (if any).

This is the trick the WERCS routine does. It takes the number of the I_BOX, which it calls "parent" and goes to look at the I_BOX structure. In it, "OB_HEAD" holds the number of the first Radio Button in the group, so the routine goes to look at this Button's structure. It checks to see if it has the "SELECTED" bit set; if it hasn't, it looks at the Button's "OB_NEXT", which is the next Button in the group. Then it moves on to that Object and repeats the inspection all along the chain.

Now, "OB_NEXT" will always hold the number of the next Radio Button, until it gets to the last button. That button will have the number of the I_BOX as "OB_NEXT" - and Bingo! There's a match for "parent": we're home and we've looked at all the Radio Buttons.

Nearly all manouevres with Resource files involve this kind of tree walk. In fact the system was devised to make it possible to work one's way through the Tree, without missing anything. It doesn't say you have to be as agile as a monkey, but it helps.

The radio buttons don't require any tinkering with "FORM_DO", because all the tree walking can be done after "FORM_DO" has returned with its exit number. But where you want to alter the contents of the Dialogue Box, while still keeping it open, you need to be more devious.

Suppose you want the selection of one Radio Button to disable another Button in the Dialogue. Suppose you have two Radio Buttons, marked "Duck" and "Fish", and two others marked, "Swim" & "Fly". Now, obviously, if you select, "Fish", you shouldn't be able to select "Fly" (unless you want to include flying-fish, which you don't).

So what you do, first, is to use WERCS to make "Duck" and "Fish" EXIT, as well as RBUTTON. Now when you click on "Fish", FORM_DO will return with the number of "Fish". You make your program check on the value returned: if it is "OK" you go on with the program in the normal way: if it is "Duck" or "Fish" you do something else.

First, you find the address of object "Fly", walking the tree if necessary. Then you find "OB_STATE", the Object State slot for "Fly". If the exit object was "Fish", you set Bit 3, which is "DISABLED": if it was "Duck", you zero it.

Then you loop back to the "OBJ_DRAW" call, which comes immediately before the famous "FORM_DO". And you are back with your dialogue box, but now with - say - "Fish" selected and "Fly" disabled and showing grey. Great stuff, eh?

Take another example (you will find this one in the demo program on the Disk Magazine). You have a number - the number of lines on a page, say - which you want to be able to change by way of your Dialogue Box. The number goes into a small TEXT, or STRING object and on either side you put two other small objects with "UP" and "DOWN", or arrow characters in them. These last two objects have the "TOUCH EXIT" flag set, but not the "SELECTABLE" flag. The "TOUCH EXIT" flag is the only one which allows you to exit without having to select and therefore highlight the object. This time, when the program returns from FORM_DO, you check the returned object to see if it is one with the TOUCH EXIT flag set. If it isn't, it must be "EXIT": if it is, it must be "UP", or "DOWN", so you go into your special routine.

First, you increase the number if it is "UP" and decrease it if it is "DOWN", and then set the new number into the text of the central object. After this, you can loop straight back to the OBJC_DRAW call, but if you do just that, the screen gives a nasty hiccup as it momentarily blanks out and re-draws the box. Much neater is to arrange to redraw only the bit of the box that has changed: the one holding the number. To do this, you have to set the "clipping rectangle", used by OBJC_DRAW, to the size and position of the number Object. How do you find these coordinates? They are tucked away in the "ob_x", "ob_y"," ob_width" and "ob_height" slots of the number Object: get them out and set them as parameters for OBJC_DRAW and you will get a virtually flicker-free change.

This has been a rather hurried review of some of the tricks you can use with Dialogue boxes. One of the best discussions of how to deal with them can be found in the "Professional Gem" series of articles on the ST Club's PD disk TXD*01. Tim Owen goes into it all in much greater detail and with much more authority than I can manage.

John Durst

Demo Dialogue Box using "WERCS" and HiSoft Basic

```
' the UP & DOWN arrows are only flagged
' TOUCHEXIT
' *NOT* SELECTABLE, so they aren't highlighted
' The text template is "p" which formats a
' filename in Caps with a skip
' on entering "."

defint a-z
library "gemaes"

' Include WERCS header file with the names &
' values of objects
REM $INCLUDE TEST.BH
' now set up the global constants for the
' program
CONST    ob_flags=8,ob_state=10,ob_spec=12
CONST    ob_x=16,ob_y=18,ob_width=20,
         ob_height=22
CONST    mask_selected=1,mask_touchexit=&h40
CONST    FMD_START=0,FMD_FINISH=3
' HiSoft Basic likes you to declare global
' variables
DIM SHARED    junk,j,magic_num

' First load the resource file
IF FNrsrc_load("TEST.RSC")=0 THEN PRINT
"WHERE'S THE RESOURCE FILE?":END
' and find the address of the tree
junk=FNrsrc_gaddr(0,demo_box,dial&)

' set up the start values in the box:

' make one of the radio buttons active
' Bit No.0 in "OB_STATE" controls
' "selected"
t&=dial&+24*r1+ob_state
POKEW t&,1

' set the cursor to the start of
' the editable text
' "OB_SPEC" holds the address
' of the "ted_info" table
t&=dial&+24*f_name+ob_spec
' so a PEEK here will get the address
' of the table
t&=PEEKL(t&)
' the first item in the table is
' the address of the actual text
t&=PEEKL(t&)
' now put a zero at the start of the text
' position & the cursor will settle there
POKEB t&,0

' find the size of the object holding the
' number : that's all we want to redraw
' after the 1st time round
t&=dial&+24*numbers
x1=x+PEEKW(t&+ob_x)+4:y1=y+PEEKW(t&+ob_y)+4
w1=PEEKW(t&+ob_width)-4
h1=PEEKW(t&+ob_height)-2
' the PEEKed numbers need a bit of tuning
' to get inside the border

' the next call actually does the dialogue box
junk=FNhandle_dlog(dial&,f_name)
END          'program finished

' *** SUB PROGRAMS ***
' routine to produce dialogue box and handle
```

```
' interaction including re-setting the number
' box ; result is the exit object number
DEF FNhandle_dlog(d&,editnum)
SHARED x1,y1,w1,h1
STATIC x,y,w,h,but,t&

     form_center d&,x,y,w,h
' find the size of the object holding the
' number ; that's all we want to re-draw on the
' second time round
       t&=d&+24*numbers
x1=x+PEEKW(t&+ob_x)+4:y1=y+PEEKW(t&+ob_y)+4
w1=PEEKW(t&+ob_width)-4
h1=PEEKW(t&+ob_height)-2

     form_dial FMD_START,0,0,0,0,x,y,w,h

draw_dial:
' put the number into its little box
     CALL set_magic_num(d&)

     junk=FNobjc_draw(d&,0,10,x,y,w,h)
     but=FNform_do(d&,editnum)
' call the dialogue box routine; now we can
' de-select the object which caused the exit
       t&=d&+24*but
     POKEW t&+ob_state,PEEKW(t&+ob_state)
     AND (NOT mask_selected)
' if it's "touch exit", it must be an arrow
     IF PEEKW(t&+ob_flags) AND mask_touchexit
     THEN fix_number
' else clear up & finish
       form_dial FMD_FINISH,0,0,0,0,x,y,w,h
FNhandle_dlog=but
EXIT DEF

fix_number:
' add or subtract 5 from the number,
' as appropriate
     IF but=up THEN magic_num=magic_num+5
     ELSE magic_num=magic_num-5
' you can easily make it cycle:
     IF magic_num<0 THEN magic_num=95
     IF magic_num>95 THEN magic_num=0
     x=x1:y=y1:w=w1:h=h1
' change the clipping rectangle
     GOTO draw_dial
' & back to the drawing board...
END DEF

' sub program to install a number
' in the BOXTEXT
SUB set_magic_num(d&)
STATIC t&,y$
' find the sddress of the "OB-SPEC" field
     t&=PEEKL(d&+24*numbers+ob_spec)
' "OB-SPEC" holds the address of the text
' to be inserted
     t&=PEEKL(t&)
' calculate & install the numbers
     y$=STR$(magic_num)
       FOR j=2 TO LEN(y$)
' skip the space at start of STR$
          POKEB t&,ASC(MID$(y$,j,1))
          INCR t&
       NEXT
     POKEB t&,0  ' end in null
END SUB
```

GEM Dialogue Boxes in C

For the benefit of the C programmer, Les Kneeling shows how GEM dialogue boxes may be manipulated, and gives a sample C listing designed to modify a GEM box.

A GEM dialogue box is a much more flexible gadget than the literature would have you believe. Given a reasonable understanding of the structs which describe it, and the `ob_state` and `ob_flags` variables which control it, some fairly interesting effects can be achieved.

The basic OBJECT struct looks like this:

```
typedef struct object {
      int             ob_next;
      int             ob_head;
      int             ob_tail;
      unsigned int    ob_type;
      unsigned int    ob_flags;
      unsigned int    ob_state;
      char            *ob_spec;
      int             ob_x;
      int             ob_y;
      int             ob_width;
      int             ob_height;
} OBJECT;
```

The most common way to illustrate the use of a dialogue box is to use `form_center` to centre it, `objc_draw` to display it, and then `form_do` to allow for user interaction. Recreating the function of `form_center` seems a reasonable way of demonstrating the basis for other techniques.

The `form_center` call normally looks like this:

```
form_center( tree, &xpos, &ypos, &width, &height );
```

This function works out where the object should be positioned on the screen and puts the required values in the `ob_x` and `ob_y` fields of the object struct. When GEM draws the object it uses the new co-ordinates from the struct. The programmer could duplicate its function thus:

```
dialog[TREE00].ob_x = ( w - dialog[TREE00].ob_width )/2;
dialog[TREE00].ob_y = ( h - dialog[TREE00].ob_height )/2;
```

`TREE00` is the name given to the dialogue box when it was created in the Resource editor, and GEM can locate the data it needs from this along with the address of the tree in memory. The fields in the struct can then be used to access the data. To centre the dialogue we need the width and height of the screen, which can be obtained by finding the work area co-ordinates for the desktop, which is window 0:

```
wind_get( 0, WF_WORKXYWH, &x, &y, &w, &h );
```

Of course there would be little purpose in doing this just to replace `form_center`, but this technique is the basis for "walking" menus and desk accessories, which have their own window and must therefore be able to move around the screen.

There is no need to worry about objects contained in the tree being moved around the screen - their co-ordinates are offsets from their parent and thus they will appear in the right place relative to wherever the parent is drawn. All that is necessary is to set the co-ordinates of the parents to wherever the mouse-click occurred or the top left of the window work area. GEM will take care of the rest.

Moving the object around the screen is only part of the story. It is also possible to change the shape, size and content. Shape and size are easy - just put the new values into the `ob_width` and `ob_height` fields.

Changing the text is not quite so simple. The object struct does not contain the text, nor does it contain a pointer to it. In fact, it contains a pointer to another struct which contains a pointer to the text in the `ob_spec` field. The struct involved is a `TEDINFO` and looks like this:

```
typedef struct text_edinfo {
      char *te_ptext;
      char *te_ptmplt;
      char *te_pvalid;
      int te_font;
      int te_junk1;
      int te_just;
      int te_color;
      int te_junk2;
      int te_thickness;
      int te_txtlen;
      int te_tmplen;
} TEDINFO;
```

The pointer defined in the struct is a character pointer which points to another struct, making it necessary to tell the compiler what is going on by using a construction like this:

```
((TEDINFO *)dialog[OBNAME].ob_spec)->te_ptext
```

The `(TEDINFO *)` prefix tells the compiler that the long value held in `dialog[OBNAME].ob_spec` is actually a pointer to a `TEDINFO` struct. Since we are using a pointer to the struct, '->' operator is used instead of '.' to access the fields. Now that we have this information there are two ways of changing the text in the object. The first example shows the use of `sprintf` to clear the edit field for use; normally the edit cursor would appear at the end of the edit field. The second uses this `sprintf` call to change the text to "Atari":

```
sprintf( ((TEDINFO *)dialog[OBNAME].ob_spec)->te_ptext, "%s",
"Atari" );
```

When the object is next redrawn, this text will appear in the object.

Alternatively, the pointer can be re-directed so that it points at an area defined by the programmer:

```
((TEDINFO *)dialog[OBNAME].ob_spec)->te_ptext = text;
```

As the text is an editable field, the information can be read from the string directly. Reading the text from the object tree, where programmer-defined storage has not been used, can be done using a call to `sscanf`:

```
sscanf( ((TEDINFO *)dialog[OBNAME].ob_spec)->te_ptext, "%s",
text );
```

The third example changes the pointer to the template field in the dialogue box so that it points at a string declared in the program. The contents of the field can then be changed by using the string functions, `sprintf`, or direct access. The length of the editable field is also changed in this example. GEM needs some additional information if the new text is a different length from that originally defined. This is done by changing the `te_txtlen` and `te_tmplen` values in the appropriate struct. There is sufficient storage for forty characters allowed in the object tree, and care must be taken that this limit is not exceeded.

Finally, a note about binary housekeeping. The state of an object will be retained and used the next time the object is drawn. The button on the example dialogue is a typical case. When it is clicked to end the dialogue interaction, its state becomes 'SELECTED'. Left to its own devices, it would be drawn 'SELECTED' the next time the dialogue is used. This can be solved by using:

```
tree[BUTTON].ob_state &= ~SELECTED;
```

This is one of the more cryptic C statements - it does a bitwise logical AND of the existing ob_state bit-map and ~SELECTED, which is an integer with all of the bits set except SELECTED. Perhaps an illustration....

The possible values in ob_state are:

Bit	Meaning
1	SELECTED
2	CROSSED
3	CHECKED
4	DISABLED
5	OUTLINED
6	SHADOWED

An object which is SELECTED and SHADOWED would have a binary value of 100001 (ignoring the unused upper bits in the word). ~SELECTED would then be 111110, as it is the negation of SELECTED. The & operator does a bitwise combination of the two: where a bit is set in ~SELECTED, and the bit in the same position is set in the original value, the result is 1; otherwise the result is 0.

Thus:

```
        100001
   AND  111110
```

results in 100000

The state of the object is then SHADOWED. The opposite of this is OR for which the C operator is |. To change a SHADOWED object to SHADOWED and SELECTED:

```
        100000
   OR   000001
```

results in 100001

If the binary arithmetic is too much, adapt the call in the example program for your own use.
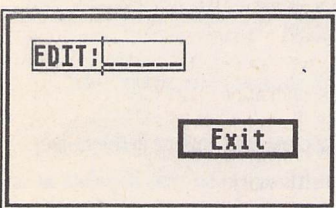
The first example shows the use of sprintf to clear the edit field.

The second example uses this sprintf call to change the text to Atari.
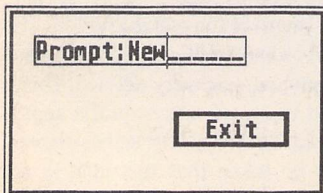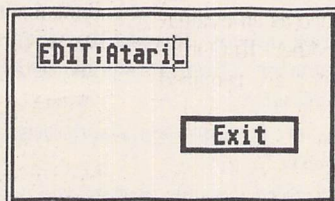
The third example changes the pointer to the template field in the dialogue box so that it points at a string declared in the program.

LISTING

Sample listing showing how to modify a dialog box (in Laser C) - by Les Kneeling

```
#include <stdio.h>        /* Sample listing showing how      */
#include <obdefs.h>       /* to modify a dialog box (in Laser C) */
#include <gemdefs.h>      /* - by Les Kneeling               */

#include "example.h"

OBJECT *dialog;                     /* Globals                 */

int x, y, w, h;

char text[] = "New";
char prompt[] = "Prompt:_____";

main()                              /* Starts here             */
{
appl_init();                        /* Initialise ROMS         */
if( rsrc_load("example.rsc") )      /* Load resource file      */
    {
    rsrc_gaddr( 0, TREE00, &dialog ); /* Get the address       */
    my_form_center();               /* Emulate form center     */
    display_dialog();               /* Show results            */
    use_sprintf();                  /* Change text with sprintf */
    display_dialog();               /* Show results            */
    change_text();                  /* Change text using pointer */
    display_dialog();               /* Show results            */
    }
else                                /* Deal with a missing .rsc */
    {
    puts("Error loading resource");
    getchar();
    }
appl_exit();
}

my_form_center()                    /* Simulate the function   */
{                                   /* of form_center          */
wind_get( 0, WF_WORKXYWH, &x, &y, &w, &h );/* Get window size  */
                                    /* Modify co-ordinates     */
dialog[TREE00].ob_x = ( w - dialog[TREE00].ob_width )/2;
dialog[TREE00].ob_y = ( h - dialog[TREE00].ob_height )/2;
                                    /* Clear edit field        */
sprintf( ((TEDINFO *)dialog[OBNAME].ob_spec)->te_ptext, "" );
}

display_dialog()                    /* Show the dialog box      */
{
objc_draw( dialog, 0, 10, x, y, w, h );
form_do( dialog, 0 );               /* Until button is clicked  */
dialog[BUTTON].ob_state &= ~SELECTED; /* Reset exit button      */
}

use_sprintf()                       /* Use sprintf to change    */
{                                   /* text in object           */
sprintf( ((TEDINFO *)dialog[OBNAME].ob_spec)->te_ptext, "Atari" );
}

change_text()                       /* Change text by moving    */
{                                   /* the pointer              */
((TEDINFO *)dialog[OBNAME].ob_spec)->te_ptext = text;
                                    /* and modify the prompt    */
((TEDINFO *)dialog[OBNAME].ob_spec)->te_ptmplt = prompt;
                                    /* fix the length           */
((TEDINFO *)dialog[OBNAME].ob_spec)->te_txtlen = 10;
                                    /* extend the box           */
dialog[OBNAME].ob_width += 5 * 8;
}
```

CAD Column

Top-end Atari hardware with Shareware software? Joe Connor explains the paradox and rounds up the latest news.


```
Desk  System3  Attribs  View    Select   Delete  File1
view: iso, zoom: 1.172833
depth: 0, layer: 0
```
Dynamic drop down menus.. New menus pop up as needed.

These Icons call other Icon groups

View & model status shown continuously

This Icon pad changes the model geometry

Mouse strokes are an alternative to keyboard & icons

Italicised Help line displays the function of each Icon as the mouse passes over it

1,22
2,43

change pad is current Both mouse buttons are used

Command Line for data input describes what it expects

Status box shows whats happening

READY

JIL 2D CAD is a powerful shareware version of JILCOMP which provides features unavailable in any other ST CAD software.

If you need a top performance Atari system today then you only have two main choices:

1) A TT which, if you like the styling and don't mind being an unpaid guinea pig, offers off-the-shelf power. (If you intend to use DynaCADD, contact Expressworks as they have a special TT version of the software.)

2) Upgrade your existing machine. Unfortunately, not all ST's are created equal. Each ST model, at various times during production, has had different components fitted, and this can be the cause of much wasted time and frustration if you choose the upgrade route. Some exciting products are (almost) available which make even the TT look pedestrian.

Dream system, Nightmare price

Take one Manhatten tower system, build in a Mega ST4 with MGE II graphics board, high density floppy drive module, choice of Procache 030 or Gadgets by Small 68030 SST board (see Issue 1 for details) plus hard disk of your choice. Hook up a 21-inch EIZO monochrome monitor and start writing 'my computer is better than yours' letters.

Mid-performance systems can be built around one of the processor accelerator boards already available, and the Mega STE, when available, will also offer improved performance.

News

A 2D drafting program called CADja is now available in the UK. The product originates from Germany where it has been well received and available for some time. A full review can be found on page 12 in this issue.

ICD have announced a 16MHz 68000 processor accelerator called AdSpeed ST. It claims to work with all ST models and to have 100% compatibility when used in 8MHz mode.

Speed is selected via software and can even be changed without re-booting the computer. Fitting, as usual, involves removing the existing 68000.

Titan Designs Ltd. produce the Reflex Graphic Card which enables resolutions of up to 1024x960 to be displayed on the standard SM124/5. A 21" A3 monitor is available and ideal for CAD use. To stretch the resolution to 2048x1536, an optional expansion card will shortly be available. No provision has been made for a maths co-processor, so if you already have one plugged into your Mega expansion slot you cannot use both at the same time. Some processor accelerators offer maths co-processor slots which would solve the problem. (See the article on page 18 in this issue.)

JIL CAD

An American CAD program produced by the JIL Corporation is available in shareware form from the ST Club on DRG.40. The program JIL2D.PRG is described as an evaluation version of its big brother JILCOMP. 1Mb RAM and mono monitor are required but a mono screen emulator is also provided on the disk. Drawings can be loaded and saved in JIL.DWG format. Degas PI3 files can be saved and screen dumps to printer are available, but GEM Metafile, Plotter PLT format and IGES output are disabled in the demo version.

A 3D modeller, file converter, icon editor and developers' kit are available. The full version, JILCOMP, also features automatic and associative dimensioning, 32,000 layers and parametric macro programming.

Curious features

The screen is split into 3: the drawing area, icon pad and command line. The cursor in the drawing area cannot pass over the icon pad to select icons: instead, the right mouse button is held down which freezes the drawing cursor in position and creates a pointer over the icon pad which in turn selects the icon by releasing the right mouse button. It takes some time to get used to this arrangement, but access to the icon pad is instant.

Mouse strokes can be used instead of keyboard short-cuts or icons. For example, to zoom into a drawing the left mouse button is held down and a rough circle drawn around the area to be zoomed. A sound effect accompanies this operation, and then the zoom is performed. To return to full-screen view, a rough Z is drawn anywhere on screen and (hey presto!) it works.

Drop-down menus are 'posted', which means that sub-menus are selected from the initial System menu; these then pop up on the menu bar as further drop-down menus. After a time delay, the menu bar disappears to be replaced by the coördinate display.

A screen-saver cycles through a perverse number of patterns, so that there is no chance of monitor burn whatsoever. This program looks very powerful. Try the demo, or contact:

JIL Corporation
6600 Sylvania Avenue
Sylvania, Ohio 43560
USA.

Classified Adverts

Classified adverts are free to subscribers.

Please use the form on page 58.

FOR SALE

Fun School 2 for 6–8 year olds – £9, Obliterator – £5, Leonardo – £4, Power Struggle – £4. All prices include P & P. Write to Paul, 17 Spring Road, Clifton, Shefford, Beds. SG17 5RE. (4)

"The Church ST User". A disk-based magazine providing a mutual support forum for those using the ST in Christian Work. Contact Revd. Joe Clemson. 091-487 6944. (4)

MPE-GEM-Forth ST ver 2.01 – £25. Forth: A Text and Reference; Kelly/Spies – £15. The Students' Forth; Glyn Emery – £4. Postage extra if required, delivered 25 miles rad. Coventry. Tel.0203 419885 Statham. (4)

The Blag (ST) – huge detective adventure on two extended format S/S disks. Features digitised graphics, printed manual and free pen: £7.99 plus 50p P&P. Apply G. Atkinson, 60 The Green, Rowlands Castle, Hants, PO9 6AB. (10)

Original ST Software with boxes in excellent condition: Perry Mason, Nord and Bert, Bridge Player 2000, only £6 each o.n.o. Telephone Stephen on 0782 615208. (4)

Atari 520 STFM plus software and magazines. £195. SLM804 Laser Printer, less than 1 year old. £550 ono. Ring Phil on 0709 878095 10-8. (4)

Supra 30 Meg Hard Disk, Excellent condition - home use only. Original packaging £350 ono. Tel (071) 328 5454. (4)

ST Originals for sale: Operation Thunder Bolt, F29 Retaliator, Double Dragon 2, Ghost Busters 2, Drivin' Force, Chase H.Q, Stunt Car, Xenon 2 – all £8 each. Moon Walker, Super Hang-On, Dragon Ninja, I Ludicrus – all £5 each. Tel: 0635 46142 and ask for Chris. (4)

2 x 1Mb internal replacement disk drives for ST, £40.00 each. 1 Mb internal replacement drive for ST (Citizen) £30.00. Contact: Colin on 0270-780257. (7)

Atari 520 STFM with 1M Drive + 1/2M Drive + Atari Mono Monitor £250. Contact Physics Dept. Aberystwyth. Tel.0970-622822. (5)

Timeworks Swiftcalc Spreadsheet with handbook £20. Data Manager Data Base, with handbook £20. First Basic by Hisoft with handbook supplied with new STE £20.- Oxford (0865) 841 383 (4)

Star LC10 Colour Printer, Two ribbons, some paper, original packing, home use only. Very good printer in very good condition. £150.00. Tel: Mick Jackson, Oxford (0865) 724753. (5)

Original Software: Metacomo Pascal Developing System – £35 and 2.02 + Hisoft Wercs – £8 (Both Unregistered). Atari Gem Programmer's Reference (Abacus Book) – £8; or swap all for PageStream 1.82. Phone Nick 0535 730161. (5)

Star LC10 Mono Printer in good condition, £120. Ask for Frank on 0738 28721 after 8 o'clock or 033 76575 during work hours. (5)

Half Meg STE Sipps Upgrade – only £20. Tel: (0602) 507999 (Evenings). (4)

Atari STE 520 Boxed and still under guarantee, complete with mouse, joystick, Pro-Sound Designer sound sampler, software and magazines: £300. Atari STM Double sided drive, mouse, joystick, software, magazines £150. Tel: 0246 235105 after 2pm. (5)

Atari STFM. TOS 1.09, 2.5Mb Ram, SM124 Mono Monitor, Third Coast 22Mb hard drive. £1500 worth of business and leisure software, £700 o.n.o. Will split. Call Nigel Lucas (0279) 622178 office hours. (5)

Panasonic KCP1081 9-Pin Printer, with spare ribbon, ST interface cable, and special iron-on transfer ribbon for DIY T-Shirts. £80. Call Frank Hollis on (0279) 434168 (Eves) 622017 (day). (6)

Atari 520 STM. Bargain! Upgraded to 1 Meg Memory, DS Disk Drive, Mono Monitor. Inc. orig. First Word Plus 3.14 MS Write, VIP Professional, ST Turbo and over 50 PD Games and Utilities Disks. £250 the lot. Contact Michael (081) 470 9686 (4)

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Supercharger 1MB. Latest version, still under warranty including Dos 4, Dos 3.3, Books and P.D. – £220. NEC Multisync Greyscale Monitor £125; 5.25" 40T/80T Disk Drive – offers. Hyper Paint original and unregistered – £12. French STF Keyboard + Roms offers. Faulty STFM Mother Board + Case + PSU Offers. Tel. Mark 061-434-0992. (5)

Star LC10 Printer £125. JUKI 6100 Printer £170. Telephone 0487-841637. Home use only. (6)

Easy Text Plus V.1.3K (9Pin) Unused and complete with manual. £10.00 or swap for Astronomy Lab or UIS III. David Henniker, 199 Brontsfield Place, Edinburgh. EH10 4DR. Phone 031 4478226. (5)

For Sale: ST Replay sampler plus samples £60. 071-358-9616. (4)

FZ1 Shareware. 100's of sounds from USA & UK. SAE for List. 50p/ Disk if you supply, or £1.50 (DD), £2.50 (HD) + P & P if I supply. Contact Brian at "Kave Studios" on 0909 486971. (9)

Atari 1040ST Needs repair hence £150. 1Mb Cumana external drive £50. 32Mb Seagate hard disk for PC plus controller card £150. A Chapman. 081 549 6244. (5)

STAR LC24-10 printer with cut sheet feeder. £200 ono. V.good condition. Also Timeworks DTP – £50 ono; Microsoft Word – £30 ono. Overlander – £10 ono; Poolsmaster – £10 ono; Wheels of Fire Compilation – £16 ono. Contact Tom on (081) 995 3766. (5)

Games: Red Storm Rising (Microprose), Jinxster (Firebird) Corruption (Firebird), Castle Master, Foft, £10 each + Free (1 only) Talespin (Careful with the master disk though, the dust trap is bent). All are boxed originals. Ring Shaun O'Connor on 071-328-1751. (4)

1) Atari Mega 4 SM124 Mono Monitor. SH205 20Mb Hard Drive. Cameron Hand Scanner – £965.00. 2) Atari SLM 804 Laser Printer – £695.00. Items 1 and 2 together – £1595.00. 3) Atari 520STFM plus 2nd Floppy – £195.00. 4) SM125 Mono Monitor – £65.00. Items 3 and 4 together £250.00. Phone Rob (0865) 741331 ans. (5)

WANTED

Mega ST4. Will pay upto £500. Phone/Fax 0206 851488 anytime. (The nearer to Colchester, Essex the better). (5)

Retouche Professional English Version, Reprostudio Professional and Harlequin English Versions wanted. I'm also interested in a hand scanner. Good prices only. Please write to: Franco Turra, Via Castiglione 91, 40136 Bologna, Italy (or phone 051-6484641). (5)

Wanted: Adventure games for the ST. Especially Infocom, but anything considered. Details and asking price to Geoff Atkinson, 60 The Green, Rowlands Castle, Hants, PO9 6AB. (4)

GENERAL

Treknet – A new club for all fans of Star Trek. Great club magazine, produced on ST's, for information contact:– Captain Angie Jarrett, 46 Regis Crescent, Milton Regis, Sittingbourne, Kent. ME10 2ES. Telephone: (0795) 471970. (7)

Postscript Printing Service for Timeworks DTP and FSP3. Excellent quality laser output for only 90 pence per page. Also laser output of various graphic formats including IMG, GEM and PI3. Send your disk plus cheque, or £2 for further details, font charts and examples of the quality obtainable to:– E, Nelson, 3 Woodview, High Street, High Littleton, Bristol, BS18 5HT. (7)

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STARGATE BBS: 0476-74616 V21 V22 V22BIS V23 Atari ST section; also PC, Amiga and Comms areas. Comms help and advice for ST and PC via ST Editor. Give it a call and leave a message. If you need comms software get Uniterm from the ST Club. (R)

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Every issue of ST Applications will feature advertisements and notices about products that are published by their authors. With the depressed state of the market for non-games ST software, many products that deserve to be published are not being taken up by publishing houses. Special-interest software, in particular, is very difficult to place with a suitable publisher. Self-publishing of software is only viable when there is a cost-effective advertising medium, or an active and responsive market for Shareware.

To get the ball rolling, there will be no charge for Authorware advertisements in the next two issues of ST Applications. From issue 4 all Authorware products will be given a free 20-word listing, and display advertisements will be available at a preferential rate. The only requirements are that the product should be of a suitable quality, ST Applications are given a review copy of the software, and the publisher/author should not be VAT registered.

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If you would like to see your software featured in the ST Applications Authorware column please send us a review copy of the software and a rough outline of the advertising copy you would like to be printed.

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You can also subscribe to ST Applications and The ST Club Disk Mag. These are bi-monthly compilations of the best PD software to come to our attention in the preceding couple of months - not magazines on disk. A subscription to ST Applications magazine plus the six Disk Mags costs just £22.50. To buy all six disks individually would cost £15.00: subscribers get a massive 50% saving off the cost of the disks!

For details on back-issues of the ST Club Disk Mag see the PD Catalogue Version 11 and subsequent updates.

Back Issues ST Club Newsletters and ST Applications

For four years prior to the launch of ST Applications, The ST Club produced "The ST Club Newsletter"; this experience has formed the building blocks for this magazine. Whilst the layout and content of ST Applications has altered, enabling us to tackle more ambitious, long-term projects and have up-to-the-minute news and reviews, you may find the back issues of the newsletter of some interest. The following is a list of the back issues available, with a brief outline of the content of each Newsletter.
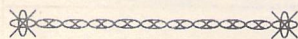
Newsletter Issue 28

Reviews: Calamus, A Book on C, STOS, HP Desk Jet Plus, Fontkit Plus Tutorial I, Football Crazy, Canvas, Goliath 2, Hi-Soft Forth. Articles: NEC P2200 Ribbons, First Steps in Prolog - I, Monitors - adding an audio amplifier, GEM Retrace, News from Japan.

Newsletter Issue 29

Reviews: Le Rédacteur v3, Citizen Swift Printer, Astronomy Lab, Hyperpaint. Articles: First steps in Prolog - II, Some thoughts upon learning C, Fontkit Plus Tutorial II, Canadian News.

Newsletter Issue 30

Reviews: Atari Tower, K Spread 3 & K Graph 3, PC Ditto 2, PC Board Design, Lattice C version 5. Articles: First steps in Prolog - III, Calamus Comment, Hardware - DMA Port and Hard Disks, Fontkit Plus Tutorial III.

Newsletter Issue 31

Reviews: Supercharger version 1.4, Xenomorph, Scanner Appeal, Zubair Z-RAM Board, Resolution 101, Chronoquest II. Articles: First Steps in Prolog - IV, Cupertino Cowboys, DIY Half Meg Upgrade, Fontkit Plus Tutorial IV.

ST Applications Issue 1

Reviews: NeoDesk3, Universal Item Selector III, Deluxe Paint ST, Easy Draw 3, Tristan, Two PD Adventure Games: Invasion and Darkness is Forever; Jeremiah's Journal: Adventure Probe Convention, Operation Stealth, Tamoret; Book Reviews: C: A Dabhand Guide, The Oxford Dictionary of Computing. Articles: Computer Entertainment Show '90, MIDI Hands on Show, MIDI in the UK, Fontkit Plus Tutorial V, That's Write, Hard Disk Backup, Searching Directory Trees, MIDI Software in C, Gadgets by Small, Reading CP/M disks; Regulars: PD Update 11.1, Forum, CAD Column, STicks and STones.

ST Applications Issue 2

Reviews: NeoDesk CLI, Le Rédacteur v3.03, Megapaint II, Protext v5, Jet Setters (Inkjet printer), Dr. T.'s Tiger Cub, Headstart. Articles: Whistle Stop Tour, Fleet Street Publisher 3 or Timeworks?, TeX Notes, Fontkit Plus Tutorial VI, ST Parallel Port Buffer, MIDI Software in C. Regulars: PD Update 11.2, CAD Column, GFA Problem Page, Programmers' Forum, Adventure Column, Forum, STicks and STones.

ST Applications Issue 3

Reviews: Wordflair, Molgraph, Write ON, EdScheme. Articles: Computer Shopper Show, Living with the Atari Laser, Working in Tandem (ST & HP DeskJet), LaserFace, On-Line Conferencing (CIX), Racing Spreadsheets, Giving it the WERCS (1), Dan Wilga Interview. Regulars: News, Forum, Adventure Column, CAD Column, PD Update 11.3, STicks and STones, Programmers' Forum.

Newsletter back issues cost £1.20 each.

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A Subscription and Order form is on page 57.

PD Library

The ST Club runs one of this country's longest established PD Libraries for the Atari ST. Our current catalogue (version 11.0) features over 1,900 PD and Shareware disks. This catalogue is updated in each issue of ST Applications - update version 11.3 starts on page 29.

As well as getting a PD Update in each issue of the magazine, ST Applications subscribers also get at least three full-length catalogues a year, discounts on our charges for supplying PD disks (see order form on page 57), and a preferential service when requiring help and assistance in using or finding PD software.

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