

# ST AMIGA

## FORMAT

The complete package for Atari ST and Commodore Amiga owners

# VIDEO STARS!

ST and Amiga beam in on CDs,  
laser disks and animation

Power survey of  
top software  
and Atari laser



## DESKTOP PUBLISHING

- **MAKE MUSIC** -  
Getting started with MIDI
- **SOFTWARE GALORE** -  
The Amiga PD icons
- **SUPER SCOPE** -  
Kuma's ST Oscilloscope reviewed

## BLOOD AND CORRUPTION



Explosive reviews of  
*Captain Blood and Corruption*

**ST AMIGA  
FORMAT**  
ISSUE 2 ■ AUGUST  
1988

PUBLISHED BY  
FUTURE PUBLISHING LTD  
4 CROSS STREET  
SHEFF  
AVON BA1 1SU  
Phone: 0225 444024  
Fax: 0225 444111

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# ST AMIGA FORMAT

The complete package for Atari ST and Commodore Amiga owners



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All the news and vital info on the ST and Amiga - going on at the recent Commodore Show and first sightings of up and coming games.



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# POINTLESS ARGUMENT

Despite the inevitable summer lull of sun-soaked foreign beaches, hundreds of you have found the time to fill in issue 2's questionnaire - thanks, and keep those letters rolling in too.

Among the opinions slowly emerging is a strong brand-loyalty among owners of STs and Amigas. Not surprising, and sure to warm the hearts of Atari and Commodore, but it's not at all that world if the cause of 16 bit computing is to advance. The more software available in both formats, the larger the potential audience; the larger the audience, the more machines will be sold and the more software will be produced for them. So the cerebral rods, cooling chickens and eggs in it both directions, need there's enough variety in the market to satisfy all tastes. Amiga owners often quote the

machine's high quality graphics and sophisticated-sounding chip as the superior to the ST. ST owners counter with their machine's MIDI interface, more screen options and operating system in ROM. These old already continue to bounce back and forth, but there's a lot more in common between the two machines than there is separating them.

OK, so a little competition is a good thing, but here at ST Amiga Format we're committed to both machines. We took the ST and the Amiga on both superb computers which offer power and low cost, even the best value for money, but that there has ever been in the micro marketplace. We'll continue to point out the strengths and weaknesses of each machine for specific applications, but together they leave the real standing.

## MUSIC



### INTO THE MIDI 60

The music standard which has tied together instruments from all sorts of manufacturers - a full survey of the scores, where to go and what it has.



### LEARN BASIC 76

Get programming with HGold's Power BASIC, as seen on this month's cover disk, and Amiga BASIC too.



### DEVPACKS ON TEST 80

HGold aims to ease the burden for programmers. We check out Devpacks Amiga and the brand new enhanced ST version, Devpac 2.



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The best tips and wrinkles you've ever likely spot for your ST. Nothing whatever for Amiga users in these pages - sorry folk.



### WORKBENCH 86

Tips, tricks and buttons to speed the use of your outside Amiga. Not suitable for ST users - sorry again.



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Star LC110/24		£429.99
Epson LC900		Phone
<b>Daisy Wheels</b>		
Qualtrix		£199
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Atari SLM804 Laser		£1350
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The Star Laser Price includes 12 months On Site Warranty. The Atari includes 90 day Warranty. All Printers Come Complete with Cables, BPC, Interfaces Are Separate.

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If any of the above Upgrades are purchased with Hardware then deduct £5 from total. Prices will be held as long as possible.

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CRP Digi Tablets		
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	A3	£518

### ATARI HARDWARE

520 STE/M's Phoenix for available

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DTP Software. ....£2814.99

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## NEWS

### BASIC 3 from GFA

GFA's new BASIC 3 interpreter for the ST is due to hit the streets in mid-May. Version 2 has already established itself as a major contender for the most popular alternative to standard ST BASIC, and BASIC 3 opens up the language with additional structures, improved editing and error correction, and many more graphics commands including better control of GEM.

The new interpreter, marketed in this country by Whelan at £65, loads a whole stack of new features and keywords. These include new commands like GEND and ENDSELECT, and extensions to existing commands, such as ELSIF and OTHERWORD. Multiple functions are now also supported.

On the editing side, revisions to the editor, tracing functions and the addition of DUMP (which lets you dump the contents of variables and inspect all of program execution and debugging). New data types, borrowed from the world of Pascal and Modula 2, help to tie down data structures, and there are also new commands for direct file level manipulation.

The graphics side of the program has also been upgraded with new Logotype-style built-in graphics commands and better access to GEM for manipulation of windows, pull-down menus and dialog boxes. Version 3 is planned to be fully compatible with version 2 and should run earlier programs without change.

A Version 3 compiler and an Amiga version of the interpreter are also being written, but won't be available for some months to come.

■ Glaston, 3 Park Place, Bournemouth PO1 1YJ (01 428 4118)

# Major business push for Atari

Atari are set for an onslaught on the micro-business market with the launch of seven new products squarely aimed at the serious user. The new range will be coming out under the Hyper banner, and is geared up for launch before the end of September this year. Three quarters of them are UK-originated products.

Bob Katz, Atari's Technical Director comments, "We're among these products particularly at the Mega ST user, but they'll all work on the 520 sp." All the products are designed to run directly under GEM, making full use of features like multiple fonts and common device drivers to try for a 'Mac-like' user interface. They will be marketed directly by Atari.

The first two products, both of which should be available by the time you read this, are Microsoft-style file editors and one under the Hyper-label and HyperPaint. Write file is a top-flight word processor with a full spell checker and the ability to import graphics. HyperPaint is described as a professional painting program with some revolutionary features: among these are the ability to zoom and edit a picture at 300 dpi resolution (that's the quality of a laser printer), to automatically filter 'noise' from scanned images, and to handle a picture of any size, limited only by the amount of memory in your ST. Presumably a 4MB Mega ST can easily handle billboard-size art—drawing is used to smooth the edges of lines and objects.



Other Hyper products close to completion include HyperChart, a part of Diamond's accounting chart creation program from the PC and HyperDraw, an object-oriented drawing program similar to EasyDraw but with an improved user interface. HyperMail is a spreadsheet which was first chosen at the Hannover fair to much acclaim. It is compatible with the industry standard Lotus 1-2-3, but with an improved working style closer to that of Microsoft's Excel.

The final two products planned are the HyperSomething database (no finished name) and HyperProject project planner. HyperSomething will offer similar functions to Superbase Professional, and will be able to store graphics and sounds in its records. Now if it can interface to MIDI that will be interesting.

■ Atari, Railway Terrace, Slough, Berks SL7 6BZ (0752 12344)

## Amiga animation competition

The Edinburgh Festival is not all John Baskwell and Taffes this year. In amongst the standard fare of African drummers and Balkan pasties, the Amiga Centre Scotland will be hosting the first Edinburgh Festival Computer Animation Competition, from 1.30 to 2.00 in August.

The competition, to accompany a workshop and exhibition, is to find the best animation generated using an Amiga. The first prize is being provided by Commodore themselves, an Amiga 500 or Commodore hardware to the same value. Other sponsors include the (Six) Company, who'll be giving away various software products such as Imagine, a new 3D animation package, and Mind Works, their word processor.

There are six predefined categories and entries can be made on disk or PAL video tape. You don't have to travel to Edinburgh in person, although if you don't you'll be missing a cultural treat.

Animation competitions are big business in the States — the recently named Beagle Killer Competition held in October last year at Stanford University resulted in some truly amazing demos for the Amiga running up. Now is the chance for you to help prove that UK programmers can beat the best of the US (so far) any day!

Among the names who have expressed interest are Eric Gribbin, author of Sculpt 95, Animate-3D and the classic Juggler demo; Martin Hawk, author of an



■ Can you beat Juggler, Eric Gribbin's classic Amiga animation?

motor Apprentice; and Joel Hagen, winner of the aforementioned Beagle Killer contest. The judges will be professional graphic designers and animators from the world of film and telly.

Closing date for finished entries is 1st August, so you'd better hurry. There's no entry fee.

■ Further details from Jim Anderson, Animation Competition, The Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh E1 6N (031 557 4242)



## Deluxe Photolab processes HAM

The latest in the Deluxe series of graphics programs from Electronic Arts Grants the ability to print your favourite Amiga art in sizes up to 3 metres square. Deluxe Photolab, a top of the range, operates in any of the Amiga's screen modes, including the 4096 colour 1684 mode. The program can handle images up to 26 times the size of an Amiga screen, limited only by available memory, and can support two screens simultaneously, even allowing cut and paste between the two.

Deluxe Photolab offers a host of painting tools, such as four point cursor, adjustable eraser and anti-aliasing (which even takes effect on printing), to the resolution of your printer. The package claims to offer full control over the colour palette, including colour mapping, print population counts and colour separations. Included in these special techniques is a function to convert images from any Amiga screen mode to any other.

■ Electronic Arts, 11-49 Station Road, Leighton, Bucks MK11 8PH 0295 444444



## Big screens, fancy fonts

When it comes to displays, Big is Beautiful series. To be the order of the day on both Amiga and ST. New addition screens for both machines could be just what your tired eyes are crying out for - at a price!

On the ST side, Mirrosoft is to market a range of large screen mono monitors. These sets, of French origin, are designed to address a common complaint among the DTP fraternity - even the high resolution mono screen on an ST isn't capable of displaying a complete A4 page. The people at Mirrosoft, used to working with the cream of DTP equipment, have come to the rescue with ST, 13" and 20" monitors capable of displaying up to 1280 x 2004 pixels.



■ An ST with MegaVision

The standard ST screen remains active alongside the MegaVision, and special software allows you to displaying the output of different programs

on each screen - a wild (and/or) and a DTP. For instance, you can also use one monitor to enlarge any portion of the other and call up the DTP menu from any point on the MegaVision screen. Prices range from £2000 to £3000.

For the Amiga, Te Computers are offering two sets of colour screen in either



■ An Amiga running Te Computer's big screen

long persistence (suitable for playback mode displays) or Multisync configurations (with scanning rates up to 60Hz). The Colson Speed 37 is the 14" model, while the 5140 is a full 20" screen capable of displaying a complete A3 page for A4 spread. Prices start at £1447.50 for either of the small screen models, rising to a cool £2070 for the four Mega screens.

■ Mirrosoft, Headway House, 58-71 Olive Lane, London EC2P 4BB 01-257 47611  
 ■ Te Computers, 362-368 Inveridge Road, Ealing, London

## Brief briefs

**Feature Software** 0423

57140), supporters of the Super range of hard disk drives for the ST, have announced price cuts across their entire range. The 30 Mbyte drive is cut to £99 from 200-95 to £249.95 while the 60 Mbyte version drops from £1499.95 to £299.95.

**Keyboard** 02672 54079 have unveiled a special version of the Amiga kit available for the Amiga at £175 and **Metacomms** 02712 428781 can supply the Lattice computer companion with loads of useful utilities for use with C, BASIC, Modula2, Pascal, or Advantech. The companion costs £66.25.

**Newsday** 031-548 37643, have introduced a video editor for the Amiga which can capture up to four images in RAM in real-time and save them in standard ST format. It normally uses 16 grey scales but has an optional 32 scale mode for increased quality.

**Mirrosoft** 01-577 8837 have developed a special version of Read Street Publisher ST to interface to the London 200 photo application. If you happen to have a 202 at home (they cost £10,000!£6, £39 for a year for an embossed label).

**Name** 07257 41029 have released P-Adapter £29.95, a quality named Amiga program -mer's tool kit. It aims to help you design complex equations and gadgets-in-C source code.

**George Thompson Services** 0177 952 2344 have signed up the rights to the German Amiga utilities, InSwitch £29.99 is a program to double expansion RAM and bridgeboards. It converts a swim boat, so is needed for expansion RAM. TurboPrint £29.99 is a high speed printer driver and screen driver for all screen modes and printer types, fonts included.



## You'll believe a game can fly!

Yarnsoft, best known for their amazing, exciting and strong game **Summer Computer** known in the States as **Summer Challenge** since Yarnsoft is the complex a concept have had up a sleeve with DC, Comics, DC, purveyors of all things Super, an apparently keen to get into the software market and Yarnsoft are working closely with a DC software licent to have Superman, the game, ready for

the future. Or should that be Fall.



■ Faster than a speeding bullet, our kit will fly in - or out of - before September.





# Hard Sell, Soft Sell

**The Commodore Show disrupted traffic around Hammermith early in June, but ST Amiga Format, like most sensible punters, came by Tube. We found a quietly confident Commodore and plenty of others out to sell their wares.**



■ Steve Franklin, Commodore's UK MD

Computer shows are a function of the more some you give to lose and take. On the plus side they're one of the few places you can pick up first hand news, gossip, slanders and free food - if you've got a major back's pain. Against that, they make you sweat, stodge you to death a bit at the cost price of PR companies and take several states of most of the sales of your show. On balance it really depends what you get to hear...

## Look, no Hans

Christian Anderson, Commodore's European supremo, headed up their 'very successful' champagne breakfast (then PR company's words, not ours) and was full of how Commodore had survived the last few lean years and were now poised to spend over £5 million in promoting the Amiga as a 'future computer'.

Anderson ended the intense speculation by confirming a £300 cut in the price of the Am50, bringing it into line with the Atari ST £20 at £299. Dealers and potential users alike have been lobbying Commodore for this reduction, which should put the nail among the pigeons over the summer months.

Anderson was all pains to stress, however, that the price cut is only the first stage in a major drive throughout Europe, which now accounts for 60% of Commodore's worldwide sales. Commodore claim 600,000 sales worldwide, of which 40,000 in the UK is the official figure.

Flanking the man from Munich were the company's UK head, Steve Franklin, and Dean Ter'n in a meeting. Evident, their cluster Marketing Manager, Franklin was keen to highlight the top of the range 68000 Amiga 2500, which he said would bring a three-generation hard disk capable of storing AmigaDOS, M5000 and Unix. Before you remember your 1600 purchase, though, it's worth mentioning that the latest price is around £4000 and that it's expected to have the performance of a 680 microcomputer.

■ Commodore UK, The Switchback, Gardner Road, Maidenhead, Berks SL6 7SA 0628 700888

best hard disk, is that you can remove the 20 Mega cartridge and replace it with another, and another, and another. The only drawback other than the initial cost is that the cartridges cost £27.50 each. Still, for business use this may be acceptable.

Like on the Baroque stand was a quaternary colour digitiser for £320 and the HP PaintJet colour inkjet printer at a touch under £1000, capable of reproducing the Amiga's full 4096 colours.

■ Amiga, 211 Weston Road, Hamme, Middx HA1 2HS 020-857 3535

## A life on the Ocean wave

There are wonderful places. A sense of the variety of life and the odd part of inspiring life. This is the Amiga and is hardly that, but all in the line of duty we managed to leave one door long enough to chat to Gary Bracey of Ocean.

Apart from much time debating whether to buy an Amiga for the company 'to assess the opportunities software', Bracey did manage to mention 'Operation Reef', Ocean's forthcoming release which, we were assured, will be the 'big hit' of 1988. The Amiga version will include graphics part of directly from the arcade machine and should be here in the Autumn, assuming the programmer can cut the code to fit onto less than the current 7 disks.

## AAAE!

Not the noise you might make after hearing the price of the £2500, but the name of extremely impressive software from Amiga currently on test with, among others, British Aerospace, Warton, Lancs, as part of their Formula Aircraft Ground Crew training system. The software package gives you complete control over a variety of laser disc players, the best known of which being the Philips model. The laser disc is linked to the Amiga as a completely new device and can be accessed through the software to provide instantaneous control of its running.

With the Amiga Application Environment (AAE) Video Player Device you can control a laser disc directly from an iconic control panel which appears over the top of the video output on your screen. You can loop, freeze, forward and backspace the display and jump instantly to any part of the disc. The software is priced for the professional (that

means someone with loadshredded at £800.50: if you're still in the running, remember you'll also need a laser disc, costing around £1200.

■ Amiga, 211 Weston Road, London W10 2SB 01-962-3535



■ Amiga's Format resident and the AAE video device

## Burocare bonanza

As always, the punters love any hardware. One stand which seemed pre-packed with micro gadgetry was Burocare's - of perhaps greatest interest to Amiga users was the reasonable hard drive system. For £1035 you get a 5.25" hard drive with a respectable access time of 40ms.

The advantage of this system, though, and what the company obviously hopes will justify the extra £300 over the rest of a

## AMIGA AMIGOS

At times the Amiga's sophistication can be daunting, but two new titles from Amiga books may help to change that.

Amiga Tricks & Tips is a collection of useful hints for all Amiga users. Among its topics are getting more from the Workbench and OS, BASIC programming tips, creating icons, and help with many popular commercial applications. Amiga Machine Language aims to introduce a beginner's guide to 68000 programming with detailed machine information for experts. It covers controlling the screen and disk drives, gauges, sound and mouse. Both books cost £12.95.

■ Amiga books are distributed in the UK by Precision Software, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ 020-337 7988

Amiga  
Machine Language



Amiga  
Tricks & Tips



# NEW LOW PRICE ST!

## ST PRICE INCREASE

Due to a worldwide shortage of memory chips, prices of many computers have gone up. From April 1986, the Atari ST range is also likely to be affected. For details of any price increases, please contact the coupon below for our latest price list.



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### ATARI 1040ST-F - NEW PRICE

Atari's 1040ST-F is a powerful computer with a 10MB hard disk, 1024K memory, 1024Khz processor, and a 3.5" built-in disk drive. It comes with a 1600 to allow you to plug in straight into any standard colour television set. The mouse transducer is easy to attach to the keyboard, so there are no messy external boxes. You couldn't wish for a more compact, powerful and stylish unit. Atari ST computers are now finally established in the UK, there are nearly 800 software titles already available for a wide variety of applications and the ST is growing at the rate of 300 titles per month. You face your own choice of software titles from Silica Dynamics, you can get a lot more, including a FREE Atari ST Starter Kit worth over £100. Based on ONLY 10000 UK stock on the shelf, to see who you should buy your next high profile, low price bargain. Buy from Silica Dynamics, the UK's top Atari Specialist. For further details of the range of Atari ST computers and the FREE Atari ST Starter Kit, complete and return the reply coupon below.

### MEGA STs NOW IN STOCK

Atari's MEGA STs are powerful computers with a 10MB hard disk, 1024K memory, 1024Khz processor, and a 3.5" built-in disk drive. They come with a 1600 to allow you to plug in straight into any standard colour television set. The mouse transducer is easy to attach to the keyboard, so there are no messy external boxes. You couldn't wish for a more compact, powerful and stylish unit. Atari ST computers are now finally established in the UK, there are nearly 800 software titles already available for a wide variety of applications and the ST is growing at the rate of 300 titles per month. You face your own choice of software titles from Silica Dynamics, you can get a lot more, including a FREE Atari ST Starter Kit worth over £100. Based on ONLY 10000 UK stock on the shelf, to see who you should buy your next high profile, low price bargain. Buy from Silica Dynamics, the UK's top Atari Specialist. For further details of the range of Atari ST computers and the FREE Atari ST Starter Kit, complete and return the reply coupon below.



## ONLY FROM SILICA

Atari ST computers are now finally established in the UK, there are nearly 800 software titles already available for a wide variety of applications and the ST is growing at the rate of 300 titles per month. You face your own choice of software titles from Silica Dynamics, you can get a lot more, including a FREE Atari ST Starter Kit worth over £100. Based on ONLY 10000 UK stock on the shelf, to see who you should buy your next high profile, low price bargain. Buy from Silica Dynamics, the UK's top Atari Specialist. For further details of the range of Atari ST computers and the FREE Atari ST Starter Kit, complete and return the reply coupon below.

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 Address  
 Postcode

If you already own a computer  
 If not, what size do you want?



# FUTURE PERFECT?

A taster of the games which look set to blow your monitors in the next month or two - Andy Storer rounds them up.

## Pool Of Radiance

U.S. Gold ■ ST & Amiga ■ £149 announced

This looks set to be a biggie for all RPGers. Along with *Heroes of the Lance*, *Radiance* is the first title from a collaboration between Strategic Simulations and TSR - the producers of the *Advanced Dungeons and Dragons* fantasy role playing system. Expect quite a few releases from the same stable as they're signed up for the years worth of advanced combat and strategy. Will your other eye ever forgive you? (Friday - 62)

## Ebonstar

Midnight ■ Amiga ■ £24.95

1,000 years in the future you're hanging on the edge of a cliffside in Mach hole and having your opponents find it as you try to destroy the *Ebonstar*. A skill and strategy game for up to 4 players battling through intricate levels of complexity. Suddenly the 4.1 billion levels of *Warrior* have become a mere trifle.

## Mortville Manor/Maupiti Island

Larkhor ■ ST & Amiga ■ £24.95

*Mortville* is a mouse-driven graphic adventure with the unique quality of being full of sampled speech and sound effects. Gothic horror is enhanced by carefully crafted musical motifs complementing the sense of mystery. *Maupiti* is its next volume, which may well set awards for the fastest follow-up of all time - the original isn't even on the shelves yet!

## The Empire Strikes Back

Games ■ ST ■ £19.95

Given it was only a matter of time, but here you have it, the sequel. *Star Wars* was pretty fun in its laser department but a little devoid of depth when it came to feeling interesting, let's hope this version makes amends. How hard the Empire strikes back must be open to question, but since there are four levels on this one it must be an improvement.



■ Better dead than alien



■ Mortville Manor

## Wanderer

Elite ■ ST ■ £19.95

Fabulous 3D shoot-'em-up with interstellar color. Sound really? You bet. But this is 3D with a difference - you wear stereo specs to make red and blue screen images converge for stunning action with alien vehicles leaping out of the screen, so don't expect to see any screen shots of the sea. The cracked poker suit you're ever likely to see - also certainly not to be found at the bottom of black holes!

## StarRay

Logotron ■ Amiga ■ £24.95

As seen in this month's cover story if you can imagine *Defender* with a multiple solid background running at speeds only 16 bit power makes possible, you'll have a good idea of what to expect from the absolute horizontal scroller. Better buy automatic padding for the joystick though - spontaneous combustion is definitely a risk.

## Better Dead Than Alien

Elite ■ ST & Amiga ■ £19.95

Second only to 'Ghobby Gobby' from *Grand Slam* in our current awards for game name fans, *Better Dead* also scores with its loading screen. As for the game it features the spiffest life forms you're never likely to see and your job is to return them to their rightful place in the ecological chain, ie. something approaching slime. Sounds great.

## RUSHES

Clips from the cutting room floor and other games gossip

A pair of investigations I like which cry out for conversion more than most are *Driller* and its sequel, *Dark Side*. Incentive have now decided to cut them on the ST and Amiga to let us all explore the astonishing 'Trenscaped' system of solid 3D landscapes, billed as 'the nearest thing yet to being there'. What that'll mean on our 25 bit hardware is open to the imagination. Will you ever come back once you've got there. We'll let you when we've been there.

More on that link-up between Strategic Simulations and TSR

that's already brought you *Pool of Radiance*. Apparently the five year plan is to do a range of games allowing you to build up your other egg's distribution in the early releases, and then be able

to transfer them to other games as they come out. That way it's not like starting all over again each time, head eh?

And last on the list of screenshots yet-to-be comes news of the follow up to *Captain Blood*. As yet unlisted, it features *Star Wars* the movie style bombing runs down these canyons. Made by the time it's released you'll have completed the original. Someone, some where quoted 45 hours on the last-time play length of *Blood* - ridiculously low, it must have been one of the programmers.





# Let's Twist Again ...

Upgrade Installation Ramdisk



and again ... and again ...

~~~~~

TWIST is an amazing new ST switcher program that really works! We needed one ourselves, so we looked at all the programs available and only TWIST (from France) worked consistently ... so we bought it! Now we have produced the English version and just look at all these features:

- ✓ keep up to 14 programs in memory at once (memory permitting) and switch between them, instantly
- ✓ mix programs with differing resolutions
- ✓ work with both GEM and non-GEM applications
- ✓ install your programs to run in whatever RAM space that you like or that your programs need
- ✓ TWIST at the press of a key or a click of the mouse
- ✓ Common, installable RAMdisk included
- ✓ Above all this ... it works! again ... and again ...

If you ever thought it would be useful to have: 1st Word & Degus Elite together or Tempus, DeepacST & Personal Pascal or Superbase & K-Spread then TWIST is for you!

TWIST again on your Atari ST for only £39.95 inclusive.

Use the order form opposite and enter into our free prize draw, you could win 6 bottles of Champagne!

**HiSoft**  
High Quality Software

The Old School, Greenfield,  
Bedford MK45 5DE  
☎ (0525) 718181

Please send me the following for my Atari ST:

- TWIST  @ £39.95
- HiSoft BASIC  @ £79.95
- Power BASIC  @ £39.95
- Aztec C Professional  @ £129
- Aztec C Developer  @ £179
- DeepacST version 2  @ £39.95
- Personal Pascal 2  @ £79.95
- PTL Module-2  @ £89.95
- SaveIt!  @ £29.95
- Wercs resource editor  @ £29.95

Please send me the following for my Amiga:

- HiSoft Deepac 1.2  @ £59.95

you include Post and VAT

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

I would like to pay by:  Access  Visa  Cheque/PO  
Credit Card No. \_\_\_\_\_  
Expiry Date: \_\_\_\_\_ Signature: \_\_\_\_\_

Please enter me for the prize draw to be held on 1 August 1988. The 1st prize will be 6 bottles of Champagne, the 5 2nd prizes will be 10 3.5" disks and there will be 10 3rd prizes of a mouse mat.



FUTURES

# OPTICAL ILLUSIONS

■ Optical discs are available in several sizes: 4.5" CD (capable of one hour of audio play), 5" CDV single (capable of six minutes of combined audio visual play with an optional 30-minute video sound), 8" CDV EP (offers 20 minutes of audio visual on each side) and 12" CDV LP or LaserVision (carries 2 hours of combined sight and sound - one hour each side).



**Big on storage, big on sound, big on image - and big on prestige - compact discs and video discs are the way forward for data storage. Richard Monteiro looks and listens to laser disc lavishness.**

## INCH WAR

The 1.2-inch video disc, and in particular the read-only video disc player, have caught the imagination of the British buying public - the poorer quality read-write video compact recorder being the firm favourite. Video discs are mainly used in interactive learning, audio games and professional presentations. The video disc's big, instantly acquired Philips and Sony to greater things, the compact disc.

Imagine the complete Oxford dictionary, Roger's Thesaurus, the Bible or the cartoon game Oregon's Lur in one disc. One laser or optical disc, to be precise. That's the attractive alternative to magnetic media cassettes, floppy disks, hard disks, open-reel tape and so on. Magnetic media is undoubtedly, at present, the most popular method for storing data, audio, visual or otherwise. But it's old hat, prone to error and slow.

Although still in its infancy, laser disc technology is advancing speed and prices for each power are plummeting. Powered and subsequently marketed in 1982 by Philips, compact discs led to a smaller extent video discs revolutionised the record industry. It was there the laser disc first found a home. By 1985 IBM PCs could be fitted with a compact disc interface and users could choose from a handful of ready-to-use CD data products.

Today - for a fee - you can connect a video disc player to your Amiga and with specialist software in control, you can enjoy spectacular visual delights. A few matches over the £700 mark buys you software

and interface to connect a video disc player to an SI. Supplied too is a video disc game which can be run and controlled via the mice. And themselves have CD going-on: a compact disc player and control software will be available very soon. CD software is expected from various sources.

## Magnets to beams

The original floppy disks were eight inches in diameter and held around 300. Today a high-capacity floppy disk can hold 1,000,000 bytes of data and



over-expensive hard disks can manage 800Mbytes. Compared to the latest in optical storage research, that's peanuts. Compact disc storage offers a whopping 800Mbytes and a Laserdisc disc can store a gigabyte (1000 Mbytes) legible when you consider their respective sizes: 4.5 and 12 inches. 800Mbytes is the equivalent, in data terms, of 2500 300-page issues of *Forrest Gump*, 100000 - dollar 800 novels.

Because the narrowest read/write available - a laser beam - is used to retrieve data from an optical disc, lots of information can be held in a very small area. The surface of an optical disc consists of reflective and non-reflective pits. These two states easily translate to binary 0 and 1 respectively - ideal for computer and digital data.

The microscopic information is protected against dust particles, finger prints and scratches by a clear plastic coating. The laser focuses on the information which is buried more than a millimetre under the transparent surface. So, even if dust or scratches appear on the disc, they have no effect on stored data so there's no need to hold the disc by the rim, you can plant your pesky palms anywhere on the surface and you won't cause any damage. The protection, coupled with the fact that nothing touches the disc to read it, make optical media very safe and durable.

While the large capacity and seemingly error-free format of optical discs may seem ideal for computer use, there are drawbacks. Current laser disc players are not cheap and are expensive to use (power, software is scarce and even the manufacturing process is relatively expensive). These problems are all being researched at the moment in the laboratory, though, there are still a better mass data retrieval systems.

## CD-ROM FROM ATARI



Atari's much publicised but little seen CD-ROM player now-a-days player is rumored to be in the hands of developers - in other words, it's still months away from actual release. A very respectable £2000 tag has been given to it.

The CD-ROM player interfaces to the 68000 or hard disk port of any AT. Control software makes full use of 600 which means information retrieval is painless. Direct connection to a standard text is certainly possible - with control via detachable infra-red controller.

The player can store 800 Mbytes (over 200,000 pages of A4 text) with a load time of 1.50s per second. Computer data access are kept to a minimum, and in every 32K bits of information, by clever error-correction circuitry created by KnowledgePac before IBM is more often than Gary Kildall, creator of CP/M.

Several software houses have expressed an interest in extracting CD software including Home, GUT and Program. The most likely titles to appear will be encyclopaedias, dictionaries, reference works and information databases.

## Big discs, small discs

Video discs came about at the start of the video boom. Since it was impossible, at that time, to produce a player that could read as well as playback, the video disc had set to the video cassette recorder, which could do both. Since then laser discs have cropped up in a few specialised areas: interactive applications like British Aerospace's forward ground crew training program and the BBC's *Somerset Project*, reproducing Pop

videos on large screens in night clubs, and as the odd arcade game. When hooked to a micro, running suitable controlling software, the capabilities of a video disc system allow the display of moving pictures, still frames and text, all with audio accompaniment.

Video disc technology is by and large restricted to professional applications because of its cost (around £1000 at today's prices, although models that have been out of production for a while can be picked up for

## EARLY BIRD

When these Atari Laserdisc players were first made the same machine as a CD-ROM as a long spin of play in a reflective metal base, the discs are larger, 5.25 inches, and the inner radius of a 6000K alloy of bismuth-terbium sandwiched between two sheets of glass. The material is etched in a protective cartridge. The reflective film is designed to increase rate and produce small pits when exposed to laser light. 6000K glass and interferes aren't available for CD or Laserdisc, but at £2000 is this a problem?

## PRESS FOR ACTION

Only two companies in Britain - MicroVideo and Philips - offer a video disc pressing service. Philips' turnaround for a single 12 inch disc is roughly 24 days. That will cost you over £1000 (taking in four disc masters). The price, MicroVideo, can do the same job for around £400, but the Philips disc will have far fewer defects (scratched data areas).

Compact disc masters (masters are for non-commercial. See our first Program) Compact Discs (another computer) in Britain's large computer, can take your own data format 8 and record it on CD-ROM. General factors affect such amount of format (or playing requires cost of disc and number of discs to be pressed).

## DOMESDAY REVISITED

To commemorate the 800th anniversary of the Domesday Book (compiled back in 1086 by William the Conqueror, who wanted to know what and where he owned in Britain), the BBC, Acorn and Philips created the ultimate computer interactive video application, the Domesday Project.

The project, of national proportions, was conceived by BBC producer Peter Snowling. It is a comprehensive encyclopaedia of Britain in the 11th and includes among its information - stored on two video discs - details of housing, land use, society, economics, industry and environment. The huge work comprises 10,000 sets, 10,000 sets of statistics and 1 hour of video segments.

The massive database is organised around Ordnance Survey maps of the British Isles. By using a simple input device - a mouse or trackball - it's possible to zoom in from the whole British Isles to county level, to city level, to street level.

Only BBC and Acorn machines can take advantage of this system which comprises Laserdisc player, two Domesday discs, colour monitor and one of the mice. Price is around £6000 - a fraction of the multi-million pound investment.





about £200. Microdiscs are the only company selling interactive video to the consumer market, but even these products for the DF - which consists of software, software and "free" Dragon's Lair video disc - drops in at £120 and assumes you already have the player.

Compact discs, apart from their obvious audio capabilities, are excellent mass data storage devices. They are speedy, virtually error free and very hard-wearing. Traditionally CD-ROM players have cost over £200, and that's without an audio output. Atari are about to smash this price by taking a standard audio CD player and adding error-trapping circuitry and an DF interface. Although CD-ROMs are read only at present, the luxury of a complete encyclopedia or dictionary at your finger tip is exhilarating.



■ Curiously billed the Cat and Gracie fans of the Philips CDV Dombi player - and so they should be as the machine can play all three sizes of CDV disc, standard compact discs and LaserVision (17 inch video) discs.

## AMIGA TO AEROSPACE

Aerostar Software should ring a few bells with readers. They were the original implementers of the Microsoft authoring system on the BBC, Commodore 64 and Apple computers. More recent ventures include the implementation of Commodore CBI technical code for Compuserve's interactive network and creation of the acclaimed *Robotnik Guide* to the Amiga.

Aerostar are big news for Amigans, who have both time and money producing impressive authoring tools for use with interactive Audio Visual (AV) systems.

Up until 1985 we were a research and development establishment', remembers Kenneth Hooker, Aerostar's Interactive Design Manager. 'It was around then that the Amiga first came out. Commodore International approached us - to write a series of notes on how the machine would help software developers. The *Robotnik Guide* came later.'

With this background it made sense for Aerostar to market their own Amiga product - which indeed they did.

'Many people have gone into programming the Amiga because there are a hundred and one things to learn about it: graphics, animation and so on. AMSE, the Amiga-Amiga Application Environment, handles all this automatically. At least a year of the new years are spent on interactive product development to develop this software shell.'

Two new software packages which use AMSE are *Microdisc* and *Video Player Device* (both are authoring tools for computer based training and interactive audio/video - CBT and AV) for the Amiga. AMSE Microdisc is Aerostar's implementation of the level 2 authoring language designed and developed by the National Physical Laboratory, Teddington. In the simplest Microdisc can be used for video editing, originally this was restricted to text only. Amigans have gone one better and allowed the Amiga's spectacular graphics and sound to merge with the video disc images.

AMSE Video Player Device (PPD) is a general

purpose driver that allows almost any video player to be controlled from an Amiga via a serial link, using just one universal set of instructions. It's a software system which presents that user-loadable player drivers in the same way as printer drivers. PPD can be accessed from most programming environments including assembler, Basic and C. A general-purpose system exists whereby groups of complex commands can be saved and used later in application development.

Are you interested? Well, first you need an Amiga and monitor (minimum cost £700), then a video disc player (upwards of £1200) and finally Aerostar's software (£275 for Microdisc and £260 for Video Player Device), in total you're looking at £2000+ plus which, say Amigans, is a fraction of the cost of a similar hardware offering from IBM.

But why invest in this technology and for what? Several large companies, including British



■ All things interactive are handled by Aerostar's Kenneth Hooker

Aerospac and Virgin, have looked long at hard at Aerostar's video disc control software and have come up with the same conclusion: it's good, so good in fact that British Aerospace in Warton, Preston, use Amiga and Aerostar's software for interactive training of Toronto aircraft ground crew. Virgin also have plans for using Aerostar's software in interactive arcade machines. Although William Burrows, head of interactive projects at Virgin, wouldn't name games, he did hope for a playable machine by the end of the year.

## Read today, write tomorrow

Several companies like Sony, Hitachi and IBM are investing large sums into the development of optical media that is both readable and writable to the same level as today's floppy disks.

Tandy in Santa Clara, California, appear to have forged ahead with their announcement of Tandy True CD - the first multiple read/write optical disc. Tandy say that audio, video and computer data can be stored and erased on their new discs which are compatible with all existing audio CD and CD-ROM players. Current players can read the new discs, but can't write to them as they lack the appropriate circuitry.

The exciting breakthrough could mean the beginning of the end for magnetic media. Tandy are going to pursue their achievement by producing an audio read/write CD player. They envisage an initial price of \$500 (roughly £200). Read/write CD-ROM players should follow shortly after.

Philips are moving in another, equally exciting, direction. Compact Disc Video, CDV is an extension of compact disc technology - pure digital sound with the addition of high quality video pictures. Philips first CDV player, the CDV475, due in September, is expected to sell for under £500. It will play the five-inch CDV single, eight-inch CDV LP and 12-inch CDV LP or video disc. The LP and LP are recorded on both sides.

Imagine being able to keep a list of the names, addresses and postcodes of every person in Britain on an optically disc (storing, isn't it? - OI). Imagine the ultimate interactive game with true television-quality pictures and stabilising stereo sound. The potential is great, the technology is a sliver, then away. The optical disc revolution has started.





# MOULD THE FRONT PAGE

Desktop Publishing gives you complete control over the pages of a newsletter, brochure or manual. With inexpensive software on ST or Amiga you can design and compile pages to exactly your own requirements. Simon Williams and Ben Taylor pick out the best of the current software and hardware.

**D**esktop Publishing (DTP) takes word processing to its logical conclusion and gives you full control over page layout, typography and graphics. Alan has already realised the potential market

and has released their complete DTP system. Computers are even now gearing up for an Autumn launch and making a final decision on the choice of laser printer and software to bundle with their Amiga DTP kit.

Lasers are not obligatory for DTP, but the output quality is so much higher than even a 24 pin dot matrix that business users normally feel the extra money well worth it.

**ATARI LASER PRINTER**  
£3379.99 (SLM804 Laser printer alone)  
**ATARI DTP SYSTEM**  
£2674.99 (Mega ST 2/floppy disk), £3449.99  
(Mega ST 4/hard disk)

Atari announced the release of an expensive laser printer, the SLM804, in the middle of last year, and true to their word the machines started to appear at the end of 1987.

The complete DTP system consists of a Mega ST (either 2 Mbytes or 4 Mbytes, an optional hard disk drive and the laser printer itself. Mereworth West Street Publisher is

bundled with the system (see separate review) complete with drivers designed for the SLM804.

The laser printer, like most examples of its ilk, is built like a tank with the turret missing. In place of the turret is the paper exit path letting sheets of paper cut from the bowels of the printer. Paper is fed in either from a 250 sheet cartridge which slides in at the base or through a slot just above it which takes single sheets.

Below the paper guard at the back of the printer are the only two controls, which alter print density and drum-temp, and sockets for connecting it to the main and the interface box. The interface is provided with the printer and ensures the ST can communicate with it. It's very much a grey/black box, with the only signs of life being two LEDs on the front panel showing PAPER and SLEEP.

Opening inside the printer by lifting the top cover reveals the drum and laser engine. Unlike the worlds of dot-matrix printers, which these manufacturers like to keep you well away from, you need to become familiar with the internals of lasers if you'll

## HOW IT WORKS

(Contrary to popular belief, laser printers do not burn the image onto the paper with a laser beam. All the bits are in the middle of the 'x's would fall out if they did. The process is, in fact, very similar to a photocopier - it runs roughly like this.

An image of the whole page is first created in an area of memory (see next section) (RAM) on a card for the purpose. This is a straight bit-for-bit image with each bit set out for a dot and off for no dot. This memory is usually located in the printer itself and is one of the reasons for the high cost of lasers. The Atari SLM804, though, uses part of the Mega ST's memory for this purpose, which makes it cheaper.

Once the page has been built up as an image in memory, it is transferred as pages to a laser beam, which scans a specially coated drum within the print-

er. The coating, usually of Selenium, has been electrostatically charged before reaching the laser gun, but the laser removes the charge wherever it hits the drum leaving a mirror image of the dot pattern (a series of charge on its surface). The drum continues to rotate and passes the top of an electrically conductive laser powdered ink. The laser is attracted to the areas of charge on the drum and sticks to it. The drum now comes into contact with the paper which is passing through the printer and the laser transfers from the drum giving a positive impression on the paper. The charged areas of the drum are then discharged with a very high voltage and the whole process starts again on the next revolution. The paper passes through low high temperature rollers which heat the laser to it permanently, and the printed page rolls out of the printer.



■ The Fleet Street SLM204 laser printer inside and out

need to change the paper for the lower the fine powdered ink used by laser printers and printing them at 3000 and 3600 sheets respectively, and detailed instructions are provided in the manual.

### In use

As well as the hardware, and a copy of Fleet Street Publisher for the DTP system, four disks of software are supplied with the SLM204. Two of these provide a range of fonts in a variety of sizes, so that the output from your favourite word processor

looks good. There's also a special GOS driver program so that GOS can make use of these fonts. The final disk contains a Dlabio printer emulator, so that you can install the alternative favourite word processor for a printer it has heard of. With Dlabio emulation, the SLM204 produces typewriter-style script. The disks also include a utility program, SOEMC, which produces a laser screen dump by previewing (Alt) and (Print).

The quality of output from the laser is very good in comparison to other forms of printing and has the

combined advantages of quality print and graphics capability. It's not perhaps up to the standards of more expensive lasers, particularly in respect of areas of solid black, which can look a little washed-out, but it's not far off and well integrated with both the Dlabio emulator and Fleet Street Publisher's custom-made drivers. At a little over £1800, the SLM204 is excellent value for money. Bear in mind, though, that you can't use the printer with any DT less than a Mega ST, nor indeed any computer other than an ST.

### WHAT ARE THEY ON ABOUT?

If the terminology in these pages confuses you, it must surely be because you haven't read the introductory article in issue 2. You won't get laser output, but we'll provide it this week. Here's a brief recap of some of the problems used in DTP:

**Post** - Sometimes called 'font' or 'fontset'. This is the font of the text. Fonts have names like Times (as created for the Times newspaper) or Helvetica. ST range format is type set using Times Gothic.

**Point size** - the height of the text. One point is 1/72 of an inch. This magazine is in 7 point text, our article headlines are in 45-point text.

DTP software packages for both machines vary considerably in range of features and ease of use so we've compiled an extensive set of criteria which you might like to consider before buying. These categories are outlined

later in this survey, and are accompanied by a comparative table showing you at a glance which package is likely to be the most useful for your particular application.

## ST

### FLEET STREET PUBLISHER £325 ■ Miramax ■ All STs

Fleet Street Publisher (FSP) received a terrific boost when Mirax adopted it as its preferred DTP and bundled it with the Mega ST and laser printer system. The system concentrates on typography at the expense of 'top-end' like graphics and multicolour printing. The package comes on three disks, one of which has to be used as a 'key' each time you run it - installing. The manual is well written and

includes useful sections on publishing and a complete catalogue of the supplied clip-art. The index is large, but never seems to include references you actually need.

Installation is quite a painful procedure involving a lot of file and folder copying and would benefit from a more comprehensive installation program. Once into the program, though, things get rather easier. Like most DTPs, FSP asks you to define blocks into which you put text and graphics, but unlike several other programs of the type, it doesn't automatically yellow text when you tap one block over another. It's important, therefore, to design your page correctly before you start to fill it.

Text can be added from the key-

board or by importing an ASCII file from a word processor, and it is automatically hyphenated as it is placed



## FSP ORIGINS

Fast, Good Publisher is perhaps particularly hot on typographic features. It was written by a publisher who had worked on table-top DTP systems at the offices of the Daily Mirror. You certainly need to acquaint yourself with a few typographical terms to get the most out of the program.

on the page. The text can be reflowed if you alter the size of any blocks, but only by selecting from a menu. Text can't be reflowed over more than one page. FSP won't handle multiple-page documents automatically, though you can load several pages at once as memory allows.

Graphics can be loaded into defined graphics blocks and you can load them on the page at a variety of resolutions, giving maximum reproduction quality on printing. Graphics from packages like Pagechrome and Degas are usable, but have to be



converted first using a separate utility. There are elementary line and block drawing commands but no geometric shape creation. Graphics can be edited at pixel level, though only at screen resolution and rotated in one degree increments.

FSP's strength is in typography and you can get almost any size, width, leading, kerning and text effect you wish. Unfortunately you have to define your text block for each alteration in turn, but text updates are quite quick and the screen fonts are at a very high standard, particularly on an enlarged screen. The screen can be viewed at any size from 12.5% to 200%.

FSP doesn't provide catalogue styles which can be assigned to blocks of text, but there is a keyboard macro system which allows key sequences to be stored and repeated with a single keystroke. While not as simple to use as styles, it is in some ways more useful as you can record

repeated text as well as command macros.

As supplied, FSP prints to dot matrix printers of all resolutions, but drivers are also available for the Atari, HP and PostScript lasers. The laser drivers need to be installed separately, but once in place produce very good quality print, at a typical time of 2 minutes for the text page, which is not at all fast.

For precise control of text on the page and the final look of single or small-run documents, FSP is a very good product at a very good price. The lack of graphics functions and multiple support are annoying, but Microsoft are looking into both these areas for an enhanced future version of the product.

|               |     |
|---------------|-----|
| Features      | 3.0 |
| Performance   | 4.5 |
| Ease of use   | 3.5 |
| Documentation | 4.5 |
| Verdict value | 4.0 |



## SCHWARTZ BURGER

How many of you have ever wanted to start your own business? Well, now you can. Schwartz Burger is a complete business plan for a fast-food restaurant. It includes everything you need to know to get started, from financing to marketing.

### DESCRIPTION

Schwartz Burger is a complete business plan for a fast-food restaurant.

It includes everything you need to know to get started, from financing to marketing. The plan is written in a clear, easy-to-understand style, and is suitable for both experienced and novice business owners.

The plan covers all aspects of the business, including market research, financial projections, and operational details. It is a comprehensive guide to starting a successful fast-food restaurant.

The plan is available in both hard copy and electronic format. The electronic version is available on floppy disk and can be viewed on a computer screen.



The plan is available in both hard copy and electronic format. The electronic version is available on floppy disk and can be viewed on a computer screen.



■ This sample page was made up to look as much like a page from *ET Design Journal* as possible (apart from the content). FSP let us get quite close to the real thing, reflowing text mainly on the exact lines used in our page. The page was printed on a top-flight Apple Laserwriter II XE printer.

## TIMEWORKS DTP \$99.00 ■ Electric/Timeworks/GST ■ All STs

Timeworks Desktop Publisher comes on four disks with a well illustrated but unindexed 120 page manual. Timeworks provides for 5 and 24 pin dot matrix printers, Epson, HP, Atari and PostScript lasers, all drive configurations and medium and high-resolution screens. The program is not copy protected.

Timeworks makes use of a 'browser' to select paragraph styles, text and graphics text or text effects like bold or italic. It's four work modes are Frame, Paragraph, Text and Graphics, the last offering extensive shape drawing and filling. Frames can be made to snap to column grids, which themselves may be defined from a separate window. This feature allows can be a real time-saver in multi-page documents. Frames can be repositioned at any time and text

is automatically reflowed around an overlapping frame.

As well as an adequate built-in text editor, files from *Lot Word Plus* and *Word Writer* can be transferred directly, but text from other word processors can also be imported as ASCII files.

No clip-art is supplied with the program so you'll either have to create your own graphics or import them from other sources. Timeworks supports a number of graphics formats, including Degas and Pagechrome, and the conversion to give the first time a graphics file is loaded, the image is initially scaled to fit the frame into which it's loaded, but cropping any part of it automatically recycles the selected area to fit the frame. All images are treated as screen-screen resolution, but this does mean you



■ A screenshot in Timeworks... making up a page in Electric DTP package.



can edit them directly and a magnifying post editor is included.

Once text is in position on the page, you can quickly set up its typography using paragraph styles, but you can also use the browser to set common effects such as bold and italics. The entire system is very easy to use once you've developed the self-discipline to define your paragraph styles before composing your documents. That will be attractive to Timesworks' audience as pulling a blank line between paragraphs.

When you put together a paragraph style you are given the option of adjusting the leading. Under conventional page layout, specifying a leading the same size as the font would give a minimum useful gap between lines, allowed for in the design of the font. In Timesworks this pre-defined gap is much too large and leading values smaller than the font size are ignored. This means that multiple headlines (and sometimes body text) nearly always look too widely spaced. Another problem is the spacing of words on the screen. If your text is justified, the word gaps appear enormous in actual Scan display, and its true spacing only becomes apparent when you enlarge the view to double size or print the page. This detracts from the main advantage of a WYSIWYG DTP.

When Timesworks really shines is in its handling of multiple docu-



# SCF SCH BUF BUR

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ies are still plugging awie still plugging  
ence products. Cheese products. C3e  
z Bros. of Bath, sets nros. of Bath, set  
pounders. Simon Wil anders. Simon W

**BURGER** **BURGER**  
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chwartz Bros. n Te' chwartz Bros. n Te'

It is clear up of some output from Timesworks. The left side is on an Epson 6080 (24-pin dot matrix printer), the right side on the Atari 85A000 laser printer for comparison. You can see the higher quality of the laser, although Postscript output is better still.

ments. If your main requirement is for reports, manuals or other documents with a relatively simple layout, Timesworks will suit you well.

| Features      | 3.5 |
|---------------|-----|
| performance   | 4.0 |
| ease of use   | 4.0 |
| documentation | 3.0 |
| format value  | 3.0 |

## AMIGA

### PROFESSIONAL PAGE £249 ■ IBM Marketing/Gold Disk ■ IBM Amiga

Professional Page (Page) intends to show that an Amiga GTP\* system can take on a Macintosh and win. It is a comprehensive layout program which produces output intended for PostScript printers. Because the Amiga is a colour computer as opposed to the Mac, which is usually mono, Page has set out to exploit the advantage and produce documents for colour printing.

Page comes on two packed disks, and although it is possible to use it with a one-drive machine you certainly need 1 megabyte of RAM. It's aimed firmly at what journalists seem to call the "power user", meaning that he's experienced, and that you need lots of hardware to run it.

Page works on a 'float' system - every object, be it text or graphics, has to be in a box, and you move things around the page by moving their boxes. Boxes can have a background colour if you want to print text

Professional Page can produce four colour separations of colour images for professional offset printing. Here's a final page, with close-ups of the black, magenta, cyan and yellow separations for the King Tut face

on a red background, for example, can have rules drawn around them, and can be transparent or opaque so that you can put a text box over a

graphic box and see the graphic, though the text if you want, but in boxes can be magnified and directly edited on the layout page.



### THE PC CONNECTION

Timesworks Desktop Publisher has recently been released on the IBM PC and its many look-alikes. The program is largely the same in both versions, and both are under their respective versions of DOS. It should be possible to copy files between the two, but for it first it is compatibility is important to you.





Page uses standard Adobe Postscript fonts for printing, it comes with 20 or so fonts for screen display, but it's up to you to make sure your printer supports the same ones. The Postscript laser printed output is superb, but because Page isn't primarily designed for dot matrix use, the output even on a 24 pin printer is

very disappointing, bordering on illegible for sizes less than 10 points.

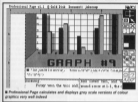
One of the most impressive things about Page is the way it handles graphics. There is no graphics editor, but you can import standard RT files, including structured CAD drawings from Auto Desk. Images are displayed in black and white with

16 grey scales, but the colours are remembered for use when printing. The calculation of the grey scales for screen display is excellent, and doesn't degrade at all when stretched or squashed.

There are still a few niggles about Page that could be improved in a future release. One criticism is the inability to condense or expand text—stretching headlines to fit a given column width is a common requirement. Things aren't really fast enough either whenever you move on from the online screen to screens which can take as long as 5 seconds or more. This is really the Amiga's fault for being slow, but to take on the Macintosh seriously it will have to speed up.

Overall though, Page justifies its Professional tag with flying colours.

|              |     |
|--------------|-----|
| Features     | 4.5 |
| performance  | 4.0 |
| ease of use  | 4.0 |
| manuals      | 4.0 |
| format value | 3.5 |



Professional Page visualizes and displays grey scale versions of colour graphics very well indeed.

## PAGE SETTER £79.95 ■ HD Marketing/Gold Disk ■ All Amigas

Page Setter is a home-user's DTP package, written by the same people as Professional Page. Unusually for a business package, it is really professional. When you run it you are asked to type in a word from a specified place in the manual, which is tedious.

Page Setter consists of three integrated parts: a text editor, a graphics editor and a layout screen. You are normally in the layout screen which is a standard DTP create boxes/float text/shuffle around setup. You can't directly create or edit graphics or text on the page, but when you click on the text or graphics icons you are automatically taken to the text or graphics editor. After making your edit you return to the layout screen and paste the results into a box.

The graphics editor is really quite nice — black and white only, but with fill patterns and spray cans, suitable for tinkering up cartoons, graphics and diagrams.

There are two main problems with

Page Setter. There is no auto-flow of text, so when you place a graphic you have to manually resize or pre-format boxes to make sure nothing gets over-printed.

Second, you can't see text or text boxes within a text box. In other words, if your article is a flow of body text interspersed with section headings, the section headings have to be in separate boxes from the main text before you can use a different style. However, text boxes can be chained together and moved en masse, so having an article running over 20 different boxes is easy to achieve.

Page Setter's text fonts are taken from the Amiga system disk, so there are no text sizes above 20 point. This makes headlines difficult — you have to use the graphics editor to stretch text and paste it in as a graphic, which can turn out very jagged.

Despite the initial difficulty of editing text in situ, Page Setter is a very simple package to use, and works very fast. Its speed of text reflow is excellent, its graphics editor is good, and the quality of graphics and text on



Page Setter in action

a simple dot matrix printer is good. It's an adequate around performer for home users.

|              |     |
|--------------|-----|
| Features     | 3.0 |
| performance  | 4.0 |
| ease of use  | 3.0 |
| manuals      | 3.0 |
| format value | 3.5 |

## CITY DESK \$99.95 inc. free clip-art disk ■ Precision Software/MicroSearch ■ All Amigas

City Desk doesn't use the conventional system of layout control at all. You don't create boxes and then place text or graphics in them, the program does that for you as you input them, but you can resize them as required.

Text editing is strange. If you want to alter anything, like typing errors or text style, you click on 'Edit' and go into the text editor. In this mode you are shown the entire article as one long line of text which you can scroll left or right, and you have to locate the text to be changed from within that.

City Desk works mainly using embedded text comments. To take

one word, for instance, you have to edit the text at that word, insert [L], before the word and [R] to return to plain text after it. This is tedious to use and a far cry from the ideal WIMP interface where you select the area to be modified and click on 'Edit' on a menu.

In fact, every style alteration except text is effected by adding the text. To alter the paragraph indent to

**ADAGE DOMINGO**  
Postscript fonts for print are not marked by Adobe Systems, who don't support the Amiga on 31. You'll have to use a Macintosh or IBM PC to set up your printer if you want to use any fonts other than the printer's resident ones. Postscript printers come with Helvetica, Times, Symbol and Courier, but to normal that extra printer font cost around £250 a year!



## CITY DESK ON THE ASAO

City Desk will not allow you to set an image size. If you enter more than 200 dots, then you'll get a message to print - you have to quit the main DTP and use a separate printing program. In fact, even on our Delta 60000 the real image-size document ran out of memory with three images of 80 images. This really ought to be an option not to load all images but refer to disk files.



Editing text in City Desk is done with a pop-up window. The words in square brackets are formatting commands.

20 points, you make sure your article begins with the text (command: `type`). City Desk interprets these square-bracketed instructions as commands and doesn't display them. This

does have one advantage, which is that you can prepare the text including the style instructions in a word processor and export the complete thing to City Desk. Also, you can mix

any number of different styles and fonts in the same text file, unlike Page Setter.

On the graphics front, City Desk's got a possible graphics editor for preparing crude line drawings, but without spray or fill patterns. It can export standard EP images, although the display is pretty lousy if you zoom them - the gray tones tend to fill in unpredictably.

You can create text of any size by taking the standard Amiga fonts and scaling them up arbitrarily in either direction, giving condensed, expanded or just big typefaces, but can be flowed around graphics, although it moves out in a block - it won't wrap around the edges of an image.

Overall, despite a pretty modest command, City Desk is remarkably full featured and good value - it can even produce PostScript-compatible output.

|              |     |
|--------------|-----|
| features     | 4.5 |
| performance  | 2.5 |
| ease of use  | 2.5 |
| commands     | 4.5 |
| format value | 4.5 |

## HITCH-HIKER'S GUIDE TO DTP

Good DTPs are very complex programs, and when scanning the list of features in an advert you ought to be asking yourself what isn't there! Here are the features we've identified as important - each DTP package is rated on them in the summary table.

### MASTER PAGES

If you're creating a document with many pages, you'll want to define a template so that every new page you start has a standard number of columns, a top for a page number and that kind of thing. If your DTP doesn't have master pages, you'll have to layout each page by hand.

### LEFT/RIGHT PAGES

For books, you'll want to have two different master pages. For instance, you'll probably want to have the page number at the top left of a left-hand page, but at the top right of a right-hand page.

### SET FONTS BY TEXT MARKS

DTPs aren't usually very good word processors, so for anything substantial you'll probably use a dedicated WP and import text as a file. DTPs can usually detect bold, italic and underlining in text files, but WPs can't usually change font or text size (although some Amiga word processors can). Ideally you need to be able to specify what font and size to use with a text file marker, such as:

```
UseFont=Lead-10 FontSize= 24.00
Use My Resource
Font=1.0 Top end=0.000000
to . P. Done...
```

This might be the way to do a headline in 48 point Helvetica, and the following text in 12 point Times. This saves you going through altering every text item by hand.

### PARAGRAPH STYLES

Suppose you have three different basic styles of text: the main body copy might be in 12 point Times, section titles in 34 point bold Helvetica and captions in 8 point bold sans Times. With some packages you can define a style of your own so that you can select an area of text, pick the style from a menu using 'bold', 'italic' or whatever, and the font, size, leading and other style information will all be changed in one operation.

### MAX. POINT SIZE/INCREMENT

There's usually a default point on text size - 128 point is a common limit. To get text bigger than this you will have to use a graphics package to stretch it, and import it as a graphic box. Some DTPs limit the point size to a whole number, others allow you arbitrary sizes.

### AUTO TEXT FLOW

When you import graphics and place them down so as to overlap a text column, DTPs with auto-flow will automatically rearrange the text to run around the edges of the image box. Some will also cut it round the image itself.

### LEADING

Programmed to rhyme with 'leading', not 'reading', this is the space between lines of text.

### REWRIND

Being able to alter the space between

## RECOMMENDED PACKAGES

### AMIGA

If you have access to a Postscript printer or typesetter, you'll find Professional Page 4 superb package with everything you could want. However, on dot-matrix printers the output is sadly lacking. Please users will get better quality from cheaper packages - City Desk is the best of the bunch here.

### BT

Both Fleet Street Publisher and Timeswax DTP have their advantages. FSP is particularly strong on typographic control, but only has rudimentary graphics creation and no facility for automatically handling multi-page documents. Timeswax specialises in ease of use and repeated page layout. For longer documents it may be the better choice.

## CONTACT ADDRESSES

AMIGA - Fleet House, Railway Terrace, Stough, Berks SL2 5AG (0754 02344)  
 8000/8007 - Railway House, 69-73 Stone Lane, London E04P 6BB (01-277 4900)  
 11.1.1985 (047880/3006 - 4 Green Street, Wellingham, Cantspire, CO4 5LH (02054 41201)  
 BT 8000/7950 - Broadway House, 22 The Green, West Drayton, Middx UB7 7PQ (0890 449410)  
 FSP (02046 5079488) - 4 Park Terrace, Wexander Park, Surrey KT1 7JZ (01-330 71490)



characters. This is particularly useful in big headlines where oddities in letter spacing show-up most.

#### EXPAND/COMPRESS TEXT

A nice trick to have is the ability to expand or condense text. You might want to do captions in 80% condensed text, or stretch a headline to fill the width of the column without altering its height.

#### AUTO-HYPHENATION

A dictionary of common long words and allowable hyphen breaks is built in to more sophisticated DTPs, so that when you flow text into narrow columns the words are automatically hyphenated to avoid unsightly gaps.

#### GROUP ITEMS

If you've defined half a dozen graphics and text boxes on your page, it's important to be able to move them all as a unit, thus saving you having to painstakingly nudge every box.

#### GRAPHICS EDITOR

All DTPs allow you to draw rectangles and lines, but some also have a mini-paint package built in for frolicking up diagrams, graphics and other oddities.

#### GRAPHICS CROPPING

Cropping is the process of telling or cutting off the parts of a graphic you don't want to see, without changing its size.

#### GRAPHICS SCALING

This is the opposite of cropping - stretching an image without losing any of it.

#### FOUR COLOUR SEPARATIONS

This is the nicest thing in desktop

publishing. Particularly with colour presses like the 31 and Amiga on the scene, people are wanting to include colour photographs in pages. To do this via a printing company as opposed to a one-off colour dot matrix printer) you need to create four separate pages with the magentas, cyans, yellows and black components of the image. Professional Page on the Amiga can generate these four outputs automatically from its colour page.

#### GRAY SCREEN SIZE

Essential but essential to the real power user pointing to a typesetter, offering the grey screen size allows you to control whether the photographs and grey tints you put on pages are printed with very coarse dots or very fine dots, this need to set it as fine as your printer will allow.

#### CLIP ART

A selection of ready-made graphics for you to paste into documents. Usually fairly copy images like General Kleinfelder doing his 'Four Country Needs You' act, telephone symbols and street signs. Having ready-made art to hand can speed page-making considerably.

#### PAGE VIEW SIZES

Most DTPs allow you to view the page in three or four sizes so you can either see how it looks overall but not read the text or will text but not see a very big area. It's nice if you can specify your own desired magnification so you can exactly control how

## WHAT IS POSTSCRIPT?

Most printer users will be familiar with the idea of a printer driver\* - a software file effectively the industry standard code for how your printer can be controlled.

PostScript's strength is that the DTP software sending the file for printing need not know anything at all about the printer's output resolution - it sends the file in as a 'page description' which the printer simply reproduces to the best of its ability. You can print exactly the same file to a 300 dots-per-inch laser printer and a 1200-dpi photocopier and it will come out at each user's maximum resolution.

This is because when drawing graphics, conventional laser dot matrix/generators send explicit instructions like 'print a dot at such-and-such a place', whereas PostScript says 'draw a circle, radius x, centre y' and leaves the printer to sort out the rest.

The down side of this is that PostScript is very complex and printers need elaborate microprocessors. The Apple Laserwriter has a 68000 micro made it to do its PostScript printing - effectively a dedicated 31 or Amiga? This makes PostScript laser printers very expensive - £5000 or more.

much is displayed on the screen.

#### NUMBER OF PAGES

Most DTPs allow you to work on as many pages as your memory will allow, with text running from one to the next. Some only work on one page at a time.

#### AUTO PAGE NUMBERING

The ability to automatically copy the current page numbers into a particular place on a page. Handy for booklets and other multiple-page documents.

#### SPECIAL CHARACTERS

Decorative and laser printers have their own special character fonts for bullets, boxes and triangles, but these aren't normally part of the 31 or Amiga character set. Some DTPs provide these extra symbols.

## ARCHAIC STYLES

Current printing processes allow them to produce lines, or lines much of the page. Locating, you will recall, is the space between lines, and is pronounced as in the metal. This term stems from the days when text was set up on the galleys as rows of individual letters on blocks. To adjust the interline spacing the printer would add in the size of lead between the rows. For more steps of lead, or the bigger the leading, the bigger the line spacing.

## THE FORMAT CHECKLIST - HOW THEY COMPARE

|                           | Prof. Page                 | Page Setter      | City Desk                  | Fleet Street   | Timeworks      |
|---------------------------|----------------------------|------------------|----------------------------|----------------|----------------|
| Price                     | £240                       | £78.95           | £89.95                     | £125           | £80            |
| Min. hardware required    | Amiga, 1MB                 | Amiga, 512K      | Amiga, 512K                | 386 500        | 386 500        |
| Printers supported        | PostScript & Amiga drivers | Amiga drivers    | PostScript & Amiga drivers | 9.24, 32,800-4 | 9.24, 32,800-4 |
| Master pages              | Y                          | N                | N                          | Y              | Y              |
| Left/right pages          | Y                          | Y                | Y                          | Y              | Y              |
| Set fonts by text marks   | Y                          | Y                | Y                          | N              | Y              |
| Paragraph styles          | N                          | N                | N                          | N              | Y              |
| Max. point size/alignment | 127pt/pt                   | Amiga fonts only | Arbitrary                  | 256, 21        | 72, arbitrary  |
| Auto text-reflow          | Y                          | N                | N                          | N              | Y              |
| Loading                   | Y                          | Y                | Y                          | Y              | Y              |
| Keying                    | auto, manual               | N                | N                          | manual         | manual         |
| Expand/condense text      | Y                          | N                | Y                          | Y              | Y              |
| Auto-hyphenation          | Y                          | N                | Y                          | Y              | Y              |
| Group items               | Y                          | Y                | Y                          | N              | N              |
| Graphics editor           | N                          | Y                | Y                          | Y              | Y              |
| Graphics cropping         | Y                          | Y                | Y                          | Y              | Y              |
| Graphics scaling          | Y                          | Y                | Y                          | Y              | Y              |
| A colour text             | Y                          | N                | N                          | N              | N              |
| Grey screen size          | Y                          | N                | N                          | N              | N              |
| Clip-art provided         | N                          | Y                | Y                          | Y              | N              |
| Page view sizes           | 5                          | 3                | 6                          | 169-2          | 4              |
| Min. pages in doc.        | mandatory                  | mandatory        | mandatory                  | mandatory      | 999            |
| Auto page numbering       | N                          | N                | Y                          | Y              | Y              |
| Special characters        | Y                          | N                | Y                          | Y              | Y              |

Y There is a command to manually reformat the page

N There is keying control in PostScript mode only

0 Screen magnification from 12.5% to 320% in .5% increments





# K-SCOPE

Most peripherals for the ST are concerned directly with the computer's capabilities. Kuma's newest offering is rather different, as it aims to convert your micro into a completely different piece of laboratory equipment. Simon Williams broadens his scope with this strange metamorphosis.

## K-SCOPE

ST Only. Requires mouse pointer  
£299.95 ■ Kuma ■ 07367 4335

When you get hooked on computing it's easy to divorce yourself from neighbouring areas of interest, such as electronics. If you've still keen to build your own audio equipment or experiment with music, though, one of the most essential pieces of test equipment is an oscilloscope, and you can save yourself a good few pounds by using your ST up for extra duties.

Unlike conventional scopes, which bristle with knobs, levers, sliders and sockets, the hardware of the Kuma kit is simply laid. A small custom box plugs into the ST cartridge port and two BNC connectors on the front panel take a probe lead to connect the unit to the outside world. The manual is neatly printed towards the knowledgeable user - it would have been good to see a tutorial section explaining the main features of an oscilloscope and how K-Scope provides them. This simple addition would help to open up the product to a much wider audience.

### Sounding out

K-Scope's basic operation couldn't be simpler, although it only works with high-resolution mouse displays. Once you provide a suitable analogue source to one of the input channels and select the display of one or both traces, clicking on the trigger button samples the incoming signal and displays it on the screen. The sample spans either 2 or 10 screen widths and you can scroll along its length. The time taken to capture a signal depends on the timebase you've set and the length of the sample.

The scope trace shows a frozen snapshot of the input signal, not a constantly changing real-time display. This is a shame, but by way of compensation you can select to repeat

your sample automatically which does three changes in irregular waveforms. Although even the ST's highest display is not high enough to completely smooth a single waveform, the approximation is good, and you can

restrict the speed of A to D conversion, which effectively limits the frequency range to around 500kHz, or merely audio work.

For all that, a twin beam, sampling oscilloscope for under £300 must be good value and is likely to find it can replace with progressive bit, bit BNC Mono-viewers will secondary schools.



■ The converter box plugs into the side of an ST or Mega ST, but you have to supply your own probe and cable.

■ Reproduction of a pure sine wave in the ST's high-resolution mode is quite reasonable.

read the amplitude and frequency from the display grid quite accurately.

A number of options are available with K-Scope, including the ability to enlarge the trace display up to the full screen size and an output signal port to a spare video line from the ST, which can be used to trigger external equipment, such as a camera.

### Where to now?

The obvious use of K-Scope would be in the classroom, where its ability to sample and redisplay waveforms would be very useful. This function would be greatly helped by the ability to take samples to disk - Kuma say they plan to implement this soon. The keen home-project enthusiast could also make use of it, but how the

### for

- Simple OEM-based operation
- Extra hardware can be used for a Spectrum Analyser

### against

- No probe leads supplied
- Display is a snapshot, not real time
- No method of saving samples to disk
- Limited frequency range

## WHAT MORE TO K-SPECT

Kuma's oscilloscope package is only half the story. The same analogue to digital converter forms the basis of another package suitable for scientific or educational work. K-Spectrum is frequency analysis software - this is great for pulling up square waves, music or other non-repeating waveforms into their fundamental frequencies and a range of harmonics.

The great snag is that the whole package costs the same as K-Scope (£299.95 or £299.95 for the software on its own). If you buy both packages together you can save a little, for £599.95 (that's £299.95 plus £299.95 to cover you against a disaster).

### features

performance

ease of use

reliability

format

value

format



# SPREADING: THE WORD

What if the rates increase on our offices? What if sales decline over the summer? What if the sky falls on Chicken Licken? It's just this kind of projection that is tedious to work out by hand, but a dead cinch for a computer spreadsheet. Simon Williams explains the principles and looks at a new arrival on the scene.

## IT'S HISTORY

The original means spread sheet, *spread*, was well used by the Venetians in 1500. It is supposed to be largely instrumental to the rise of Apple Computers, as thousands of American businessmen bought Apple II money simply to run the spreadsheet.

**T**he spreadsheet is the only new category of software invented for the micro-computer. Databases drifted in and were chopped up small to get them into the memories of the young upstart micro; word processors were lifted from their dedicated host computers and tumbled onto home computers, but spreadsheets were written for, and have been largely responsible for, the business arena. The first spreadsheet, *VisiCalc*, is said to have sold more Apple IIs than any other program and the heir to its throne, *Lotus 1-2-3*, has become a software fad in the industry on the PC.

But what is a spreadsheet? Sounds like an American doer - surely they're only up to accountants and City financiers? Far from it. Spreadsheets are widely used by business people, hobbyists, publishing

magazines, in fact anybody who needs to forecast the effects of changes on finance or work load. Anybody who needs to pose "What if..." questions and doesn't have hours to re-calculate a series of figures.

## Paper and pen

Think of a spreadsheet as a large sheet of electronic notepaper, divided into squares like the arithmetic books you used at school. Now imagine that each square (or 'cell') can contain not just a single digit, but a complete number, label or file. Each number can be related to any other and be dependent on the result of any calculation on the sheet. Finally, imagine that it's the computer which handles all the calculations and that when you change any value on the sheet, all others that make use of it will be automatically updated. You can no

doubt start to think of even for such a program almost immediately - so have hundreds of thousands of other people. The mechanics are really pretty straightforward.

When you load a spreadsheet you are presented with a largely blank screen which is likely to be marked with numbers down its left-hand side and letters across the top. The numbers mark each row of the spread sheet and the letters indicate the columns. The screen acts as a large window into a much larger spread sheet and can be moved around to view any part of it. One of the cells will be highlighted in inverse video (white on black) and this highlight acts as a cell cursor and shows which cell is currently active.

## In the cells

The other feature of a typical spreadsheet screen is the entry line. This is where you type in or edit the contents of the active cell. It might be a heading, such as January, London or Total Cost, a number used in calculations within the sheet or a formula defining a calculation. In the case of a formula, the entry line shows the Algebra used, while the cell on the spreadsheet shows the result of the calculation.

A formula is written much as you would write an assignment statement in BASIC (if you've never tangled with BASIC read the panel on variables in our BASIC tutorial this month). The main difference is that the variables are all cells in the spreadsheet, which are each described by their letter and number coordinates. Thus the cell in the top left-hand corner of a spreadsheet would normally be referred to as A1. A range of cells is normally described by reference to the top left-hand and bottom right-hand cells (ranges can normally only be rectangular in shape). So, for instance, the range of cells bounded by B3 in the

| 1   | 2    | 3   | 4       | 5     | 6    | 7    | 8    | 9    | 10    | 11    | 12       |           |          |
|-----|------|-----|---------|-------|------|------|------|------|-------|-------|----------|-----------|----------|
| ROW | Colo | Col | File    | Rate  | Rate | Rate | Rate | Rate | Title | Rate  | Rate     |           |          |
|     | A    | B   | C       | D     | E    | F    | G    | H    |       |       |          |           |          |
| 11  |      |     |         |       |      |      |      |      | ST    | Range | Forecast | Estimated | Expenses |
| 12  |      |     | JAN     | FEB   | MAR  | APR  | MAY  | JUN  |       |       |          |           |          |
| 13  |      |     |         |       |      |      |      |      |       |       |          |           |          |
| 14  |      |     | Burgers |       |      |      |      |      |       |       |          |           |          |
| 15  |      |     | Stews   |       |      |      |      |      |       |       |          |           |          |
| 16  |      |     | Travel  |       |      |      |      |      |       |       |          |           |          |
| 17  |      |     | Patrols | Money |      |      |      |      |       |       |          |           |          |
| 18  |      |     | Door    | Money |      |      |      |      |       |       |          |           |          |
| 19  |      |     | Spread  | 11.34 | Feed |      |      |      |       |       |          |           |          |
| 20  |      |     | Exp     | 1.16  | Alp  |      |      |      |       |       |          |           |          |
| 21  |      |     |         |       |      |      |      |      |       |       |          |           |          |
| 22  |      |     | Monthly | Total |      |      |      |      |       |       |          |           |          |
| 23  |      |     |         |       |      |      |      |      |       |       |          |           |          |
| 24  |      |     | Monthly | Total |      |      |      |      |       |       |          |           |          |
| 25  |      |     |         |       |      |      |      |      |       |       |          |           |          |
| 26  |      |     |         |       |      |      |      |      |       |       |          |           |          |
| 27  |      |     |         |       |      |      |      |      |       |       |          |           |          |
| 28  |      |     |         |       |      |      |      |      |       |       |          |           |          |
| 29  |      |     |         |       |      |      |      |      |       |       |          |           |          |
| 30  |      |     |         |       |      |      |      |      |       |       |          |           |          |

Start by laying out the table and labelling the rows and columns.



top right and ET in the bottom left could be described as BS17 or BS17 or BS17, depending on the particular spreadsheet program being used.

To set up a model on a spreadsheet you trace around the sheet entering labels, values or formulae into its cells in any order and just about any position you like. The only proviso is that most spreadsheets calculate the results in each cell in a particular order, usually from top left to bottom right. It's important, therefore, that the formulae you enter refer only to other cells to the left or above the current one. Without this stipulation, you're likely to end up with erroneous results in some cells.

### A Desire to replicate

As you build up a model on your sheet you'll start to notice that many of the formulae are very similar. For example, in a sheet of monthly estimates, the formula for total expenditure in one month will be very similar to all the other 11 months' formulae, with only the cell references changed. Rather than having to type very similar formulae into a number of cells, most spreadsheets let you replicate a formula from one cell to another, or from one range to another. The program automatically adjusts the cell references for you.

Cell references can be copied 'absolutely' or 'relatively'. To understand the difference, consider this example: suppose you have three cells A1, A2 and A3, and you've set A1 to be their sum, calculated with the formula SUM(A1:A3). If you replicated cell A1 into B1, a relative copy would put the formula SUM(B1:B3) into B1, and an absolute copy would leave it as SUM(A1:A3). In other words, the relative copy retains the formula's 'shape', 'held up' on the three cells above the one' and will adjust all the cell references to preserve that fact as it copies.

All these facilities wouldn't be a lot if you without the necessary mathematical functions to include in formulae. Most spreadsheets include a wide range of mathematical and statistical functions, and the more sophisticated products also let you look up values within a range of cells and plot results as graphs.

Graphing abilities are tied into the sheet itself and usually cover the graphs and bar and pie charts. Present graphics functions allow you to align rows and columns and plot one directly against another, or screen or printer.

The spreadsheet is a truly micro revolution and used liberally in business it can save a great deal of time, not to mention wear on your calculator fingers.

| 1  | 2               | 3         | 4       | 5       | 6       | 7                  | 8        |
|----|-----------------|-----------|---------|---------|---------|--------------------|----------|
|    |                 | ST Burger |         | Format  |         | Estimated Expenses |          |
| 10 | B               | C         | D       | E       | F       | G                  | H        |
| 11 | 1000            | 1000      | 1000    | 1000    | 1000    | 1000               | 1000     |
| 12 | Burgers         | 204.00    | 204.00  | 204.00  | 204.00  | 204.00             | 204.00   |
| 13 | Sausage         | 175.00    | 175.00  | 175.00  | 175.00  | 175.00             | 175.00   |
| 14 | Travel          | 50.00     | 50.00   | 50.00   | 50.00   | 50.00              | 50.00    |
| 15 | General Money   | 200.00    | 200.00  | 200.00  | 200.00  | 200.00             | 200.00   |
| 16 | Beer Money      | 100.00    | 100.00  | 100.00  | 100.00  | 100.00             | 100.00   |
| 17 | Broadville Food | 500.00    | 500.00  | 500.00  | 500.00  | 500.00             | 500.00   |
| 18 | Special Prices  | 0.00      | 0.00    | 0.00    | 0.00    | 0.00               | 0.00     |
| 19 | Monthly Total   | 1829.00   | 1829.00 | 1829.00 | 1829.00 | 1829.00            | 1829.00  |
| 20 | Running Total   | 1829.00   | 3658.00 | 5487.00 | 7316.00 | 9145.00            | 10974.00 |

Enter the figures in the table across by hand and others, like Burgers and Beer Money, using a formula.

| 1  | 2               | 3         | 4       | 5       | 6       | 7                  | 8        |
|----|-----------------|-----------|---------|---------|---------|--------------------|----------|
|    |                 | ST Burger |         | Format  |         | Estimated Expenses |          |
| 10 | B               | C         | D       | E       | F       | G                  | H        |
| 11 | 1000            | 1000      | 1000    | 1000    | 1000    | 1000               | 1000     |
| 12 | Burgers         | 204.00    | 204.00  | 204.00  | 204.00  | 204.00             | 204.00   |
| 13 | Sausage         | 175.00    | 175.00  | 175.00  | 175.00  | 175.00             | 175.00   |
| 14 | Travel          | 50.00     | 54.00   | 57.43   | 60.87   | 64.30              | 67.74    |
| 15 | General Money   | 400.00    | 367.00  | 341.00  | 316.00  | 291.00             | 266.00   |
| 16 | Beer Money      | 100.00    | 90.00   | 84.00   | 78.00   | 72.00              | 66.00    |
| 17 | Broadville Food | 500.00    | 475.00  | 450.00  | 425.00  | 400.00             | 375.00   |
| 18 | Special Prices  | 0.00      | 0.00    | 0.00    | 0.00    | 0.00               | 0.00     |
| 19 | Monthly Total   | 1829.00   | 1726.00 | 1623.00 | 1520.00 | 1417.00            | 1314.00  |
| 20 | Running Total   | 1829.00   | 3552.00 | 5175.00 | 6795.00 | 8412.00            | 10026.00 |

ST Burger increases by 2% per month  
Beer money increases by 0.2% per month

Finally, enter the two formulas for the tables and replicate them across the sheet.

### DIGICALC

Amiga and ST ■ ST demo on cover disk

£29.95 ■ Digita Int., Solway House, Barnes Road, Buntingford, Suffolk, Cambridgeshire, Devon EX9 6AU ■ C0991 45004

Digicalc sets out to be an easy-to-use spreadsheet, providing the most popular facilities without overburdening the program with extraneous functions or facilities. It started life on the Amstrad PC and has been converted for the ST and Amiga. This has meant some compromises in the use of each machine's facilities.

#### In the box

Digicalc comes packaged in a sides case-style case which houses a single disk, 30 page manual and quick reference card. The manual contains separate tutorial and reference sections, a glossary and an index. The content is concise but is littered with 'important notes' which put you up rather too often. Many such have been incorporated into the main

text to better effect. Coverage of the product is adequate to get you going and includes a useful section on a proper backup regime for use of the program with important data. The spreadsheet, parent, child copied. The quick reference card covers all aspects of the program, once you've familiarised yourself with its operation.

The program itself runs from the Desktop and formats GEM almost immediately in favour of its own, more conventional interface. In this respect it's like Protext, relying on keystrokes and commands rather than menus and mouse-clicks. The screen layout is fairly straightforward with an edit bar at the top showing the contents or formula applied to the current cell and a horizontal bar menu on the sec-

### CELL COUNT

A continuing trend in the design of spreadsheets has been to allow for large and larger cell references. Some products now allow sheets of only 65535 by 65535. This is obviously much larger than the main menu size of about 64000 that most memory, if done, however, allow for particularly long or particularly wide sheets. Modern spreadsheets don't waste space doing empty cells, or covering empty cells.

### SUPPORT

If you return the registration card (also included in the Digicalc package) you get three months free full-price support (60000) and are guaranteed that new features available within that time. You can extend this support for a further year by paying Digita a further £25.



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and line with a number of program options. When any one of these is selected a small explanatory message or tabular appears in the third line of the display. The rest of the screen is devoted to the spreadsheet proper with the cell cursor moved with the arrow keys in the normal way.

### All sheeted down

A typical spreadsheet can take up to 512 rows of up to 50 columns, and write many other spreadsheets you can fill every cell, even in a 50/50 51. As you roam around the spreadsheet, the contents of the current cell flashes through the edit line and you can edit any cell by typing (CR). Commands on the menu can be accessed by clicking on them with the mouse or by pressing **Alt** from the keyboard, followed by the initial letter of the option.

Several of the menus offer further options from subsidiary menus. The choices are largely self-explanatory, though some of the option titles look a little forced - as if they have been grafted for their unique first letters. Thus you have **ATR** to change cell or range attributes, **DS** to display a directory listing an Operating System function, and **D** having being used for **DEL** to delete a row or column, and **MISC** for all the options that wouldn't fit under any other heading. Two options which are quite handy are **UNDO**, letting you recover from an inadvertent edit, and **INFOH**, which lists individual columns to the width of five columns.

Digitalk provides absolute and relative replication and defines ranges of cells with a colon between each reference, like **A3:D25**. You can insert and delete rows or columns at any point and give each column a text file in addition to its reference letters. You can also assign any command or point of text to any of the function keys. This can be particularly useful for repetitive filing, or can be used to provide extra functions not directly available from within the program. Four keys are already defined for you which do useful things like returning to cell **A1**, displaying a directory of the current drive, wiping the entire sheet and printing out.

You can print the entire spreadsheet results or just the formulae

## THE COMPETITION

Two of the main competitors to Digitalk are the **IT** are **Graphicalizer** from **Shogun** and **MasterPlan**, distributed by **SGS**. **Graphicalizer** is at the same price as Digitalk and as its name suggests, majors on graphic output from its **IBM** interface spreadsheet. It calculates considerably slower than Digitalk but has all the pull-down menus and versatile windows that you expect from **IBM**. It also runs in colour, which you may find of value. The function list is largely the same as Digitalk's with the addition of comparative and log base commands, the **AND** and **OR**.

**MasterPlan** offers just about everything **Graphicalizer** does, including its **IBM** interface, and then some. Some of this comes in a wide

variety of financial and statistical functions as well as the regular mathematical ones offered by the others. It is also particularly good at interfacing with other programs. It can read **MS2** files, which means it can directly load Lotus 1-2-3 files, and can output files compatible with **Signa** and **Publishing Partner**. It comes in at **£99.95**.

On the Amiga side, **MasterPlan** from **Real Systems** is the big boy - it goes for about **£195**, but is fully featured. It spreads if three items in the budget choice (**£99.95**). Users of the **Works** package given away with the current Amiga handling deal will also have access to **Analyst**, a cheap and cheerful performance.

from it, and can include column titles or not. There is also a facility to export the sheet as an **ASCII** file, but none to import files from different formats. It would be useful, for instance, to be able to import data from the **PCjr** Lotus 1-2-3, since the **IT** can read **PCjr** files.

### MAX A MIN SIN ROUND LOG

When it comes to the supplied mathematical functions, Digitalk has the basic essentials, but nothing spectacular. The standard arithmetic functions are there, plus **SQRT**, **SINH** (the total several cells), **LOG**, **LOG10**, **MAX**, **MIN** and **EXP**. The trigonometric functions **SIN**, **COS** and **TAN** are also there as well as modifier functions like **ABS**, **ROUND** and **TRUNC**. The quick reference card lists all these on 'statistical functions', though, which is stretching a point. The only function which can really be deemed useful for statistics is **COUNT** which counts the number of items in a range. A more important omission is conditional cell linking. It's very useful, for instance, to be able to say 'if the contents of cell **A1** is negative, copy **D4** into cell **B1**'. Bank managers use this a lot when they work out who's up into the red that month.

Against these shortcomings it must be said that Digitalk is very fast. It can recalculate an entire 260/24 cells with a single addition inside 40 seconds. This is quite a

spectacular speed, with similar priced products often refusing to calculate a sheet of that size or taking many minutes to do it.

Digitalk has no graphics facility whatever. While this is not a prerequisite for a spreadsheet, graphical output is provided by several of the competing products and is very useful for illustrating figures with impact - a bar graph speaks louder than five columns of figures. Digitalk has nothing but a graphics package later than Digitalk and related business products, but it would still be an improvement to have simple graphing included in the price.

### Spreading: the final word

Digitalk is a fast, solid spreadsheet which will provide many people with all they need in this type of product. There are a few shortcomings, particularly the lack of graphics output, but one of most users will find the package good value.

### for

- Fast recalculation speed
- Holds full sheet entirely in memory, even on **1MB**
- User defined function key menus

### against

- No graphics
- No **IBM** interface
- No comparison functions

### Features:



print format control



multiple windows



multiple windows



format value



## AMIGA DIFFERENCES

This version is based on the **IT** version of Digitalk, but the Amiga version is also set by the time you read this and is promised to be a straight copy of the program. So what you should expect very little differences between the two, other than the program's opening user interface rather than **IBM**.

The program is written in **C**, which makes it easy to convert from one machine to another. It does mean, though, that few of its particular machine facilities are taken into account. To some extent the program has to be set up for the lowest common denominator.

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# QUICKIES

Learning to spell, or past that stage and learning to type? Either way, there are programs out there that may help. Sue Taylor and assistants try out two.

## INTELLITYPE

**Amiga only**  
**£24.95 ■ Electronic Arts ■**  
**0753 49442**

If you want to read a easy tongue-in-cheek adventure story from California and become a Zoomer typist at the same time, then Intellitype claims to have it all together.

Intellitype is a very flexible program designed for use as a 30 day course of 40 minute lessons. The manual is easy to read and contains essential advice on the program itself: how to pace yourself and how to tailor the program to your individual needs. It concentrates itself to your age, initial skill and visual dependence on the keyboard and lets you set your own priorities, such as speed or accuracy.

The skills themselves are fairly conventional, although the 'spellforce drill' is worthy of mention: it really does train while sleep the high wire as

long as you hit the right key, though, her digitalised screams when you get it wrong could lead the nervous to further error! The main lessons form a narrative and fast-moving storyline, guaranteed to keep your fingers on the keys.

Intellitype doesn't encourage you to head straight for the most spectacular results, as other more gaming typing tutors do, but gives you solid advice and guidance for better typing habits. One of its most appealing features is its constant reassurance that you're 'doing OK', which minimises any bad vibes from its rapid pointers to your emboldenings. Each lesson recommends a specific correction of posture or finger movement to aid the skill as which the lesson concentrates.

Over a lesson's over you can spend tedious minutes analyzing your errors. The program provides a wealth of bar charts showing your accuracy and speed with each key on the keyboard. Clinging to a game letter's bar calls up your average speed on that key and other handy information.

Would it be very well to find a human typing tutor so thoughtful and perceptive as Intellitype. The quality of analysis and attention to detail are very helpful and its author, Moses, like it really is that way round, has certainly put his Catech training to good use.

|                |     |
|----------------|-----|
| features       | 4.0 |
| performance    | 4.5 |
| ease of use    | 5.0 |
| manuals        | 3.5 |
| format verdict | 4.5 |

## SPELL BOOK

**ST only**  
**£19.95 ■ Soft Stuff ■ 0455 617426**

Spell Book comes in a smart little orange folder styled like a child's first school book, with a small leaflet of guidelines for parents. After the usual round of introductions, names, letters and options for 1 or 2 players, the first screen shows 4 bright pictures, each containing a letter of the alphabet.

Clicking on a picture opens a 'task' with that picture on one page. To spell a word, the child selects letters with the mouse and clicks them into place on a dotted line with one gap per letter of the word. At the end of each try the score is marked up on a separate 'blackboard' screen, and one of five jolly little nursery tunes rewards correct spellings. There's a good variety of words, ranging from 2 - 7 letters, and they're set all the standard old boring ones, like 'I for top.

It's good to use software for very young children which they can use on their own. It does give 1½ year olds a great sense of achievement if they are able to operate the computer independently. The main attraction of spell book is that it works entirely with the mouse, beginner-readers don't have to struggle with capitals on the keyboard.

We tested Spell Book on Matthew (4) and Tom (5). They liked the program; they were encouraged by the easy-to-read instructions and enjoyed the graphics too. Some of the tunes were more less recognizable though. The boys were disappointed that the three different levels of difficulty all had the same words and pictures, the only difference being less flexibility in marking. Extra points are not really adequate reward for an age greater of the age. More pictures are

available, but at £9.95 a set.

Tom had a bit of trouble positioning letters (you have to hold down the right mouse button as you slide the letter into place); it certainly wouldn't be easy for an impatient 4 year old. The lowest level of competence is labelled 'not very good' - a bit of negative psychology is an alternative sensitive program, it can't be helpful for children to select themselves as 'not very good'. Overall, though, the program has a solid feel to it, and a fresh approach enhanced by the minimum of busy little extras like smiling faces.

Two companion programs, Maths Book and Shapes and Colours Book, are due out soon.

|                |     |
|----------------|-----|
| features       | 3.5 |
| performance    | 3.5 |
| ease of use    | 4.0 |
| manuals        | 3.5 |
| format verdict | 4.0 |



## RATS FOR ARTS SAKE

After an afternoon's work with Intellitype, you become a bit quickly aware of the quality award of the quality award you're making. Rats for Arts is a 'transporter' and takes for look in a 'fantasy' area. Other graphics include horses, crabs, hand and golden chaffing (which isn't illegal) in your world.



*Dare you Try ?*

## BOMB DISPOSAL



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The designers, programmers and artists at Classic Software welcome you to a new concept in computerised entertainment. From the moment you first boot up Bomb Disposal you will realise that this is no shoot 'em up arcade game or graphic adventure game, you are the trained bomb disposal expert, with a steady hand and steel nerves. If you are faint hearted or of a nervous disposition we suggest that you revert to a less nerve racking and explosive game.



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# WRITE & FILE

To word process, you need facts; to manipulate data, you need a printout. Write & File seems to offer the ideal solution - an integrated WP and database in one program. Ben Taylor administers the acid test.

Apple requires 1 MB ■ \$99.95 ■ Software/MR Marketing, Brooklyn House, 22 The Green, West Drayton, Middlesex TW7 7PQ ■ 0255-444423

**S**ince there are already 25 or 30 word processing packages available, it's pretty hard for a new one to cause any surprises. However, the WP part of Write & File manages to do just this by virtue of a superbly designed screen layout and user interface.

As per most mouse-driven packages, in addition to the menu system there are icons to be clicked on around the sides of the main work window. Write & File boasts what might be called an 'intelligent mouse' - in so far as the pointer is over any gadget it becomes a small text box explaining what it is about to happen. For instance, when you mouse the pointer into the ruler area the cursor becomes a box saying 'Set Tab', which lets you find if you click there you will set a tab stop.

This system is brilliant. The main thing with most WMP systems is that the icons programmers choose are often clear only to them, so you still have to use a manual to find out what they do! With this explanatory text system, you quickly learn by trial but not error what each icon does.

As to the word processing functions themselves, all the basic ones are present and work well. The first interactive operation allows you to choose whether the search should be case sensitive or not. Searching is fast, but replacing is slow: to find a word at the end of a 1000 document took 12 seconds, to replace a word occurring 50 times in the same document took about 4 minutes. There is no facility to insert graphics into documents, nor are there any keystrokes for goto-column, delete-current-line, and other editing tricks.

The floppy problem of headers, footers and page numbers is handled very well. Initially you have a four line region for headers and footers, but you can alter the depth simply by

Write & File's word processing screen.



dragging them to size with the mouse. The header and footer areas are displayed at every page level, or you get true WIMP-style, for each page. There are special options to reset the current page number or date. These aren't standard operations of text but are updated dynamically - if used in a header the page number is updated for every page.

Write & File has a large spelling checker with three dictionaries: a 1,500 word 'common' dictionary, a 100,000 word main dictionary, and a user dictionary for your own words. Because the program is so large, a small 1MB of RAM isn't enough to hold it and the whole dictionary, so spell checking is slow. For some reason when an unknown word is found a message box appears saying 'Unknown Word Found. OK' - you've



## MACALIKE

Write & File's designers seem to be Apple fanbois. In fact, when it was part of the Macintosh-era software, being designed for Macs, for instance, will confuse many people, but despite the name, Write & File, if you've got a block of text selected you can just flip back and you can flip forward instead. The OS 8.000 - is a very efficient way of editing.

## EVERY SILVER LINING HAS A CLOUD

Despite the extremely high general quality of Write & File's design, there are a few problems.

Most serious is printing in graphics mode. You can use any Apple font in a document, and when you come to print you can either print as graphics (for true font images) or in standard ASCII and use your printer's (RLE) font. In the review copy the Graphics print mode would not work. Even with a new word document using our test only, there was 'Not Enough Memory' and our A3000 crashed.

Amazingly for A3000 owners, Write & File doesn't recognize shiny DTP - it assumes your drives are DFD and DFI - so on an A3000, this means you can't have your data disk in your second drive. The program never puts up standard recovery boxes if you have the wrong disk in - instead it either waits patiently for the right one (and appears to have locked up or aborts its current command).

In the database, the calculated field option seemed unworkable. If you enter a numeric field's format, to make it display a 4 sign for instance, the arithmetic suddenly ceases to work.

got to click OK every time to get to the lookup or replace functions.

### The database

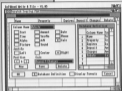
What is *File's* database is a fairly simple filing system rather than a super-rich card index to compete with the

Superbases of this world. It presents its records all at once in a table with one row per record, one column per field. You use the standard scroll bars to move around the data window; it behaves very much like a spreadsheet - you click on the cell you want to edit, and you can enter or edit data in any order.

When you set up the database, as ever you have to name your fields and decide what they are going to be used for - text, dates, numbers and so on. A menu guides you through this, with 13 different types of field allowed. If you choose a date field, for example, data you enter is checked for legality

With an integrated MP and database package, you would expect most merging to be a doddle, and it is. First you write a template letter, with the names of the database fields in angle brackets, eg. <Name>. You need to have the letter file and the database open at the same time, then in the database you use the Select function to filter your records, for instance. All letters whose names exceed before 5th April 1988. Selection, and sorting, can be done on any field of the database, and is pretty quick.

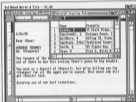
Once the data is set up, you click on the Send to MP option, activate



Setting a database. Fields can be any of 13 predefined types including calculated. Here the table is defined as the default field when the changes occur.



The database arranges its data almost like a spreadsheet - one record per row, one field per column. Column rules can be dragged by the mouse. You can click on any cell in any order and enter or edit data.



Doing a mailmerge run - the names in angle-brackets tell the word processor to read the data from a database field. Multi-window operation means both data and text are on the size of 600x.

- no 31 day Februarys allowed. Unfortunately, you've got to enter dates in American format, mm/dd/yy. 'Calc' fields have their contents automatically calculated from other (numeric) fields in the record. For instance, if naming a leasing agency you might define a field 'Notes' to be the second paid less any charges for damage. You can have up to 32 fields, and you can alter the database structure at any time even after data has been entered.

### Real partners

One very welcome novelty is that you don't define field lengths at all. Text fields are full characters long at most, but you can choose how much of each field you actually want to see when you display it. Using the mouse, you just drag the column rules around as you like. This way you can hide fields altogether if they are irrelevant, or arrange to only see the initial letter of each field.

There is no report generator function in the database; you are expected to use the word processor for all output.

the MP window and choose Print Merge. You've got to do a print merge for any database printers; even to get a simple list of data you would set up a dummy letter with only the text names and print merge that.

### Right & File?

I have seen the future of word processing, and its name is *Right & File*. That's an obscure misspelling from Homer writer Stephen King, it came up when wondering I without doubt. *Right & File* is the best designed word processing system on the Amiga. Its only drawbacks are that it needs 380 of RAM, and it seems a bit buggy. Its use of the mouse is exemplary.

The database section links smoothly into the MP, but in itself won't replace a specialised database program. Text fields limited to 64 characters, and the lack of any central over screen presentation of data leg, a form designed present that.

If you're got a megabyte of memory, and you can live without entering graphics into documents, it's the best thing MP there is.

### Features



### performance



### size of user



### records



### format



### value



### for

- Superbly designed user interface
- Good MP including 200,000 word dictionary
- Onscreen header and footer display
- Arithmetic in database fields

### against

- Can't import graphics
- A few 'implementation problems' (bugs)



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## GRAPHICS

**C**omputer animation is becoming one of the most promising artforms of the 20th century. Switch on your television and it's a fair bet that within a few minutes you'll see some impressive examples, whether in the still sequences of a game show, the animated diagrams of a news report or the artistic intelligences of a high-tech advert. The most interesting examples often combine real images on video with computerized ones created entirely in digital form. Animated title sequences and psychedelic video effects created by such multi-talented sound systems as Mirage and Harry are the most obvious instances.

Owners of the Amiga and XT are well-placed to become involved in this exciting field, because the 58000 processor at the centre of each micro is the same as that used in the professional graphics workstations. With the decreasing price of video technology such as VCRs, mixers and effects units, it's now possible to create professional-looking computer/video productions in your living room.

### Sugar and spice

While anyone can videotape a computer image and intercut it with film, combining the two together requires some complex technology.

As most of you will realize, video images are created by using a scanning electron beam from a cathode to illuminate the yellow, blue and red phosphor dots on the TV screen at different luminance levels. To combine video and computer images meaningfully, you must selectively combine the two sets of colour information, usually eliminating colour 0 in the computer's palette (normally white or black) to leave "gaps" through which the video image can show.

It's also necessary to synchronize the timing signals which lock the computer and video to the scan rate of the cathode ray tube. The systems needed to do all this are referred to as "genlock" hardware. Commodore's own genlock system for the Amiga 1000 or 1050 costs around £200, though you can pay up to £750 for a genlock system depending on the type of facilities you demand. Sadly, there isn't yet a marketable product

■ Deluxe Mod 2480 created a bit with its mixture of live action and computer animation. The Amiga and XT are catching up fast.

# STAR OF THE SCREEN

With their colour screens and fast processing power, the Amiga and ST are naturals as sophisticated graphics workstations. Chris Jenkins reviews Deluxe Video 1.2 for the Amiga and investigates the world of computer animation.

system for the Atari ST, though several companies are working on it.

Of course, if you really have a penchant for expensive hardware, there's a massive range of home video equipment you can invest in. Camcorders, dubbing studios, mixers - you could spend a fortune.

However, you can make a start in computerised video without shelling out for extra hardware. Animations created by manipulating a series of graphic designs can form the basis of impressive video stoppages - if you have either the programming ability or the right software to get the results you want.

## Twenny boppers

The uses of computers in graphics and animation are many and varied. The main advantages, obviously, are that the computer can handle images in the same way that a word processor handles text, arranging, storing, editing, copying and generating graphics with any required degree of precision and complete repeatability.

Perhaps the most important computer application in animation is automatic 'keyframing'. Traditional hand-drawn animation relies on key frames drawn by senior artists. These define the major points of movement, say the lowest and highest positions of Mickey Mouse's leg. Drawing the dozens of frames in between these points - 'tweening' - is left to junior animators. In the case of computer animation, the frame becomes the painter, mathematically calculating the stages by which one image metamorphoses into another. Obviously, but not accurate tweening routines make all the difference between a good and bad animation program.

## DELUXE VIDEO 1.2

£89.95 ■ 512K Amiga, 3 drives recommended

Electronic Arts ■ 0753 49442

Electronic Arts, one of the first companies to put its weight firmly behind the Amiga, is now distributing an impressive series of graphics and animation packages as the Deluxe range. Claimed to be suitable for making everything from rock videos to business presentations, the Deluxe series integrates graphics, animation, sound and video. The packages are fully compatible with Commodore's pen-kick systems, using the 'vidtur' (V) technique, but also should be interested in this sort of animated graphics package, and how much extra expense do you need?

The real answer is (at present) everywhere, and (to be perfectly frank) 'no'. You may want to add captions to videos of family occasions, produce a business presentation, create your own pop video or incorporate animated sequences into another program. In each case, Deluxe Video has something to offer.

Deluxe Video is one of the most powerful packages of its kind, and comes with four disks and a 300-page spiral-bound manual. It's designed to

help you integrate pictures, objects, text and sounds into flexible audio-visual presentations. It allows you to use images from Deluxe Paint or Deluxe Print, and sounds from Instant Music or Deluxe Music. Indeed, any standard IFF images and sounds should be available.

## Intensive care

Deluxe Video is very data-intensive, so a hard-drive system is recommended unless you enjoy spending a great deal of time swapping disks.

The main workstation is the Video Script dialog, from where you can zoom into sub-sections to perform microscopic edits. Full-screen menus appear at the top of the screen. The Video Script screen is a sort of 'spreadsheet', showing the entire video in terms of frames and events. Sound bars allow you to move around the script, and at the top appears a timing display in seconds and tenths of a second (frames). At the left hand side is a capacity gauge which tells you how much memory space you have left to work with.

## FIRST CATCH YOUR PICTURE

The simplest way to combine real and computerised images is with a video digitiser. This takes 'samples' of the analogue picture signals from videotape or V-Camcorders, and breaks these down into a digital store which can be saved as a standard graphics file, and manipulated using graphics package software.

The Amiga is particularly well catered for in this area. Examples of video image digitisers include Digivision, which works in any of the Amiga's resolution modes (Perfect Vision, which

often obtains grey scales in 4096 colours and 1024lines, which digitises in real time rather than in separate snapshots (but which costs £800).

However, a more satisfying application is the combination of real and computerised images in the same picture. In fact the Amiga is already regularly used for this purpose in the production of the Channel 4 Chart Show series. Watch towards the end of the June video and you'll see typical Amiga letters and text boxes appearing over the video images.



■ Mike Poulton and Tom Casey (Mike has the beard), both as Marbury men with brains the size of pineapples, pull Behind Video together.



## SWEET SMUSIC

One of the best things about the Amiga is its standard file format. Rather than each company inventing its own way of storing data on disc, Amiga developers have standardized on the "IFF" file format. The interchange file format is a neat way of representing graphics and music, and Deluxe Video software for the Amiga uses it to create IFF graphics files for its own music. Deluxe Video reads in MIDI music files, MIDI or Sample Buffer to an IFF format specifically for music, and most graphics and audio packages will use data in this way.



■ Setting up a script to follow video. You can request the animation to pause and wait for keyframes.



■ The video controls here give you full control over the video. You can trigger a bar up, down, left, right, diagonally or vertically.

Video consists of up to five tracks, of four different kinds: foreground, background, control and music. Each has its own type of "effects", giving a total of twenty-seven. You can create new tracks and effects, too, by dragging icons boxes from the top of the script page, and arranging them on the timeline, on the "page". Placing an effects box on a track line calls up an Effect Request box, where you can tick on the type of effect you wish to create. Any effect can be applied over any assigned time duration, so something like a fade can be set to last as long as you require.

There are six types of "pages" available, by which one background

moves past another. Pages can move up, down, left, right, diagonally, or from the centre outwards. You can also specify the rate at which the colour palette of the old background fades to the new one, and the number of pages auto select the page is ahead of. Pagescripts are made up of Objects, which can be taken from memory or from disk. It can read locations stored by Deluxe Paint. You can preview an object by clicking on the "V" icon in the request box, then place it anywhere on the background. Deluxe Video can only display seven colours in the foreground, so bear in mind the limitation when you're placing your video. If you want several different foreground objects, they must of course use the same colour palette.

## Moving scenes

The "cut" effect allows you to change the width or height of an object over the course of a specified time. In this way you can either create stretching effects, or the impression of an object moving towards you or away from you in or out of the screen. A good example is the spatial shuttle sequence shown. Objects can be animated using the regular Bar Animation too, you don't have to try to pronounce it. Each "bar" of the image you wish to animate is assigned a letter. Up to forty letters can be chained together, each repre-

senting a display time of one-sixth of a second. Thus, the sequence "aabb" would display col one for two-sixths of a second, col two for the same duration, then col three and four for one-sixth of a second each.

You can synchronize music with your video, and for the soundtrack Deluxe Video can read any IFF file in MUSIC format. You can preview music by clicking on the speaker icon in the request box, and you can choose which of the four tracks in each tune is played. Sound effects are added to videos in a similar way and there are additional options such as volume changes.

## The letter of the law

Text Requests allow you to enter lettering using the standard Amiga fonts, or new ones stored on your work disks. Masking, underlines, and bold or italic effects can be added to your text, and there are several colour reverse, transparency and outline options which can be combined to create unusual results. Once you have written and positioned your text, additional options include movement, appearing and disappearing, and "slanting", where the text or object, having finished moving, can be made part of the background, thus saving memory space. An alternative option, Polygon text, allows you to define lettering out from two-dimensional fonts but from three-dimensional shapes. You can use preset polygons such as squares, triangles, stars, hexagons and diamonds, your own polygonal shapes and preset fill patterns.

The world gets about polygonal text is that it lends itself to various impressive animation effects. You can, for instance, rotate around the X, Y or Z axis; expand, fly, or shrink the text, and move it around the screen at the same time. As impressive details on the Deluxe disk uses polygonal shapes to create animated moving gas and bar charts.

## WHAT THE EYE DON'T SEE

Do you stare at nothing actually work? The effects depend on the computer feeding the eye into believing that it was moving objects, rather than a series of still objects each in a different position. An effect known as "persistence of vision", which is caused by the optical chemical nature of the function of the retina, causes the series of images to "blur" into an apparently moving object.

The secret is to show many "frames" as possible while keeping up the speed of the apparent movement. Conventional cinema projectors show 24 frames per second, although each frame is shown twice so you only see 12 different pictures a second. Television too works by persistence of vision, showing 25 frames per second. The software packages are looking at rates greater of around 60 fps, so the potential for convincing animation is there.

## OTHER AMIGA VIDEO OPTIONS

**DELUXE PRODUCTIONS**  
£139.95 ■ 1 MB Amiga ■ 2 drives recommended  
**Electronic Arts** ■ 0753 49442

The newer software package Deluxe Productions is similar to Deluxe Video in many ways, but works only on one meg systems. It boasts more colours than Deluxe Video's eight, and uses the Amiga's highest graphics resolution mode (while Deluxe Video uses the lowest) and has a wider selection of wipe and fade effects. It is more general than Deluxe Video in towards generic video mixing computer graphics with video images from tape - stills, motion and so on.

While the Electronic Arts Deluxe Video package are impressive, they are certainly not the only options for Amiga video. Amiga's Videomagic 3-D, for instance, is a very powerful 3-dimensional modelling and animation program which uses basic shapes to create complex images. Details such as variable surface reflectivity, light sources and surface detailing allow you to create very realistic images. Mirror, rotation, zoom and transformation options let you create animation effects with some of the traditional cut-by-cut techniques.



■ Even education gets a look in. This is part of a moving animated tutorial on Pythagorean geometry.





## PIECE OF STRING

How long an animation can you store on a disk? How many angles can it be the best of a job? If your animation can vary smoothly—make a third background and a foreground image swirling slowly around it—then by taking advantage of the data compression techniques provided with Delta files you can probably store 5 or 10 minutes of action on a single disk, with many frames of light and shadow detail, you might only get 1 minute to a day.



The Control track allows you to interrupt or manipulate the video while it's playing. Using the Chain function you can link together a number of videos, so you are never really limited by the capacity of the program.

Options such as KeyDraw allow the viewer to select which video is shown next, using first entry, while KeyWarp simply pauses the video until any key is pressed. The menus at the top of the video script display allow you to

save all the elements of the video, and to modify them by cutting and pasting elements. When you are playing through your video letter frame by frame or all the way through, clicking on the right-hand mouse button brings up a control display at the bottom of the screen. This looks like the head unit of a remote-control video recorder, and it has too many of the same functions. You can play fast forward, rewind, pause or stop the video, mute the sound, stop the video and go on. A time counter ticks off the seconds and minutes.

## FROM THEN TO NOW

Although the computer animation has entered a new energy, most of the animation are nothing new. The techniques of making the eye into moving frames were first demonstrated in the 19th Century with magic lantern displays. Early displays's frames containing three pictures (1800) is a prime example.

On the first side, cartoons like Moll and Jeff emerged in 1820s and 30s. But slowly was the time when the most elegant and beautiful white (1840), the first cartoon with sound, and Mickey Mouse's debut. The classic cartoon line of all time is, of course, Snow White. Released in 1937 it's now a staggering \$20 million and selling out another re-released Snow White has 407,000 frames of hand drawn video. It took 2 years to produce, and almost bankrupted Disney.

Now, computers interpret the business of special effects and animation. Disney's *Timon & Pumbaa* is a prime example of this. The backgrounds for the video film were computer generated and the action, hands and body movements created in separate panels. Unfortunately, however, they get carried away with technology, and with Timon in particular it was a case of "the effects, almost about the end," the last *Timon & Pumbaa* (1994) was made by the first film to have a lengthy sequence of pure com-

puter generated animation—about two minutes of spectacular graphics. Again, the rest of the film disappointed.



George Lucas—famous as director of the Star Wars movies—set up the Industrial Light and Magic studio to generate special effects on computer for film producers. They use computers' very heavily (up 3T and things-50) to get high resolution (not) looks good enough to get high screen quality effects (they use 3T's supercomputers at 100,000 million operations (each frame of a sequence between two there are 12 different frames a second) can take up to an hour to generate, so they're talking lots of money). Using computers isn't cheaper than hand-drawn, just slower.

## Action replay

The "Player" disk included in the package is, as its name implies, a play only utility which can be copied to your data disk, so that you can show examples of your finished work to large clients who do not have Delta files.

Included on a third disk is The Frames, an animation program which offers more facilities than the limited routine in the main program. It allows you to cut up to 99 frames, and call them into a Delta 5000 sequence using an "Appear" effect. Also included on the third disk are WdTrack, which compresses your video as they take up less disk space, and WdBack, which allows you to pinch bits from



■ The space shuttle (above it here) can change the magnification of a scene from frame to frame, as well as just moving it, or giving the effect of moving.

## THE VIDEO SCENE AT LARGE

Considering that a commercial animation will contain at least twenty-four frames per second, it's not surprising that even a Mega ST or expanded Amiga soon becomes insufficient to create lengthy video films. The solution to most users is to transfer your work to videotape, and in any case one of the most exciting features of computer animation is the possibility of combining video and computer images. Even if you are using domestic video recording on the S-VHS or Beta standard, rather than professional 3.5-inch machines, there are many S-VHS models which can be used in conjunction with your computer to create impressive videos.

The first necessary is a good video recorder with either "assemble self" facilities, and preferably a separate audio-slipping facility. The most useful and so on is a video mixer, such as the Ramco 1022. At around £475, this can combine signals from audio sources, video tape and a video camera, and create effects such as fades, wipes and colour distortions.

Another essential is a simple mono video camera at around £100. This can be used with an

image digitiser, and by adding a series of coloured filters over the lens you can add false colours to the image. Alternatively, the world's cheapest (but remote) recorder (Lumacorder) is forthcoming from America. This uses the S-VHS-C system and will cost around £200. For around £700 you can obtain picture enhancement from Hi-Vision and AVC. These will clean up your video signal so you copy from one tape to another, and can also be used to create unusual colour effects.

A forthcoming video mixer from Panasonic will offer the first affordable "time base correction" facility, allowing you to time together two signals from separate video tape sources. In conjunction with a protected computer, the possibilities will be mind-boggling. At the moment, it looks as if there is the biggest growth area among computer users. As video equipment falls in price, and innovations such as satellite and cable TV expand our awareness of the capabilities of video, it may well be that computer/video graphics systems will be the next big thing in the home computer field.

### What can the ST do?

The alternatives for ST users but down to two main contenders: Microsoft's Film Director, and Amiga's Animator.

Film Director works with pictures files - from Art Director, Page or Photoshop, which provide the background scenes and foreground objects. You can also create polygonal shapes at any start and end point, and set the tweening process to create up to 99 intermediate steps. Film Director's major drawback is that it lacks rotate functions for objects. If you wish to show, say, a spinning ball, you must create spheres for each required orientation separately, then fit them together in an animation using the Group Editor functions. Up to two thousand frames of animation can be created using the Frame and Sequence Editor facilities to place elements on the backgrounds and move them through time. Object priorities can be defined and sound effects added at this stage too. Oddly enough you can't create your own music.

There are no facilities of the fade-and-wipe kind found in Deluxe Video or the Amiga, though another ST program, in some ways more impressive than Film Director, has the fall letter.

This is none other than Amiga Animation. It uses both polygonal and spline-based animation techniques, again using files created with either Digital or MacDraw. You can build up a library of polygons, apply moves, X/Y/Z rotations, zooms and colour changes, and have the program calculate the tweening stages. Polygonal and object animation can be combined in films of up to 9999 frames, and timed to within 1/60 of a second. You can edit up to six "storyboards" simultaneously, with miniature versions of the complete animation running in separate windows. You can cut and paste from one storyboard to another, and use colour spring and palette change techniques to create fades and cuts. However, it has nothing of the complexity of Deluxe Video's wipes or abilities to interface with external video equipment. ■

### UNNATURAL ADDITIVES

The eye sees colours in funny ways. At school you were probably taught that the primary colours are red, yellow and blue. Well, yellow and blue make green, and that sort of thing. Well, that's the bit of thing that you are talking about mixing (professionals with unlit light, the first a TV or monitor screen). Well, selected light, fall on your eye when you mix reds as on the stage of the video pro. The primary colours are: magenta, cyan and yellow.

other videos and use them in your film.

Overall, Deluxe Video is a very impressive animation-cut-for-me video editing package at a low price. A couple of drawbacks are that you can only use 8 colours on screen at once, which is annoying given the Amiga's capabilities, and there is no paint editing ability at all. You can't retouch pictures in Deluxe Video itself - you need a dedicated art package to prepare things well. More advanced users might prefer to go for the costlier Deluxe Productions.

### Deluxe Video Runs on the ST

■ Amiga Animator on the ST. This can give almost good animations on disk, but unlike the Amiga or ST system you can load a video recorder for adding video to home videos.



### Deluxe Video 1.2

for

- Synchronise music with images
- Many types of fade and wipe
- Images can be resized to custom dimensions
- Text can be rotated and superimposed

against

- Only 8 colours at once
- No pixel editing facilities for touch-up

### Features



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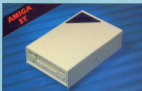


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## T E S T D R I V E

Test Drive is different - a new standard of driving simulation game. You've probably thinking "that's what they all say". So don't listen to us. Read what *Commodore User* and *Popular Computing Weekly* said - "never have I encountered a game where the introductory screens make me want to play the game as much as this one". *C.U.* "...the graphics are out of this world. For any car enthusiast the game is essential. PCW.



# ACCOLADE

R I N G I 0 7 3 3 4 6 4 6 3

# SCREENPLAY

Games, games, games... Summer it may be, but lazy it's not. Andy Storer sorts out the men from the goats and reviews the finest.

In the last month, ST Amiga Format has received 20 new games, most of which are due for release on both machines. This is a healthy state of affairs even in



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# REVIEW

Summer, a traditionally slack time. However, only a quarter were inspired on 32-bit machines, the remainder being ported over from 16-bit and assigned to differing extents. Some were embarrassingly poor; little more than **CHEAP CLOVES**, others **PURE JOY**

and packed with **FRESH** spirit, colour and sound. After all, if you're paying **DOUBLE** the price for a conversion why shouldn't you get **TWICE** as much **VALUE** for your money? While software houses think up an answer we'll just review those titles that show **STYLE, DEPTH** and **IMPACT**.

### Format Gold

So what makes our coveted **FORMAT GOLD** grade this month's first off to



Intergames' **CAPTAIN BLOOD**, probably the **BEST STYLE** 32-bit release ever and now about to make its debut on the Amiga. The first review of **BLOOD** was based on a sparse French version. This has subsequently been beefed up in translation to English and promises to be enhanced even further for the Amiga.

Our other title is **CORRUPTION**, the latest outing from Magnetic Scrolls. **INTERACTIVE FICTION** has come a long way since the first **NINE-HOUR** instalment **CRIMINAL**

through the mazes of a BBC, and in **CONVICTION** you have a State of the Art parser to guide you through the **UNDOUBTABLES** of **FINANCE**. That and a few Make pages.

### Preaching to the converted

Next on the list are two releases for the Amiga which really show up what a conversion **SHOULD** be about.

**JINKS** is no original concept - just an **IMMACULATE CONCEPTION**. Although no more than a **NEW-WAVE BREAKOUT CLONE** it has a **BASE** of **CLASS** just waiting to be seen, even in a **FUTURE OF INFINITE MEMORY** it's the sort of game that'll be available as a limited accessory - any excuse for a look and you'll be in there. It also runs out with the **BEST ACTION** **INTRO** OF ALL TIME.

The Amiga's other real treat release is **SENTINEL**, another best from Belgium - how much money do these guys have? That's the title here we've received from them in a month. These words form a bad review of the 5-bit version of **SENTINEL** so hard to wonder the reason is just its competing and more. What you might call an **ABSORBING** game.



## A WORD ON ADVENTURE RATINGS

Regular readers (y'know, it's issue 2, you're all regular readers by now) know our rate games in the canopies of their Graphics, Moving Graphics, Soundtrack, Loading Appeal and Value. Okay, but many adventures do you know of that show moving graphics and sound? Not a lot. To be exact - none. So we've had to adopt a different rating system using other categories. And here they are -

### SCENARIO

The strength of the storyline - the atmosphere created by the game, how well the locations, characters and events are brought to life. Will you be wandering around a wasteland or is there a whole world of wonder waiting for you?

### INTERFACE

How easy and effective is communication with the game? If it's a text parser, will you be chatting with a dumbie or chatting with a friend? If the adventure is

not a text-driven, how well do these accommodate the range of inputs you may wish to enter?

### PROGRESSION

It doesn't matter how well the storyline is described or how clever the interface is if you don't feel involved. Are you the central character or a general bystander? Or is the gameplay so mind-numbingly difficult you don't get a chance to find out?

### LASTING INTEREST

Will you be coming for months or years for years? Is the adventure's difficulty compelling enough to want to make your mistakes or is it with you just end up bored? Or is why you bought it?

### OVERALL

The acid test. Does the game catch on or merely cast on?

### Are you ready then?

Turn the page, let the adventure begin...



# CAPTAIN BLOOD



INFOGRAMES

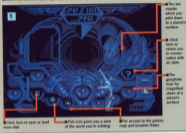
BT - £24.95. Mouse. Enhanced version just out.

Average - £24.95. Mouse. Don't say any more

**A**fter a reincarnated Charles Darwin tells you that Pacifera are reproducing in millions all over the galaxy, you too might conclude something's got to be done. Whether you'd write a program to create a bio-tech hyperspace vehicle the size of an asteroid and flip over to Andromeda in pursuit of the little spheres is another question entirely. As such an endeavour pushed the boundaries of possibility to the max, you won't be surprised when you've subsequently done things three in the process and meet a species of bio-missile with more than a passing resemblance to you.

Who are these guys? From Infogrames!

Here's the interior of your hyperspace vehicle



## GAMEPLAY

In 400 years later and in order to maintain your vital life fluids you're tracking down your last few clones hidden across the galaxy. As there are over 10000 planets, you'll be happy to know that your task is eased by the information provided by alien life forms in exchange for satisfying their requirements - which range from destroying worlds to finding their usual partners. Travel and trading are the underlying themes in an adventure which enables you to converse with 13 different species of alien after indulging in some of the best firing sequences ever devised.

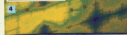
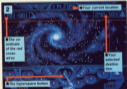
The game's structure is straightforward, all operations are mouse and icon controlled. You have a galaxy map and chrono-lens with which to pinpoint a destination, you hyperspace to the selected location and then dispatch a considerable surveillance missile to the planet's surface in order to meet the situation. Using the system of coms, you communicate your wish to test your clones and negotiate a deal - which is often one-sided.

It is advisable to check each planet's surface for defence systems before going down. All worlds require orbital flight over mountains, valleys and forests. You have to locate a canyon at the end of which should be your alien.

Although there are 133 icons from which to construct questions and responses, arranging them together in an order the locations can understand can be quite time consuming. Similarly, your host's pronouncements are not always crystal clear. Your approach had to differ according to the character encountered.

Galactic life, it seems, is pretty sparsely distributed, so it's very important to have a pen and paper handy to list all those 8 figure coordinates - otherwise you'll never remember where you've been or where you're going.

Each new game has a brand new set of inhabited planets - as you will have gathered, Captain Blood is a long, long venture.





► You'd like the hyperspace button and watch these colours shift.



► Making an entire world might not something like this...



► Down on the planet's surface close, gliding above a canyon, but you'd better stay bright. Those converging red arrows mean you're about to be destroyed.

► Going to the end of a canyon like we frame capture #6 and you meet Mr. Mysterious. Turns out he wants you to kill his enemy, if you can't he might tell you where one of your clones are. Maybe...



► Slide this bar along with the mouse to reveal another screen of space loops.  
 ► You move them into your search list by clicking on the appropriate picture.  
 ► You've just said "We should the Search Planet Day"  
 ► Or doesn't look too impressed

## GRAPHICS AND SOUND

Besides the main display of your bio-conscious vessel there are four other types of screen. First off is the static galaxy map; clicking on the hyperspace icon takes you into the second screen — a psychedelic trip through twilight accelerations depicted as a sequence of colour works by Jeff Meier.

The planet then expands into full view. The design of each world seems to rely on Mandelbrot sets, though how they're generated so fast is an intriguing secret; no two are the same and all have a rare beauty. If you wait long enough the planet will resolve full circle, but you can always get an enlarged view of the planet's surface too. Here the effects are simply stunning and it's worth buying the program for those alone.

The third sequence is the descent to a planet's surface. You glide into the blue sea-frame mapping of the world below, using the mouse to increase your speed as the wind roars by. You can suspend movement at any point and a blue-white hazard ball traces its way into the distance.

After a few practice runs, entering the twisting canyons at full throttle is no problem; negotiating them when they're full of moose animatics is a lot harder. If the planet is protected by radar, you've got to fly behind it — converging red arrows signify you're too high and if they meet it's curtains.

Once you reach the end of a canyon, you come to the alien. All the life forms are neatly drawn solid animations with speech — indistinguishable silence of course! Should your planet-bound conversation have gone badly, you can deliver the ultimate snub by clicking on Distract. You then experience a world in its final frame; the sequence is similar to hyperspace but actually looks as though it was shot on movie film (Bellini).

Sound FX include the booming digitised speech of your vessel's bio-consciousness as you select icons, the steadily degrading stream of hyperspace loops and of course the excellent digitised landing screen sequence supplied by Alan Michal Jarré (a whole lotta!).

## CONCLUSION

The difference between the new version and the original French Captain Blood of some months ago is staggering. As if the graphics on the ST were not enough, the forthcoming Amiga version promises to take them even further. The wire-frame cartoons will undoubtedly benefit from the Amiga's outstanding capability — all those straight and curves becoming more defined and continuous. Sound effects will also improve thanks to the Amiga's intensive stereo output and Biosonar Jarré has repeatedly returned to the studio to further enhance his contribution. To sum up — bloody excellent.

### 3D graphics



### moving graphics



### soundtracks



### loading interval



overall 91%



# CORRUPTION

MAGNETIC SCROLLS/RAINBIRD

ST - £24.95, reviewed

Arrive - £24.95, check out any day now

It's an immense pleasure to come across an adventure that bears no resemblance to the mass of Tolkienesque scenarios that abound. Just how many Orcs and Hobbits are there left alive anyway?

Magnetic Scrolls' work has always been peculiarly English - witness *Gold of Thrones* and *Winter* - and eccentricity is probably the last word in a genre in which we have a real lead. But this release does more than merely confirm their leading position as adventure's B&B excellence.

Corruption marks the emergence of a form of fiction not dying to embrace a mainstream audi-

ence. If you've ever dreamed of owning a BMW that just blasts the opposition out of sight here's your chance.



Theresa takes it easy - should you take her for lunch or take her lunch? By wonder you can never find the lunch.



Looks like you should have that turbo-charger checked... your company car gets heated as ever-jolting.

## INTERFACE

Since the gameplay of any interactive adventure is determined by its parser, even the best location can feel full of inadequate systems. Fortunately, good of *Mag Scrolls* know enough about interaction to make the often tedious process of look-examine-take-act-resolve interesting and absorbing. This is not to say they get everything right - you can ask the most logical questions and still get a dumb reply.

Many current systems seem to assume you never ask questions beginning with who, what, why, when or how, so direct questioning can be frustrating. Here this is partially overcome by the provision of two key commands - 'ask' and 'tell' - whereby you can enquire of or inform someone of something and receive pertinent information in return. Another useful command is 'lookat' which allows you to navigate the diversity of locations without having to enter directional queries - it's also a valuable means of gaining access to rooms which would otherwise be denied you.

In short, it's a parser which can accommodate a diverse range of inputs, and as a consequence you don't get the feeling that you're windowed caught in an inflexible system to which you must slavishly conform. The effect is very refreshing.

## GAMEPLAY

Your task as the central character in this contemporary crime thriller is to seek out the evidence required to clear yourself of implication in serious fraud. After pulling off a major share deal, you have been contacted by a City firm and offered a partnership, complete with a company BMW.

However, there's a lot of red tape of dealing in which you're embroiled. Caution also happens to be one of the leading characteristics of the moment and guess who's going to take the fall if there's a major crash on the market? In fact it seems you were only taken on as a fall guy.

At 9 a.m. on the first day you are shown your new office. You wander around the office chased by messages from your distinctly unhelpful secretary, and if you look as though you're busy you can drop in on your boss's secretary (who's altogether more delightful), the company lawyer, the brokers and even the cleaner for vital gossip.

There are phones, ledgers and files to be found. There's even your car to go out in. The first sign that all is not what it seems is when you overhear a conversation between your boss and the company lawyer which suggests that your successful deal was rigged. Since you must learn all a door to glean the information it soon becomes apparent that the only way to proceed is by devious methods.

Before long you have worked out a way to steal a cassette from your boss's office, which reveals a badly doctored recording of your interview. Something is definitely amiss, and it will just your secretary.

So, the principal objective is to extract information and manipulate other characters in an attempt to clear yourself of impending fraud charges. Done unassisted, you must get your revenge in the local police station, avoiding the menaces of drug barons, corrupt police, homicidal doctors and all manner of bad dies.

The locations and characterisations are expertly described, and the sense of struggle against odds is heightened by the out riggerous circumstances befalling you. If you've ever seen *Scorsone's* After Hours you'll know what's in store for you. (Smartness = 4.0). Let's cut it this way - things do get a little out of hand.



■ Can you stomach this incision sequence or are you just a slip? Either way, it'll leave you in stitches.

## GRAPHICS AND GOODIES

There are 28 pull-down pictures which illustrate various locations in the narrative. As with all Magnetic Scrolls' recent works, the graphics are photographs copied using an art package; the result is a much higher quality than a mere digitized image. Since the pictures have converted the atmosphere of your surroundings you can just put them away out of sight. Since they are of such high quality it's surprising they cause no other function than showing; they don't appear to contain clues and in fact include objects which have no presence in the accompanying text descriptions.

Along the text and graphics are the pull-down menus perforated in true Fittas-style controlling lines, text size and descriptive detail, graphics style and 'goodies' such as printed transcripts and books. Also up for is a clock by which you can turn up on time for appointments, and wait until a specified time before doing something.

Also included in the packaging are a number of extras. There's the cassette you steal from your boss's office, complete with dialogue and music, and Fittas pages featuring diary/address book, gambler's guide and business entertainment list. There's also a cypheric help window; you type 'help' at the keyboard and enter strings of encoded letters, very useful for those hair-pulling books of translation.



■ You took responsibility and search for crumbs of evidence in the local park.



■ Do you have enough time for the state? Don't lay your hands on the table until you have more up your sleeve.



■ After taking the 0001 for a spin you decide murder is the best bet. Harry's MacBook is often better - sorry for the Over 21s, read on.



■ And now here is a Fittas warning. "Look out, it's the boss!" The Proud Squad wonder how you manage to come back from the dead time after time.



■ Wait a tick for the boss, mate? Could this be your salvation?

## CONCLUSION

Corruption is certainly Magnetic Scrolls' best adventure to date and more than any other, Infocast aside, serves to underline the growing sophistication of interactive fiction. There's enough here to keep you puzzled for months, so it's just as well that you can have profiles and have a break.

Perhaps Corruption's most intriguing quality is its capacity to manage your mistakes and overnightly humourously rather than take a patronising attitude. Here's a game which will give you hours of pleasure in a way no screen release could manage. The skybound is indeed lighter than the laser.

www.magscrl.com

Interface

Graphics

Sound

Plotting Interest

overall 91%

# STAR

Brought to you by the team who produced the top-selling STAR WARS® game, THE EMPIRE STRIKES BACK™ is the next stage of the unfolding drama. This game follows the non-stop action of the movie and is a direct conversion of the famous climax.

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The action continues as the player becomes Han Solo in the Millennium Falcon, looking for safety in the galaxy whilst being attacked by Tie-Fighters and dodging asteroid storms.

May the Force be with you - Always!  
**WARS**



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**D1**

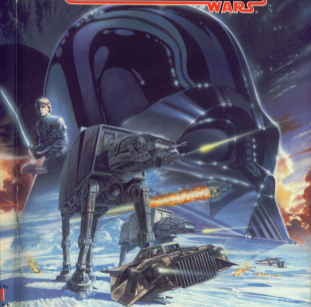
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STAR

# THE EMPIRE STRIKES BACK

WARS



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# JINKS

GO RAINBOW ARTS

Amiga - £24.99, Joylink.

BT - No release planned

**W**hen Breakout broke out way back in '73, you probably never thought you'd be playing variations on Th ping pong for ever. Thankfully, fifteen years later, we're enjoying ver-

sions that possess only a passing resemblance to the original. Jinks has taken the concept to new levels of sophistication using the Amiga's graphics and sound capabilities imagin-



Can you Jinks it among the debris left by Apollo 13?

tively and humorously. As clones go this is up there with the likes of Arkanoid, though it's in the sound department that it rides the leading edge.

## GAMEPLAY

Simplicity at its core often becomes complexity in Jinks. You control a triangular bar with which you hit a ball, and harness your speed to clear the level of blocks, thereby gaining points. Each level spreads over three or four screen widths, and the balls swirls with effortless ease over the whole width as you go. You're got to escape to new levels by knocking the ball into a goal mouth at the far right end of the current level.

All very straightforward but not that simple. Things begin to get a little out of hand as you come across all manner of obverse objects. These include hazards such as magnets, spinners (a sea of interminable warblers) and fish heads, which have the size of your triangle if you track them, making control that much more difficult. Luckily you can return the ball to normal size by pushing the ball through red cross symbols. Other objects merely exist to hinder the flow of the ball by acting as rebound devices, whilst snoring pairs of chattering teeth will bring your game to an end if they can swallow the ball. All very bizarre.

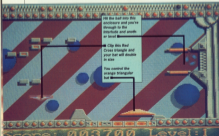
When you complete a level, a single-screen interlude appears, where you must knock the ball into one of four areas in order to proceed. There are only four levels, but as you progress the level of difficulty correspondingly increases. As of course does your frustration, getting the ball to go exactly where you want it to go is very, very difficult.

## GRAPHICS AND SOUND

There is no doubt about it, Jinks looks stunning. All animated movement is extremely smooth - block scores, power-ups, moving warblers and flying pigs spin and turn with grace against solid slow scrolling backgrounds of muted colors and Amiga mics. The foreground action is fast, a full-screened screen right disappears off screen leaving you to catch it. Sometimes all you catch is a glimpse as it bounces back in the opposite direction. Fortunately you can keep track of its progress from the digitised sounds produced as it collides with revolving teddy bears, grunting pigs, and burling mouths. But when it comes to sound, best of all is the start up screen with its cool jaylink sample.

## CONCLUSION

Jinks is best described as a hybrid rather than a clone. It effectively combines Breakout and Puffball in a surreal mix of ingenious funfair. The result is a gameplay combining sufficient randomness to ensure you're back to that juddering into day after day. If there's any criticism it has to be the real-time sound produced from level loadings, but then the graphics and sound admirably compensate for this. All in all, Jinks is a game which goes to prove that the Amiga can turn lightweight concepts into heavyweight productions. A real beauty!



Hit the ball into the goalmouth and you're through to the next level and onto the next level.

Hit the bar that Cross triangle and your bar will double in size.

You control the orange triangular bar.

### BTM graphics



### moving graphics



### scored track



### loading interest



overall 78%

■ Waiting in the goal mouth area for the long bar ball to reappear. Watch it closely for when orange blocks bounce you or will disappear through them and leave you back at square one again.

# LEGEND OF THE SWORD

RAINBIRD

BT - \$24.95

Amiga - \$24.95

The evil wizard Sazar has launched an attack on the land of Anar with his hideous harnoiseil army - so runs the storyline to Rainbow's latest graphics adventure. It continues the vibrant forces of Anar did their best to hold off the armies of Sazar, but they stood no chance. Every time a man of Anar was slain he was brought back to life by Sazar and attacked his former comrades. You were one of the lucky ones that managed to escape the carnage and flee Anar.

You are summoned to the High Council of Anar when you learn from King Darius of a legendary sword and shield that were once guarded by the Conians. Both of these artifacts must be found if Sazar is to be slain. Speed and secrecy are of the utmost importance, so you and five other brave individuals set out for Anar to find the sword and shield.

## GRAPHICS

Most adventure graphics are static but Legend of the Sword has something different, a scrolling map that gets gradually filled in as you explore the land. Normally it's only a small section of the screen, but you can expand it to full screen if you want to get your bearings. The small location and action pictures are not very detailed due to their size, but you can clearly see what everything is supposed to be. The overall screen presentation is very good and if you don't like the background colours they can be changed to suit your taste. As with nearly every adventure the only sound you get is from the keyboard.

At the top of the screen are menu items which can be clicked to reveal the more common commands.

The location window shows a small picture of your current whereabouts.

This window updates your current actions and movements of objects.

Movement icons can be used for rapid movement from one location to another.

Text input and output appears at the bottom of the screen.



which appears to be an old torture chamber. All about you, amongst the piles of rubble and about other mysterious structures, is a pile of olives, a bunch of a larger size, all of which have long since succumbed to oxidative rot.

Several words North of you, you can see a full tower.

Legend of the Sword

The window shows how strong or weak your party of adventurers are, the level it gets, the closer you are to death.

## INTERFACE

Although this is basically an adventure, it has an unusual method of command entry. Many of the common commands can be summoned with a mouse click. The eight compass directions, up, down, in and out can be clicked directly and many other commands can be executed through menus. Your current location and last action are checked graphically at two windows on the screen. A third window shows the menu or map depending on what you're doing at the time.

You can't use the mouse exclusively in solving the adventure, but you can zoom around and interact with many of the objects using it. When you come to type in commands from the keyboard, you'll find the interpreter flexible and quite sophisticated, although you can still use verb/noun commands if you want to. 'Find' and 'get' are two of the more advanced commands that allow you to move through to a particular location or object. The rope option is included to help you rectify unfortunate (and usually painful) mistakes by taking back your last command.

## CONCLUSION

Old records have been perused by brave warriors every since the dawn of computer adventures and Legend of the Sword is not about to back the trend. The thing that does set it apart from the rest of the pack, though, is the presentation. The on-screen map, the use of icons and menus for the more standard actions is good and speeds play. Unfortunately some of that speed is lost with the regular disk accessing.

Gary Barnett



Clicking on the map window returns to a full screen map of the area that you're in.





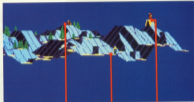
# THE SENTINEL

FIREBIRD

Amiga — \$19.95 keys, process

ST — \$19.95 keys, master

Even in its 8-bit incarnation, Geoff Crammond's asset-garde strategy game was a fine example of strategic gameplay on a par with chess. Here was a game which could take literally years to complete. With the release of 16-bit Sentinel, originally it now a rarity everyone can afford. You are a lone cyborgoid doing battle against an all-seeing Sentinel and its minions, the Sentries. Pure energy is the medium of progress in a series of tactical decisions where you must gain sufficient height to be able to absorb your enemies.



- Hitting the space bar in 3D-escape locations gives you some very impressive external shots
- A sentry covers a possible route to high or ground.
- There you are in the foreground with quite a bit of climbing to do
- The sentinel turns your way

## GAMEPLAY

You can only absorb an object's energy if you can see the square on which it stands and as such the trick is to gain height and thus a greater vantage point. You eventually work your way up and around the landscape until you are in a position to absorb the Sentinel's trust and proceed to another world.

This would all be a lot easier if the Sentinel and Sentries were invisible, which of course they're not. Once you start absorbing energy, they start firing and once facing in your direction will begin to absorb you. As you can't always see them, you can only tell when your precious energy starts to disappear by watching the small box in the top right corner of the screen. When this begins to fill with static, you know you had better move quick or you'll end up at subatomic levels. One way of avoiding the Sentinel's plan is to inch behind parts of the landscape or trees; if it can't see you it will just keep firing. If it can see you but can't see the square on which you're placed the Sentinel creates a Minion, a Sentry that tries to force you into open space.

Once you have gained enough height to see the square on which the Sentinel is standing you can absorb it and claim its energy, so allowing access to a new world and a fresh challenge.

- Your spottail eyes view the Sentinel's killer stare



Your energy will start decreasing

This bar will fill with static when the Sentinel starts and absorbs you

## GRAPHICS AND SOUND

Each landscape is a contained series of solid plateaus, ridges and dips. From above, the beauty of such design is more apparent; the seemingly random configurations provide one of the great sights of contemporary games software. Energy transfers are conveyed by a smooth break up of the object. The only real criticism is that the cursor speed is only marginally faster than on the earlier 8-bit version despite being reworked by Steve Erik.

The minotaur surround ego scroll slowly — almost too slowly — but a greater scrolling speed would make the game too easy unless the number of Sentinels and Sentries per level were increased. As such, the result is a trade off.

The rings version scores over the ST with the addition of David Whittaker's stereo sound effects and musical accompaniments to your activities. These work well in enhancing the alien atmosphere of the game and add to the tension when you're under the Sentinel's thermal gaze.

## CONCLUSION

While taking as near to the white as you'll probably care to consider — by the time you've completed its 18,000 levels of tactical planning one thing's for sure — you'll know the meaning of the word absorbing. Because your rate of success determines the number of your mind world, the pathways to increasing difficulty are many and varied. If you can complete level 16 please write and tell us how far've heard that landscape 6278 is a bit of a bond too like chess, you could be playing this game for ever. It's an exact classic.

### unit graphics



### moving graphics



### sound/stereo



### lasting interest



overall 82%

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# PANDORA

FIREBIRD

ST - £39.95 (excl. tax)

Amiga - £19.95 (excl. tax)

Or, once you've opened the box, dare you open the box? Pandora is a seventh generation computer guiding a spaceship of the same name in a search for alien life. Pandora evidently found it, since it's now out of control. You're an obliging intergalactic Salvage Operator who's contracted to investigate and disable it - fairly how the best job opportunities fall

your way eh? But it's not just a question of delivering dead junk back to Earth, for this ship is alive and fully intends to return to Earth on its own accord. The fact that it may come and greet us at terminal velocity hasn't entered into its head. So you don't have a lot of choice really. You have to disable her or die in the process.

## GAMEPLAY

You guide your character around the ship's interior in a search for the access codes and keys to shut down the obnoxious. Your route to this goal requires a certain amount of 'biding' with other characters on board. Although most of the useful personnel are dead, the place is crawling with vermin of all kinds - mutant parcs, combat droids, automatic cleaning drones, the alien from Dark Star and various other defunct forms popular sci-fi. The choice is whether to enter into a punch up with these last souls or trade objects. The more fights you get into, the lower your health status; once you become five you may as well give up.

Getting the hang of this usually involves beating up a roaming footpad several times for practice until you can collect weapons and take on some of the more heavily defended characters on board. You find weapons and most other objects scattered around the ship in empty quarters and work stations - some protected by force-fields and security locks.

As with many other arcade adventures, it can take quite a while to work out which are the best objects to hang on to, if a character wishes to trade he usually tells you so - displayed by scrolling text across a message window - otherwise you take what you want by beating the guy to death. No wonder Pandora went haywire.

## GRAPHICS AND SOUND

Pandora's graphics transform average gameplay into an enjoyable visual treat. Movement of the many characters is smooth and solid while the colourful backgrounds are in no way repetitive. ST users are given the option to adjust the distance that the screen scrolls when the character moves towards the screen boundary. The default setting is usually more than adequate, but if you want to see what's coming up around that corner, press (+) to display a wider screen transition.

Fights are depicted as clouds of arcs and hits punctuated with Starman-like Rappers and Crunchies. This would be great fun to watch save for the fact that you have to keep your eyes firmly planted on a 'punch-strength' box and not fire when the strength of your assault can be seen to be at maximum. Sound is confined to spot effects only, mainly in the fight sequences.

the punch-strength window

I'm looking dire and your opponent's winning hands down

the science officer takes a rest while you punch up a punk

Pandora is giving access to terminals and restricted areas

The inventory window opens after hitting

an alien is being captured

you've dodged the cleaning drone and passed to take stock

## CONCLUSION

Thankfully, completing the game requires more than violence. You have to locate and interrogate computer terminals after first securing the correct access codes, and map out the route to the heart of the ship in order to shut down the driver before it hits Earthspace. In the meantime you can increase your score by finding and dumping alien artifacts down a chute chute. But there are times when you'll feel like taking that chute yourself since there's no means of saving your current position. An unfortunate oversight in an otherwise extremely pleasurable game.

skill graphics



moving graphics



sound/music



loading reference



overall 63%

# RETURN TO GENESIS

FIREBIRD

ST - £19.95 Keys, Mouses, Joysticks

Average - £19.95 Mouses, Joysticks

From the author of Goldrunner and Kinky Kid II we bring you... a terminal visual assault! Genesis is to Defender what Jinks

is to Breakout, namely a sophisticated horizontal scroller that shifts like there's no tomorrow. The game has moved firmly away from

wire frame animation and is blessed with solid fills. What's more, 16 bit games in moving their fills at the end of screens you'll see they end up leaving you with a pair of Phoenix missiles in tow. In the meantime, have a bottle of Oxyon handy.

It's 4800 A.D. and 12 scientists await transportation along with fifty of their clones in the ten worlds of the Zephyr region. The aim is to fly a high speed aircraft over, under and through richly textured landscapes populated with legions of hostile aliens. You must collect as many scientists as possible before moving on to the next world, and all along the way

you have to enter into delicate negotiations with alien patrol vehicles, i.e. Blast from beyond recognition before they do the same to you.

Scientists are collected by running right through them - a method of contact they don't seem to mind since they're all prepared to provide you with additional resources once they're on board. Between levels you may choose from the group you have rescued to acquire the technology to activate extra lives, collision free movement, and higher speeds.

Colour has been used to great effect to enhance the speed and difficulty of the action, the backgrounds are beautifully designed, comprising a rich variety of motifs - butterflies, beetles, beans and, perhaps most appropriately, rabbits, among the fine examples. Sound is pretty good too - there's some neat sampled voices and a great background track by David Whittaker.



■ That's your ship moving left to right among the levels of the final level



■ The scientist eagerly waits for you to plough straight through him

still graphics 9.0  
moving graphics 9.0  
soundtrack 8.0  
testing interest 1.0

overall 7.4%

# PINBALL WIZARD

ANCO

Start ST - No version played

Average - £ 1.9.95 keys

Think of a popular game that can't be simulated. Thought of one? Thought not. Here's the latest and a bonus effort it is too. Pinball Wizard is a simulation of an arcade pinball game down to the manic digitized laughter and all those other effects sound effects.

You can select up to four players, after play speed, score bonuses, and new balls (A Whittaker reference, no doubt - lol) and everything else you'd expect as the real thing. But how do you emulate flippers and what about 'tilt'. Easy. The [M] keys on either side of the space bar act as flipper buttons, while the space

bar acts as a tilt function speeding up the vertical movement of the ball. Hit that bar more than twice in a row and it's a pair of dead flippers.

What all the reviewers are then, what about the feel of the thing? - that old 'wrist grip', 'tilt' found the flip combinations worked fine but that the tips of the flippers were less responsive than you'd expect. All the angles are covered, though, even Gravity works out to a fine degree. If there were half a dozen screens showing that same cabinet, Pinball Wizard would be a game you'd come back to again and again. As it is, you want, well, not after you've seen



- Hit the right [M] key to fire the ball
- Flip the ball up here for bonus points or an extra ball
- Spell the name and take the bonus

whether the score clocks over at 20 million

still graphics 4.0  
moving graphics 4.0  
soundtrack 4.0  
testing interest 3.5

overall 7.0%

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# THE MIDI SYSTEM

Electronic music would not be where it is today if it were not for a unique industry-wide interface standard, MIDI. Chris Jenkins sounds out its development and the difference it makes.

## MOOD MUSIC

In today's world a computer with loading, the first commercial digital synthesizer and such records as Synthetic and Rock and more of Emerson, Lake and Palmer's early output testify to the fact that it was simply seen as to be a variety of machines. It was called the sounds of electronic music have found but come with the current trend to digital control sounds into an electronically playable form.

Computer music has changed a lot since the early days, when American musicians used guitar machines to produce weird loops and ladders. Now anyone can make recognizable music if can't - Call, either with home computers alone, or with imaginative musical instruments linked together with MIDI.

The ST and Amiga are particularly suitable for music making, but for different reasons. While the Amiga features the powerful custom sound chip Paula, the ST's sound chip is the standard Texas Instruments device found in everything from the T109 to the Sinclair Spectrum 128. It's nowhere near as versatile as the Amiga's. In contrast, the ST is the first hard to

for the solid micro to be fitted with a MIDI interface, while the Amiga can only be fitted with MIDI at extra expense.

## Overture

You can get started in computer music simply by learning to control the computer's sound chip from BASIC. For most people, though, it's more possible to invest in an inexpensive software package to discover whether you actually have any musical ability. Remember, the computer can produce the sounds, but it's usually up to you to come up with the tune.

An excellent example package available on both machines, is Music Construction Set from Electronic Arts. Priced around £60, it allows you to experiment with the creation and arrangement of sounds, without requiring you to use external equipment. MCS is fully mouse-driven. The main display window shows a series of pull-down menus, a music staff like the conventional ruled lines for music composition, a keyboard diagram, a set of utility icons, and a number of note value icons. To compose music, you simply click on the keys you require on the keyboard diagram, or pick notes from the menu and place them on the staff.

Sections of the music can be edited, copied and deleted and you can assign preset instrument sounds

to each of the four available voices. On the ST, these are created by the internal sound chip, on the Amiga, they are sampled from real instruments. In both cases, you can define new sounds using the Waveform Editor screen. Most Amiga music packages and samplers allow you to arrange sounds in either of the two stereo outputs (another respect in which the Amiga scores over the ST).

MCS even has primitive MIDI facilities, so you can input note information from a MIDI keyboard, or output tones to the Synth Argis IIam, a slightly more sophisticated package for the Amiga, allow eight mono-phrase composition tracks, though still only four of these can be recorded by the Amiga (the others have to be played as external MIDI equipment). You also use to create your own sounds by drawing the basic wave forms, use sampled sounds, in standard 8P file format, or play notes from a MIDI keyboard (though you can't record the performance).

## Crescendo

You'll notice that in discussing what the simplest music packages, but successors of modern music-making have started to crop up MIDI and sampling. Both have made an enormous impact on the professional music scene, and both are available to the home computer user, either in

## MIDI INS, MIDI OUTS

MIDI is basically a serial communications protocol similar to RS-232C. It transfers data from one MIDI device to another in digital 'packets'. Connections are made through the pin DIN sockets and no more than one device can be fitted to a MIDI OUT, which is normally a 5-pin DIN which receives them, and sometimes a MIDI THRU, which passes signals through the instrument to other devices. In the ST, MIDI THRU is hidden on the same pins of the MIDI OUT socket and a very convenient arrangement, since it requires the use of no non-standard MIDI cables for all but the simplest MIDI setups.

MIDI operates on sixteen channels, numbered 0-15. Most MIDI instruments can be set to respond to information on these channels in three different modes: (MIDI) where the instrument responds to any channel; POLY, where it responds to only one; and MONO, where for some instruments you can play several different sounds simultaneously, each responding to a different MIDI channel.



Three MIDI sound packages: (Building Pro 24, EA's Music Construction Set and Rowan Audio EAR 8000)

budget form or in expensive high-quality systems.

In what are laughably referred to as "the good old days", manufacturers such as Moog, Roland and Oberlin produced large, expensive, complex modular synthesizers. Parameters such as pitch, timbre and waveform of the sounds were chosen by plugging leads into patch boards, and single-note music was played by adding voltages from a keyboard to the sound oscillators. The biggest problem was that instruments from rival manufacturers weren't electronically compatible. You couldn't connect the keyboard from one to the soundgenerators of another, or link two different sets of oscillators to produce thicker sounds.

As synthesizers became more powerful, several sound oscillators were combined in one unit to produce "polyphonic" synths that could play chords. The first big success was the Sequential Circuits Prophet-5, which had the "voice", a digitally-timed keyboard voice storage system, and microprocessor sequencers for sound patches. Other manufacturers followed suit, but still different instruments could not be reliably connected together in the late Seventies. Sequential Design proposed the Musical Instrument Digital Interface (MIDI), and the standard was rapidly adopted by all the major instrument manufacturers.

### Legato

MIDI can be used to exchange all kinds of information. The most common is NOTE ON/OFF. This simply tells the synthesizer to play and then stop a note of a particular pitch. The range handled by MIDI is notes G1-12 (C0 to C8).

The second most important type of MIDI information is "performance data". This includes parameters like volume (sometimes called "key velocity"), aftertouch pressure on the synthesizer keys, pitch bend, vibrato, tremolo, wahwah and other effects which add expression to the musical performance. MIDI Clock signals allow you to start, stop, and set the playing speed of devices such as drum machines and sequencers. Lastly, you can also use MIDI to transfer sound patch data. Most modern synthesizers can create thousands of different sounds, defined by combining dozens of parameters and values. The blocks of data representing these sounds can be stored via MIDI in other synths, or computers, allowing sounds to be edited, organized and exchanged quickly and easily. By some extent, the same applies to digital sound samples, which again are basically just streams of numbers held in memory.

Because of all this information -

note values, performance data, sound patches and samples - is basically digital, computers are perfectly happy to do all the hard work of handling them while you concentrate on composing great music.

### Espressivo

The most important software package you can choose is the Sequencer. The original sequencers were analogue devices, using potentiometers to define a simple pattern of notes for voltage-controlled synthesizers. Modern software sequencers are much more advanced and are best thought of as the musical equivalent of word processors. They allow you to record, store, edit and replay musical performances by manipulating MIDI data. Like a word processor, a MIDI sequencer lets you make mistakes, copy and move blocks of data, and generally patch your production until it's perfect. In fact, a sequencer lets you produce music which you could never play yourself, because it's too complex or subtle.

Because the Atari ST has MIDI ports built in, it has an enormous advantage over the Amiga. Musicians were quick to recognize this, and a number of professional-standard sequencer packages such as

## DIY SOUND STUDIO

You can set up a professional-sounding MIDI music system for only a few hundred pounds. There are four main types of equipment you may need: synthesizers, drum machines, recording gear and effects units.

Sequencers come in two forms: as keyboards, or as lightweight MIDI modules. While you can play a module from a computer, you'll certainly need a keyboard of some kind, even if it's a "dumb" controller keyboard which stores no sound data! But transmit MIDI signals to the module.

Espressivo MIDI synthesizers include the programmable Casio CZ-100 and recent CZ-2000, the Yamaha DX100, and the Roland Alpha Juno 1. Modules include the Yamaha TX802, Roland MT-8 and the Oberlin MS4. Most of these synths will cost between £200 and £300.

Drum machines use sampled-percussion sounds, which you can arrange into complex patterns and chain into songs. You can synchronize your drum machine with your sequencer using MIDI clock signals. Cheap MIDI drum machines allow you to play the drum sounds from a MIDI keyboard, and so some you can learn new sounds, either on chips, like the TR-80, or in the case of the Oberlin MS4, from data cassettes. Other popular models include the Roland TR808 and Yamaha RX20. Prices range as high as around £250.

You can play twenty times that much for drum recording equipment, but the fun idea is to start off by spending £2-£50 on a "portastudio". These compact mixers/recorders let you layer four recordings on a standard cassette. By copying and re-copying between tracks, you can then create complex

sounding music with fair recording quality. The advantage of having a good collection of MIDI instruments is that you can do most of each "take", relying on the original signal quality. Good controllers are made by Focuser, Voco and Focus.

To create your recordings, you might like to invest in an inexpensive effects unit. A second digital delay or reverb/chorus unit can improve your sounds tremendously, and some, such as the Akai M4170R, allow you to use MIDI control signals to switch from one preset effect to another. Akai and Roland also manufacture good effects units starting at around £150.





## DIGITAL APPROX

The process of digital sampling is something like the difference between a smoothly curved graph and a bar chart of the same information. Using the samples that are taken like light on the "sampling rate", the narrower each column is and the closer the bar chart approximates to the curve.

## MIDI AND MIDI

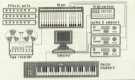
The Musical Instrument Digital Interface (MIDI) for talking to all with MIDI systems, which are used where between several and very small, now allowing to do with the full length, since introducing in the early 70s.

Steinberg Pro-24, Sonic Electronics, System Exclusive Icons and C-1ab Creative are also common in the legend including the fact. On you realize that all the latest also. On you realize that all the latest also. On you realize that all the latest also.

Packages of this complexity, featuring dozens of tracks, powerful MIDI data editing features and extras such as synchronization with video and live, normally cost over \$250. However, simple sequencers such as Microbial Super Conductor and Hybrid Arts Easy-Draw allow you to get going for around \$70. The situation isn't as straightforward for the Amiga. There are several MIDI interfaces available at around \$50, including the Midmaster Team Data, Synka from Superwell and the Ecostart interface. If you want to use more than one MIDI instrument, it's useful to get an interface with more than one MIDI port. The Midmaster, for instance, has three.

Unfortunately, music software available for the Amiga in the UK is largely of the home entertainment type (observed earlier, because the IT took off much quicker among musicians in the States). But the situation for the Amiga is improving slowly. Products such as New Wave Software's Symonic (Studio sequencer and Music X from Wave Musicians), are well up to the standards of the ST's Pro-24 and Creator, yet none seems to have crossed the water. Come on Amiga dealers - get your musical act together!

## Typical computer/MIDI studio layout



## Variations

Patch editors are also becoming more widely available for both machines. The original synthesizers bristled with knobs, sliders and switches used to program new sounds. To cut costs, most modern synths use "digital access", a keypad sets the sound parameter you want to change, and a single slider or wheel changes the value, which is free speed is necessary. This is a slow and unwieldy method of changing sounds. Using MIDI, though, you can transmit all the synth's sound data into your ST or Amiga, and use the usual interface to edit sounds quickly, then store them on disk. This works out both quicker and cheaper than buying ROM cartridges or cards full of new sounds, at £50-£90 a shot.

Most of the popular synths, such as the Yamaha DX series, Roland Alpha Juno L/O, D50 and MT52, Ensoniq SQ80 and SQ80, and Porg 100000 and Poly 800, have suitable editing packages designed for them. The names include En T, C-1ab, Hybrid Arts and Steinberg. Some packages, such as Hybrid Arts ComPatch, allow you to store sounds from any synth (though you can't edit them). You can even store sounds from professional samplers such as the Akai S900, Emu and Mirage. The advantage here is not so being in storage costs fall samplers use cheap disks instead of cartridges, but the extra editing facilities possible using the micro's 68000 processors. For instance, Synthesix on the ST offers you the possibilities of harmonic synthesis, where you can define the waveform and amplitude envelope of every harmonic, to create professional sounds which can be played back through your sampler. Most of these editing and synthesis packages are available on the ST now, and are slowly making their way over to the Amiga.

## Allegro, con brio

Possibly the quickest and most enjoyable way to get into music-making is by

having a sound sampler. There are several available for both machines at around the \$50 mark, and though they vary widely in the fine details of hardware and user interface, they all do very much the same job.

Elektron's Professional sampler is a good example. The hardware consists of an eight-bit analog-to-digital converter board, which takes sounds from a microphone or line input and digitizes them. Eight-bit refers to the format in which the data is stored; you'll also see references to the "sampling rate", which is the number of times per second that the computer samples the incoming frequencies. Obviously, in both cases, the higher the number, the better the resulting sound quality. Bear in mind that eight-bit sampling will never give you quite professional quality; better or satellite samplers are now standard equipment for professional musicians.

Profound, and other sampling packages such as the Data Pro Sampler for the Amiga, allow you to edit the start or end of a sample, introduce a loop to create a sustained sound, reverse, copy and mix samples, and play the results from the GRAPH keyboard. The better samplers allow you to compare fairly substantial tones, while some (including Elektron's feature optional MIDI control). Look out too for more powerful but more expensive packages such as Future Sound and Perfect Sound for the Amiga, or the incredible \$3000-plus Hybrid Arts ASAP for the ST, a satellite system using hard disk storage for up to 62 minutes of compact disk quality sampling!

## Da capo

Made in probably the fastest-growing area of computer use, and you can't see that increasingly sophisticated and affordable packages will be appearing for both the ST and Amiga. Don't worry about the technicians - the important thing is to jump in and have a go at making music with your own.

## A REPRESENTATIVE SAMPLE

Sampling can be thought of simply as "digital sound recording". The computer's memory replaces magnetic tape and stores the sound as a series of numbers. This data can be manipulated before converting it back into sound, thus creating effects such as pitch changes, in the same way as speeding up or slowing down a tape. Editing, looping, splitting and combining new sounds can create fantastic effects, whether you're using a \$60 sampler on the ST or Amiga, or an £80,000 Fairlight Series II.

## CONTACTS

|                 |                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------|
| Detail          | Units 6/9, Seawall Road, Panton Industrial Estate, Farnley, Wakefield-Triest, WF69 5JH          |
| Elektron        | Unit 4, Stonevale Ladsale, North Trade Centre, Washfield, Essex, SS27 6YD                       |
| Electronic Arts | Langley Business Centre, 51-49 Station Road, Langley, Slough, Bucks, CF30 49AAJ                 |
| Hybrid Arts     | c/o Synthesix Music (St music specialists), 20 St James Place, Russell Hill, London, E1-6B4 9JZ |
| Microbial       | 45/20 River Road, St Austell, Cornwall, PL28 8BQ                                                |
| Steinberg       | c/o Sound Technology, 8 Lutonborough Business Centre, Avenue 1, Lutonborough, Beds, MK45 6BQ    |

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## EXAMPLE PRICES

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# DISK EXTRA

ST Amiga Format's unique dual format disk gives you the best of both ST and Amiga worlds!



## ST

### 65 POWER BASIC

A very fast demo of Power's impressive BASIC compiler. Graphics, sound, speed - it's got 'em all. Try it out.

### 65 PRODUCT SELECTOR

An interactive guide to all the best ST software. Tell it your price range and area of interest, and back come all the suitable packages.

### 65 DIGICALC

Demo of Digital International's new ST spreadsheet as reviewed in this issue. Have a play and see

what it can do for you.

### 67 DESKTOP ACCESSORIES

Two nifty add-ons for hardware. One tells you exactly how much free memory the system has to play with, the other lets you view and alter any data held on disk or in memory.

### 67 MEGAROBIDS

One for the games addicts - time to reminisce once again with the excellent version of Asteroids. Fast and furious, mono or colour shoot-'em-up that takes good against much of today's software.

### 68 MEGABLIT

terrific art package that works in any resolution. The screen sets

as a window on an enormous work area of 384 by 256 pixels in low res and 2560 by 1920 pixels in high res.

## AMIGA

### 65 STARRAY

There you've seen fast scrolling in 3D! But if you haven't seen StarRay, here's a full playable level of Legend's new Amiga masterpiece.

### 65 PRODUCT SELECTOR

As Amiga sales boom, there's more and more application software out and about. So how do you find out what's doing what, where and at what price? Simple - run the ST Amiga Format Product Selector.

### 65 VILDM

Set up a slide show of all your Amiga graphics pictures. It can display graphics saved with virtually any Amiga graphics package.

### 69 RSLCLOCK

A storage's useful utility for seasoned GUI hackers, and casual Norbitch users alike. It puts up a continuous clock display on the screen, shows free disk and memory space, and allows you to open up a new GUI from a menu if you get stuck.

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Turn to the end of this section for more details on how to get your software onto the ST Amiga Farnest cover disk.

## POWER BASIC

### All Stars

Last month when we had a look at the different varieties of BASIC available on the ST, Microsoft's Power BASIC came out as the all-round winner. Now you can make your own mind up by experimenting with this sub-tutored demo.

Starting this month in ST Amiga Format is a BASIC tutorial series, and on the ST web we've decided to use Microsoft's excellent Power BASIC as the basis. Month by month we'll take you through Power BASIC's commands. Turn to the BASIC tutorial beginning on page 36 for full details on getting your first program up and running.

If you're already a seasoned programmer you'll want to get stuck right in. Just open up the PBASIC folder, then double-click on the PBASIC.PRG program icon. After a few seconds you'll be confronted with a flashing cursor - this is Power BASIC's program editor. Just type in a program, then from the Program menu select the Run option. This compiles your program to memory and runs it.

Power BASIC

Most ST Computers

Microsoft

You'll see a few sample programs in the folder which you can load and look at to see how Power BASIC is written. It is compatible with ST BASIC, so if you're familiar with that you can type in your favourite programs straight away and see how much faster they run - you'll be impressed! Also in the PBASIC folder you will find a file called PBASIC.DOC - this contains a technical summary for the expert of all the commands available on this demo version, with a syntax of how to use them.

The demo has been cut down in a few ways - after all, Microsoft want you to pay them a fair price for the full system! All the commands are there, but you can't load or save programs to disk. The demonstration programs can be loaded, but only because they are specially encoded. You won't be able to load any files apart from those provided on the ST Amiga Format disk.

## STARRAY

### All Amigas ■ Mouse or joystick

We're always trying to bring you the best games demos, but this time we reckon we've excelled ourselves. A pre-production demo of StarRay appeared in the Format offices recently, and we were so impressed by the 3D death scrolling graphics that we coaxed Logotron's programmers and got them to specially compact the demo to fit on our disk.

Remember Betwixt! The classic arcade game from the early 80s!



StarRay is based on the same theme, but the graphics move it into a whole new dimension. Logotron call it a 'horizontal parallax scrolling shoot-'em-up' - sounds impressive, even if you're unsure what it means!

The demo is self-loading - just insert your Amiga and put the Format master disk in the drive. Flashes about five seconds of pre-rendered flashing on the screen as it loads - don't worry about this, and don't touch the Amiga while it is doing it. Press any mouse/joystick button to start. There are no sound effects on this demo, so it's great for playing into the small hours.

Don't just sit there, load it up and get playing!

## PRODUCT SELECTOR

### ST and Amiga

When you want to buy software for your ST or Amiga, what do you do? Look through dozens of back issues of magazines, scan the adverts and try to work out whether a MegaPack is a database, a disk box or an inflexible database?

Now we've done all the hard work for you. On this month's disk you will find an interactive database with a complete list of products that we

know of (except games) for both ST and Amiga. If you use the Selector on an ST, all you get is ST products; on an Amiga, all you get is Amiga stuff.

When you run the product selector, there is a short delay while it reads its data file from disk, then you are faced with a screen with boxes labelled: Product Name, Product Type, Supplier, To Run, Price and Comment. Also on the screen are points you can click on to browse through the data. The first is a list of every ST or Amiga product under the sun is displayed.

Clicking on 'Start' takes you to the first entry on the 'List' takes you to the last. 'Forward' takes you forward one record, and 'Back' - sur-

## MY PRODUCT'S NOT THERE!

If you find your latest Amiga-style browsing package unresponsive, absent from either product selector, please let us know so we can update our lists for next time. Even if your software is not of such high quality, we'll still like to know about it. Please note, though, that the product selector doesn't carry details of games programs or hardware.



■ The ST Product Selector



■ The Amiga Product Selector

# OBLITERATOR



## OBLITERATOR

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## OBLITERATOR — £24.95

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## PSYGNOSIS









■ Megablitz happily working on an imported Degas file

## MEGABLITZ

All 57s

A window-based paint program with very large work areas and many powerful drawing facilities that runs in any resolution. Scroll bars are used to move around the massive work area (594 by 294 pixels in colourful test resolution up to a staggering 2048 by 1024 in monochrome).

Unlike other graphics utilities which divide memory up into eight or so segments for pictures, Megablitz treats memory as one large picture. The screen is used as a small window through which to look. You can draw lines, arcs, rectangles, ovals and pens; you can zoom, snap to grid, cut and paste, and all the usual art package functions.

When you paste new graphics over old, or draw lines, Megablitz has four 'fill' or line-drawing modes. Standard 'replace' mode causes previous drawings to be erased and 'transparent' mode simply draws lines without drawing what's underneath. 'xor' exclusive-ors whatever is on the screen with the new graphics, which is a more subtle way of superimposing two images than using 'transparent' mode - try it and see. 'invert' mode is like standard mode except it draws black where there would be white and vice-versa.

Megablitz can load Degas files, so you can visit your existing art files as the basis for a suitable poster. Experiment with the menus and see what's there.

## AMIGA

**First, copy and load the disk as described at the end of the Disk Extra section. These programs run on both the Amiga 500 and the 2000. We have been unable to test them on older versions of the Amiga 1000.**

### VILBM

#### All Amiga

You don't need to be told that the Amiga is the ideal machine for creating sophisticated graphics. Loads of colours, high resolution, and no shortage of superb art programs. But once you've got a stack of masterpieces, what do you do with them?

Vilbm is a slide-show utility which lets you display almost any set of Amiga graphics files one after the other. You give it a series of files, and it displays them in turn. It doesn't matter what resolution you saved the picture in.

In the Vilbm drawer on the disk is Vilbm itself and three saved art pictures, under the picturesque mountain icons. Vilbm uses the Amiga's 'inherited selection' mechanism - covered more fully in the *Worldbench* tip pages later in this issue. To display just one picture, click once on the picture file you want to show, so the icon is highlighted, then hold the

Ctrl key down and double click on the Vilbm icon. The picture is displayed until you press the left mouse button, whereupon you are returned to the *Worldbench*.

By displaying all the pictures in the folder - click on the first picture icon, hold the shift key down and click on the next, then shiftably click on Vilbm. The pictures are displayed in the order you clicked on them, pausing for you to left mouse click

between each.

Vilbm also works from the CLI. To display the three pictures *Gonda*, *Postcardage* and *Spaceship* you would type `VILBM GONDA POSTCARDAGE SHIP`. In just put the filenames one after the other on the command line, separated by spaces.

If you run Vilbm without a picture file its double click on its icon alone it shows you a few screens of help

### FUNNY NAME?

For those of an laughing nature, Vilbm stands for 'View Illustrated In Bits'. In practice, Vilbm files are the same as the famous 'B' Interchange File Format files that all Amiga graphics programs use. Any art package that claims to save in B' format will work fine with Vilbm.

■ Click, Shift-Click, Shift-Click and Shift-double click are your slide show going.



test and plugs for other programs by the same author.

## RSLCLOCK

### All Amigaos

First impressions can be deceptive — don't make the mistake of thinking that RSLClock is just another clock display program. Instead, it's a simple device — a clutch of intelligently useful utilities to help the simple Workbench user and seasoned CLI hacker alike.

You can arrange to have a constant display of how much free memory you have and how much free disk space there is; you can call up a new CLI window; you can blank the screen off to save your valuable photocopier; and of course you can have the time and date displayed for you.

The simplest way to run RSLClock is from the Workbench. Open up its drawer and double-click on it from the top of the screen change to show something like "RAM: 64.7K Time: 12:45 PM" What has happened is that a new window has been opened and positioned over the Workbench title bar; the window is only one line deep, with no scroll bar or close gadget. You can move it like any other window by dragging it around.

The RSLClock display is actually a standard window title bar. It does have a close gadget at its left, and scroll-back and bring-to-front gadgets at its right, although the usual symbols for those aren't shown. If you click the mouse at the extreme left — where the close gadget normally is — RSLClock will shut down. The scroll-back and bring-to-front gadgets are also there hidden at the extreme right

## HAVING TROUBLE WITH THE DISK?

We have done our best to check that the programs supplied on this month's disk are simple to use, error free and have no known viruses. However, we cannot accept telephone queries or using the software, and we do not accept liability for any consequences of using the programs.

If your ST Amiga Format disk is faulty — and out of 40,000 duplicated copies are unfortunately bound to be — you should send it back for a free replacement to:

ST Amiga Format Support Club, Biology Labs, 20 South Drive, Brackenhill, Northampton NN4 2DQ.

**AMIGA DRIVERS:** If your Amiga refuses to accept the disk, try using the DISKCONVERT utility on your Commodore Workbench disk to rescue it before sending off for a replacement. We avoided DISKCONVERT fully on page 93 of issue 1. Don't worry that every track gives you a "hard error"; this is the Amiga being unable to read the ST software on the disk.

of the bar. RSLClock will pop to the front of the display at every change of minute count, so even if you have sent it to the back it will reappear.

RSLClock can also be run from the CLI. Note that because RSLClock is a permanently running window it doesn't flash to the CLI (instead it won't return — see RSLClock's "Open New CLI" command to get a new CLI window).

### Options

RSLClock has a menu for extra options. First, make the RSLClock display the currently active window, by clicking the right mouse button on it. Don't click at the left and/or right but the unlabelled Close gadget! Then hold the right mouse button down and you'll see the "Options Available" menu file appear at the top of the screen.

### Open new CLI

If you are working in the CLI and a task locks up on you, there is no easy way to type commands in to the Amiga. Use this option to call up a new CLI window.

### Enable Backdrop Screen

A totally blank screen is created behind your current windows. If you have to leave your Amiga for a long time and you don't want to turn it off, you can save your monitor's photo-

plate. With the backdrop enabled, first make the RSLClock display the active window (click on it then double click the right mouse button). The screen blanks — press any key to reactivate the display.

### Modify PopUp Feature

Normally the RSLClock display pops to the front every minute even if you send it to the back. You can stop it popping up by selecting "Disable at PopUp" and reactivate it by "Enable Standard PopUp".

### Enable 24 Hour Format

Toggle between 12 hour AM/PM and 24 hour display.

### Enable Free Disk Space

Allows you to have a continuous display of how much space is free on one disk drive. You can choose from DFD, DFI and DFO; is hard disk. Unfortunately it doesn't allow you to specify DFC, which is what the AC008 only its second drive.

### Show Fast & Chip memory

Shows the free memory display into Fast and Chip memory counts. This doesn't have any effect on an unexpanded AS50.

**Change Window Colors, Highlight Colors, Shrink Window Smaller, Credits**

Try them and see!

## DISK DOCUMENTATION

Many of the programs on ST Amiga Format disk are Public Domain, in such cases we've usually placed on their respective documentation. This is not required by the UK code of practice. Some of the programs are "shareware", that is, we can, in essence, don't charge for its use/usage!

### OPTIONAL COMMANDS

#### Open New CLI

Enable Backdrop Screen  
Modify PopUp Feature  
Enable 24 Hour Format  
Enable Free Disk Space  
Show Fast & Chip Memory  
Change Window Colors  
Highlight Colors  
Shrink Window Smaller  
Credits

you the ST Amiga Format Product Selector?

YIELD

let up a slide show of all your Amiga graphics pictures!

RSLCLOCK

A fantastically useful utility for seasoned CLI hackers and casual Workbench users alike. It puts up a continuously clock display on the screen, shows free disk and memory space, and allows you to open up a new CLI from a menu if you get stuck!

SEARCH FOR AM: 458 Size: 12:25:18 W

scrolling in 3D? Not if you haven't seen Sparrow, friend of Logotron's new Amiga masterpiece!

your's name and more software get and about. In a disk that shows you what you're getting!

■ RSLClock running at the same time as a word processor, Scribble. You can see at a glance how much free RAM and disk space there is, by the display at the top right of the screen.



# HOW TO USE THIS DISK

The ST Amiga Format cover disk is a special format disk which both the ST and the Amiga can read. Even if you are a seasoned computer user, please read these instructions carefully or you could permanently damage the disk.

The first thing you must do is make a backup copy of the disk. Because of the special format, the normal backup copying methods are recommended in the Amiga and ST manuals won't work. Instead you will need to format a blank disk and copy all the files you need individually. Don't panic, this isn't at all difficult.

## ON THE ST (assuming a single drive machine)

1. Take a blank disk and format it in the usual way.
2. With the blank disk still in the drive, double click on the A disk icon to open up the (blank) contents window.
3. Now drag the icon for disk B into the open window of disk A. This will copy all the files one by one off the master disk to your new disk. Make sure that the master ST Amiga format disk is write protected (the sliding tab should be back so that the

hole is open) and put it in the disk drive when put for disk B.

4. You will now be prompted at various times to insert disk A and disk B while copying takes place. There will be a lot of swapping to do on a single drive ST disk B should be the master disk, disk A your newly formatted copy.

If you want to cut down on disk swaps and you understand enough about the ST's disk system, you can set up a RAM disk using the utility provided on the July 1988 disk and use that as an intermediate step.

## ON THE AMIGA (assuming a single drive ASIO)

1. Start your Amiga up with your normal Workbench boot disk.
2. Take a blank disk and install it in the usual way.
3. Make sure that the master ST Amiga format disk is write protected and put it in the disk drive. Double click on the disk icon to open it. Drag any icons you use in the contents window onto the RAM disk icon.
3. When the disk activity light has gone out, put your newly formatted

copy disk in the drive instead. Double click on the RAM disk to open its window up, and drag icons from that into the new disk icon. This will copy the files one by one.

The programs may not all fit in the RAM disk at once on an ASIO - do whatever will fit, then after step 3 delete items from the RAM disk by clicking inside on each one, holding the right mouse button down, selecting 'Erase' from the Workbench menu. Then repeat steps 2 and 3 for the rest of the icons.

## Using the programs

### ON THE ST

When you turn the ST on and put your working copy of the disc in the drive, you will see a window opened with the contents of the disc displayed.

One of the icons is called **CLICK\_ME.PRG** - just do what it says, double-click to run it. Up comes a list of the disk contents. Type the number of the program you want to run, and you are asked whether you want to read the disk help file or not.

You will now be asked whether you want to run the program or not. For technical reasons, **TEXT001.ARC** and **FREE\_RAM.ACC** cannot be run from **CLICK\_ME** on the current disk. You can use **CLICK\_ME** to read these documentation files, so follow the running instructions that appear for each.

### ON THE AMIGA

The Amiga disk is not a self-starting disk. First, run Workbench as described in the Amiga manual. Now put the ST Amiga Format disk in the drive and double-click on its icon to open it.

Each utility described in the previous pages either appears as an icon or is in a drawer of its own with a checker icon. Click again the checker icon. For detailed comments from the program's author click on the **README** file icon in the folder to run the program click on the main icon.

When you click on a document icon file, a new window is opened and the text is displayed a screenful at a time. To continue reading the next screenful, press any key; to cancel the reading process click on the Close gadget at the top left of the text window.

The **CLICK\_ME** icon gives you a brief summary of the disk's contents and how to use it.

## LAST MONTH'S MONO ST EMULATOR

The ST mono emulator on last month's ST Amiga Format cover disk appears not to work on newer STs - this is due to a difference in the ROMs. (hey, the number of phone calls we've had!)

On this month's disk is a corrected version which will work on all STs. It doesn't appear on the **CLICK\_ME** menu program - instead you will find a

folder called **MONOMAN** on the Desktop. Open this up and use the **MONOMAN.PRG** program in it in place of last month's version. Full instructions were given in issue 1.

Thanks to the author, Mike West, for providing a fixed version.

## WE WANT TO GIVE YOU MONEY!

If you've got any programs for either ST or Amiga which you think other readers would find useful, interesting or amusing, we'd like to know. Here's how to go about entering international offers for review!

1. Only send in programs on 3.5" disks. We cannot accept printed listings.
2. Make sure your disk is clearly labelled with your name and address, the program names, and relevant ST or Amiga.
3. Make sure there is a documentation file on the disk called **README**.
4. Enclose a clear covering note explaining what the program does, and if you possibly can please also send a printout of any on-line documentation files. Remember your address and telephone number. Include a stamped return envelope for the disk if you want it back.
5. Help us IMPORTANT: there must be a signed statement that the program is yours and that you

are prepared to assign publication rights to ST Amiga Format. Use the following wording:

"The program's name is [the title here] copyright notice the publication by ST Amiga Format magazine. It is my own work and has not been submitted for publication elsewhere."

### Notes

If we accept your program, we will get in touch with you before publication to agree terms and payment rates. We will evaluate all submissions in a month or so, so please allow up to 60 days the return of your disks. We will only send back disks with adequate return postage and packing.

If you send us a disk with a virus on it, we reserve the right to send round the floppy disk in the usual form and the appropriate things to your pet doggie. Seriously, once we've already given you three other programs (or more 3), do check your disks very carefully.





# PUBLIC KNOWLEDGE

## WEIRDOS'S

Sometimes the trouble lies with a PD program in itself. POWER - the 16-bit version PD software in America is often derided for its "quirk" of not allowing you to print it to a hard disk, and a POWER file in the standard naming convention "you'll often be told by the author "if there are any bugs, contact me at: [mail@magazines.com](mailto:mail@magazines.com)." This weird name is the author's electronic mail address, so one of the American customs certainly.

**The Amiga has the most active Public Domain sphere of any microcomputer around today. There's a staggering amount of high quality, useful software out there - ask, pay a copying fee, and you shall receive.**

To all of us with modems and access, you see, America is big. Really big. You thought it was a long way down the road to the channel's, but that's peanuts compared to America (with spots to Douglas Adams). This, coupled with the fact that PD is a lot more together than it is, encourages Americans to use modems and connect a lot more than we do.

There are literally thousands of

'bulletin boards' in the States, acting as clearing houses for software of all kinds. Public spirited users send (upload) new programs they have written for others to download. These programs are declared 'Public Domain' - they may be freely used and distributed.

## Public libraries

If you're in the UK, even if you are one of the lucky few with a modem it isn't really practical to ring up the States for software, and the bulletin board network over here is too small to rely on. Luckily there are alternative sources. Three or four groups have emerged in America which have collected the best PD software from bulletin boards, and have catalogued it into a series of disks. You can buy these disks in the UK at a fairly small cost - just the price of a blank disk plus a copying charge, about £3 usually. The most famous such 'collector' is the so-called Fish Disk. Fred Fish lives in California, and as a hobby collector and distributor PD software disks. There are now about 140 disks, and new ones are released each month.

The next best known PD library is the Amicus collection, based on soft-

ware by the American 'Amicus Computing' magazine, which runs to about 30 disks. Other American operations on the PDUS library of 50 disks. PuffinBall with 40 disks, MDC and Slipped Disk with 40 disks. There's also a German outfit called A&D with 15 or so disks.

Don't be fooled into thinking that every disk is different though, most of the best software is in all the libraries, and spread out in a different order. The PDUS collection is a bit different though - it has a lot of demos of games and commercial software the desktop publishers. So if you're thinking of buying a major package it might be worth seeing if you can get a try-before-you-buy demo from PDUS.

## The PDers toolkit

By now, you'll have got the idea that there's an awful lot of PD software out there. Between the different suppliers in the UK there must be getting on for 300 different disks - each at a bargain £2 each means going to know a giant to get the lot. So how do you choose a few really useful ones?

The PD companies often have their own compilations of the most useful stuff, and may offer a starter pack of five disks or so. Fred Fish has

## FIRST ENCOUNTERS

By and large, Amiga PD software on any of the main library collections is well tested and includes a documentation file on the disk. Even so, if you've never used the CLI (the command line rather than the GUI interface) you may well find things confusing.

One of the problems with the Amiga's workstation system is that unless a programmer takes the time and trouble to draw on icons for a file, the user file cannot be seen from the Workbench window. (By contrast, on the ST every file shows up on its own feature.) Many PD programs haven't been 'workbenchised' because the author is assuming you can use the CLI and don't need to be hand-held with icons.

If you're lucky, there will be icons there when you boot your monitor up and you'll see the PD disk. In you might see a set of drawers, each with an icon in it and a Readme icon you can click for instructions.

More likely though, in a blank window in the Workbench, this means the files are all on a file and have no icons. To run these files, open up a CLI window (by clicking on the CLI icon in the System drawer of your Workbench disk) and type `DIR`. (Return to see something like:

```
Personal (DIR)
Movie (DIR)
Music (DIR)
Books (DIR)
```

Most likely, each entry on the disk is in a directory of its own, and there's a Readme file at the top level to direct you to what's where. To read the Readme file (assuming it actually is called 'Readme') type:

```
TYPE Readme (Return)
```

To pause the display press the space bar, to continue press the backspace key. To get a printed copy use the command:

```
TYPE Readme TO PRN (Return)
```

To actually run the software, first you'll need to move to the directory which holds it.

```
CD Readme (Return)
```

Enter you into the Home directory, where you can type `DIR` again to see what's there. You should see another Readme file which will tell you exactly how to run the program or programs in that drawer. Any filenames that have spaces in them need to be enclosed by double quotes. For example, if a file is called Read Me instead of Readme, you would need to use the command `TYPE "Read Me"`.



Working through a file's icons with Worktop (Fish disk 14)

compiled his favorite selections onto three "Goldfish" Disk (no, fool - these make a good base for any PD collection).

Here are some get-your-eyes-off-the-disk choices from the Fish Library - the disk number to ask for is given in brackets:

### Recommended for Workbench users

These programs, all four seem to be clicked on and are rarely used without any knowledge of the CLI. Generally these are for demos and games, rather than steady serious applications:

#### Amesville (Disk 126)

A truly excellent version of Space Invaders; you could almost believe the screen had authentic plastic strips over it.

#### Art Files (Disks 48, 72)

These two disks have plenty of saved pictures in all resolutions, for you to load into Deluxe Paint in any art package and play with. They can also be used with the slide viewer on this month's cover disk.

#### Juggler (Disk 97)

The classic juggling balls Amiga demonstration - you've all seen it, but it's still brilliant.

#### Life 3D (Disk 76)

A most variation on the old theme of the cell-generation game, which pretty patterns mutate and kill your friends. It's a deeply intellectual mathematical exercise.

#### Wanderer (Disk 114)

A cute Workbench "hack" - you click on it and watch the digitized sound and pictures.

#### ViewX (Disk 107)

If you missed it on last month's cover disk, this is the best View extension for there is. Hangs around in the background checking all disks as you use them.

#### Adventure (Disk 123)

Slightly peculiar version of the classic game - uses an "interface" screen to a few lines, but great sound effects, fast animation, and an "interesting" but harmless aftereffect.

#### FFCPres (Disk 126)

A real program which takes a picture file you specify (standard Deluxe Paint/FF type) and fragments it into a random jigsaw for you to reassemble. Three levels of difficulty.

### Recommended for CLI

#### 00073

These programs assume you understand how to navigate your way around the CLI, and do a little hard work to adapt them to your needs. There are none in the few of disks for programmers (see brackets):

#### Snapper (Disk 71)

A bit of a (CB) and (SL) you can save the currently active screen as an FF file on disk. Coupled with a



■ Amesville - the great little Space Invaders game from Fish disk 126

slide viewer program, this is great for making up a series of instructional screens to describe something.

#### VT150 (Disk 108)

A very full-featured terminal emulator, with Hayes, Amoson and ASCII send/receive. It's even got a command language for sending files in batches. Haven't got Windows emulator for Microsoft, but would be fine for using with Microsoft, Telecom font or any 8th Bulletin Board.

#### Comline (Disk 110)

A utility which gives you an enhanced CLI system - the best thing is the ability to call back your text for command lines if you make typing mistakes.

#### mCAD (Disk 99)

A nice structured drawing package - ideal for simple CAD applications, but runs in interactive mode. Brings a lot of object-based rather than a post-printing package, which means that shapes are easily moved and revised.

#### Exam (Disk 100)

Gives you the ability to run CLI command files from a Workbench-clickable icon. This means you can run any program or sequence of programs from the Workbench; there's also a neat text-display window for showing feedback files.

#### Flowrap (Disk 128)

A fix editor, to change any byte in any file. Apart from serious hacking, this can be fun for being really silly and tracking the error messages in a program.

#### Diskmap (Disk 90)

A disk sector editor. As with Flowrap

above, this is only for real hackers, as PCADJUST can damage your disks and health. Has one or two bugs, but is generally pretty useful.

#### OPSlide (Disk 11)

A sophisticated slide viewing program - you create a script of which programs to show in which order; you can fade from one to the next, show text files and set different display times for each one.

#### RAMMEX (Disk 91)

A pretty good 68000 assembler system.

#### Are (Disk 70)

A file compression utility - this is virtually the standard in America for squeezing files to save your transmission, or just generally archiving material to save disk space. This one's shareware.

### ■ The obligatory icon for all Fish disks



## THE SUPPLIERS

In the UK, the following companies had an issue of supply Amiga PD software:

GEORGE THOMPSON ASSOCIATES, 2355, Peapack, Rippon, Bradford, Southern GALT 0800 2077 0827 2343, Fax: 01676 244574, Andrew, FINEG Libraries £1.99 each.

THE AMIGA PD LIBRARY, 140 Ruckford Road, Sheffield S11 9JG (01424 848476), Fish, Amoson, mCAD, Ripper! Disk, Panorama and save selection disks £3.00 each.

SOFTVILLE, 88 Highgate Avenue, Warrimoo, NSW, PCY 777 (0278 266262), Fish, Amoson, APDC and save selection disks £3.99 each.

SCORE  
1070  
HIGH SCORE  
1070  
MOVES

EXIT

RESET

PAUSE

## SHARE AND ENJOY

Some mistakes on PD disks is in the slightly different category of "Shareware". This is freely distributable, but if you only a shareware program from computers and, after trying it out, decide to keep and use it, you are asked to send a donation to the author (usually £10-25). This usually buys you the latest bugfixes/updates and a manual. In practice, the standard concept does not always work particularly in the UK: it's just too much trouble to send 125 over the Atlantic.



# GAME BUSTERS

If the bad guys cause suffering and you want 'em beat. If you need more lives and ya wanna cheat. Where ya gonna go? Gamebustah! All the facts you need to get further in your game playing.

## OBBLITERATOR

### Amiga

When you walk through the entrance, keep the left mouse button clicked and continuously move the mouse up and down. Donk should then keep walking towards you, which is in a downward direction. This allows you to walk through space and go down to the next level avoiding any aliens. This often gets you out of tricky situations. Do not let go of the mouse button unless you are near the line of the level.

R Ashwood  
Bradford, Yorkshire



## ENDURO RACER ■ ST

When the timer has counted down type CHEAT followed by any of these keys:

1 to skip a level  
F for turbo speed  
T for extra time

Shaun Green

Aughton, Nr Grimsby.

## THE THREE STOOGES

### Amiga

When you are at the Doctors' (stated) stage, drive your hoppers at the same speed as the scale meter pushing the patient, keep a function behind them; this enables you to accumulate a high score without any danger of collisions. During the 'Slipping' game, twirling Curly's ear gives the lead track so he rarely slips out of the way.

R Ashwood  
Bradford, Yorkshire

## ECO ■ ST

During the game, a stack of (CPS) sends you to the game design screen. Another key will automatically be selected.

Michael Brown

Charlton-cum-Hardy,  
Manchester

## GAUNTLET ■ ST

Find two keys and then look for a locked treasure chest. Press the (Hold) key of the same time as you open the chest. Do a similar chest, but this time hold down the (New) key. You'll be granted a whole heap of health. This works repeatedly and on any level.

Kevin Morgan  
Kilburn, Glasgow



## JINXTER ■ ST and Amiga

Turn's part of the solution in Rowland's Jinxter (other half next round). To get past the ball after it's spaced, you have to go south from the grassy field, wear gloves, hold wire with gloves and cut it with the ballroom.

The Water stream can be found by going to Sam's back garden; you will find a bench at the door. Go out and get wire out of the position. Go to study, dial number and wait. When you get the phone, read the phone key twice and go out. Unblock the conductor with gloves key and get wire out of the panel.

To catch the mouse get the trap out of the shed and take it to Kam's house. Get candle and matches, get match, go to kitchen, open door, strike match and light candle with it. Get cheese, blow out candle, put the cheese on the trap and set it. Drop the trap, go down and wait. Go up and get mouse.

Shaun Green

Aughton, Nr Grimsby.



## GNOME RANGER

### Amiga

There's an odd bug that won't be fixed when you are in the shop; give Cap any two objects that you are holding and then take the backpack. Type 'YU' any object in the shop in (BACKPACK). Now do the same for any other object in the shop; you will find you will be able to get every object in Cap's shop.

After making friends with the night, ring the bell and ask the night to go into the witch's garden, get the pig, and then open the locked door. Now go into the garden and follow the dog. You will then find something to your advantage.

Dean Brown

Barton Le Clay, Bedford

## KARATE KID ■ ST

Press 'F' to advance a stage.

Michael Brown

Charlton-cum-Hardy,  
Manchester

## FAERY TALE ADVENTURE

### Amiga

Go northwest from your home village of Tandy. You will never make your creature at the water's edge. Kill them and you will be rewarded with a bar; for the bar will give you a shield and then ask if you would like a bit on his back. The shield is for calling the turtle if you cannot see him.

Objects and item uses. Orbs let you see hidden doors. Blue stones can teleport you when standing in a ring of stones.

Quest stars restore you vitality. Green jewels let you see better at night.

Red lanterns give you a birds eye view of where you are. Magic Rings freeze attacking monsters.

Iron skulls act like 'armor' for you.

Dean Brown  
Barton Le Clay, Bedford







# LEARN BASIC

Does BASIC baffle you? Do you want to learn the lingo? Have you the stamina to start? For more alliterations and more on BASIC let Richard Monteiro do the talking.

**F**or all the pressures of more modern and sophisticated computer languages, BASIC continues to be the most popular and widely used of any in the world. One criticism which is always leveled against it, however, is that there are so many dialects that no two versions are

seriously compatible. This isn't quite the case, however: the fact is, Amiga BASIC and Microsoft Power BASIC (the version supplied on the month's cover disk) share enough syntax to make the guide-to-BASIC, quite feasible. Both versions are based on Microsoft BASIC; Amiga BASIC was actually written by Microsoft and Power BASIC, which takes its roots from 32 BASIC, directly copies Microsoft's PC QuickBASIC.

If you're after tips on accessing the latest ROM or ROM VDI, you're reading the wrong pages. This article assumes you're a complete beginner. Any lingo or commands posted throughout this series will work with either Amiga BASIC or Power BASIC (the version supplied on the month's cover disk or the fully-blown version available from H&M). Boxes elsewhere on these pages describe the finer details of writing and executing programs.

## Print and be damned

Whenever you use a piece of software — be it a game, word processor or programming language — you generally find your way around by following on-screen prompts or messages. These messages usually ask you to press certain keys or type in phrases. The computer can then decide how to interpret what you've written. This is also how BASIC works.

Two commands understood by nearly all versions of BASIC are PRINT and INPUT. PRINT tells the screen to display words or numbers on the screen at your command. INPUT is used to pause execution of a program to allow who isn't using it to enter text or a value. Read through whichever panel refers to your macro and follow the instructions to enter and run the simple test line program described there. This is an example of what you can do with simple program instructions in BASIC. Let's take them step by step. First clear the program you've just run. Select the New

option from the File menu in Power BASIC or type NEW in the BASIC editor in AmigaBASIC.

New type:

```
PRINT "H" (ENTER)
```

Note that the word Return inside the square brackets, and the brackets themselves, aren't meant to be typed in. They are instructions intended for you. Hence (ENTER) means press the key marked Return (or with an angled arrow) after typing in the line.

Run the program as you did the previous one. A capital H is displayed towards the top-left of your screen. Replace the "H" with other characters: 5, &, ., H and so on, and even the program. Don't be frightened to experiment — you can't do yourself or the computer any harm. Note that the speech marks aren't printed, only what's held between them. Words and phrases of this kind are known as "strings" (think of them as strings of characters). If you try printing a letter without putting speech marks round it, you get an unexpected result. Try it and then read the panel on variables to find out what happened.

Here are a few more strings:

```
PRINT "ABCDEFGHIJK"
```

```
PRINT "12345"
```

```
PRINT "HELLO THERE"
```

## Character building

Any character you can type from the keyboard can be sent to the screen using the PRINT command. However, not all can be conveniently typed in a PRINT command between speech marks. The obvious examples are the speech marks (double quote characters themselves), the double quote symbol, and almost any other character, can easily be printed, however. If its ASCII value is known, ASCII (the American Standard Code for Information Interchange) is a standard code for handling letters and numbers within a computer. The standard part starts at 0 and ends at 127 and codes from zero to 31 are used for



Amiga BASIC editors can be entered either by pointing the pointer towards the appropriate window and clicking or by selecting Windows from the Amiga Bar.

## AMIGA BASIC: GETTING GOING

If you've never used Amiga BASIC before, here's what you do. Boot the computer and insert your Workbench disk into a drive. (Use the Workbench key located, replace the Workbench disk with the Amiga ROM or Amiga BASIC disk. An Error disk soon appears. Double click on the icon and the contents of the disk eventually appears. Double click on the AmigaBASIC icon.

Amiga BASIC is now ready to use. Type the following two lines exactly as you see them:

```
PRINT "Please enter your name" (ENTER)
```

```
PRINT "Is your cat dead? (Y/N)"; (ENTER)
```

Make sure you type exactly what's printed above: take care with punctuation and spacing. Press (Return) at the end of each line.

Move the pointer (arrow) so that it rests inside the window titled BASIC and click the left mouse button. A thin cursor appears; type CLR (Return) (the large key embossed with a large angled arrow). The two line program runs and you're asked to enter your name. Do so. When the program has finished you're left with a large BASIC window. To get back to the editor (shown as the LEV) window, type LEV and press (Return).

Start the procedure for creating and running BASIC programs. Now follow the rest of the series to discover what the commands do and how you can use them with your own programs.

# AMIGA BASIC



special characters which control things like screen color and cursor position - forget about these for the moment. **32** is the first alphanumeric character code; **4** represents a space; **13** which represents the carriage return mark, and code **10** is the one you are interested in as it supplies the double quote.

To print characters using their ASCII codes you must use a new command, **CHR**, meaning "the Character whose value is". For instance,

```
PRINT CHR$(10)
```

If you run that line, a quote mark will appear on screen. The number in brackets refers to an ASCII code. Experiment with other codes. If you're interested, both Amiga and ST BASIC instruction manuals contain an appendix with a list of ASCII codes and several characteric appendis A and E respectively.

## Things to do with strings

With computers being used more and more for manipulating text rather than mere numbers, it's perhaps not surprising that BASIC provides a regular collection of different ways of dealing with strings, as well as the **CHR** function. There are all manner of others for manipulating strings, pulling them apart and putting them back together again.

If you want to extract one or more characters from any point in an existing string, all you need is a touch of **MID**. It's use is easiest to explain with an example. Suppose you want to extract the word "BASIC" from the word "AMIGABASIC". To describe the position some people have for the variable like South American create the command would be **MID\$("AMIGABASIC", 7, 5)**. The string **AMIGABASIC** has 10 characters in it, though you could use a string variable in its place (see the panel on

variables to find out what they are and how to use them). The two numbers following it, which are separated from it and each other by commas, let BASIC where the extraction should start in this case the third character from the left and how many characters

ters to take (2, 6, 4 and 5). **MID** copies the characters, usually to a string variable, leaving the original string unaltered. If you wanted to assign **MID** to the variable **JOURNALIST**, the full command would be **JOURNALIST=MID\$("AMIGABASIC", 7, 5)**.

There are two commands associated with **MID**, which are in effect special cases of it. **LEFT\$( "string", N)** would return the string **left**. As the command name suggests, **LEFT** copies a specified number of characters from another string, starting from the left. The number in brackets determines how many. Similarly **RIGHT\$( "string", N)**, would return **right**, by copying the last three characters in **PLAYPLUS**. The function starts counting from the right (but that was a surprise) but the extract will read from left to right.

**LEN\$( "string")** - **STRLEN** ("string") both a string consisting of 17 dollar symbols. If you need to repeat any character (and this could include graphics characters), **STRINGS** does just that. Put the character which again may be the com-

## ST BASIC TOO

Users of both standard ST BASIC and both Power and Liberty Power BASIC the commands are identical. The syntax, however, applies to BASIC Amiga, Power and ST strings. If you want to be completely sure of it, Personal and QuackBASIC users can get use the manual. ST BASIC requires the number - Amiga BASIC and Power BASIC don't - to it come going to follow the article with ST BASIC in mind, do remember to include the numbers at the start of each line.

The screenshot shows a BASIC program editor window with a menu bar (File, Edit, Search, Settings, Program) and a menu open over the 'Program' option. The menu items are 'Compile...', 'Run', 'Quit', 'Print...', 'Save...', 'Load...', 'New...', 'Open...', 'Close...', 'Exit...', 'Help...', 'About...', 'Options...', 'Preferences...', 'Settings...', 'Tools...', 'Windows...', 'Help...', 'Quit...'. The program code in the background is:

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# DEV PAC

For any machine code programming, a reliable assembler, disassembler and monitor is essential. Richard Monteiro assembles the facts on HISoft's new offerings for ST and Amiga.

## REFERENCE GUIDES

Want to take the plunge and learn 68000 system level language? First Steps in 68000 Assembly Language ISBN 1-85183-023-0 could prove just what you're looking for.

There are several guides for the Amiga, available from Addison Wesley, which are necessary for heavy duty programming. Include Reference Manual, New Manual Reference Manual, Hardware Reference Manual. Unfortunately each costs around £20.

On the ST side, the (order from) ST 68000 Programmer's Reference Book ISBN 1-85183-113-2 is both complete and the majority of the book ST 68000 0-68000-0-000 published by ST Publishing at £11.70 are recommended.

**L**ook at two games, pool and tennis, the Starpolder and Venus - what makes them so special? Rapid action and silky-smooth animation, that's what. But it's only with complete control of the computer - the sort of control offered by assembler rather than high-level languages like C and Pascal - that these things are possible. Of course, it's not only games that benefit. CPUs, word processors and graphic packages are a few of the applications that gain from compact machine code capable of outpacing data around memory at speed.

Well-known HISoft have been a major force in microcomputer programming languages ever since their Sinclair Spectrum days. Devpac - which allows you to create assembly language programs, assemble them to machine code and debug the code when it doesn't work - is one such

## THE AMIGA DIFFERENCE

Devpac Amiga can only be used from the CLI, but if you're technical enough to be programming its assembler this won't bother you. The editor wants to work the same way as the ST version except for preferences, which are specified at the same time as loading the editor. (For example, you might use `EDIT=` - edit to load the editor with a 200K workspace.)

Two types of 68000 programming are possible: position-independent (relocatable) and position-dependent. Position-dependent code is possible despite the fact that you never know where your program will load until it executes.

Linear directives allow you to specify the type of program bank, code, data or BIOS which can be used to either public, local or chip memory. The latter is, incidentally, the public domain offering (0.5K).

Due to the Amiga's multi-tasking capabilities, a monitor is a handy program to implement. HISoft have made a reasonable attempt. Since a program loader takes as a task to fit in memory, the Devpac monitor suggests it. If you wish to single step a task then this is the correct place for the task to be in. Other operations require the task to be executing. Only the loaded task can be interrupted by Devpac. After machine code programs can be loaded without any problems, although system programs pose problems as many writers rely on undocumented registers and memory areas.

program that has mutated through various computer formats. It's available for the Amiga as Version 1.2 and for the ST in recently-completed Version 2 format. If the paragraph makes at least sense at the Hatterley on a good day, then you need the Syntax button box.

### Source and code

There are several stages to print though before ending up with an executable 68000 machine code program. First write the assembler

source code in memory level. You can use a text editor to write source programs; any editor or word processor capable of ASCII output will do, although the editor HISoft provides in the form of it allows you to assemble files in situ.

Along with standard cursor-movement control, HISoft's editor lets you move to the top or bottom of a file quickly, delete (and undelete) text, search and replace strings, perform block operations, copy, cut, paste, print, send and - of course - load, save and merge files. Functions are accessible via the keyboard and standard F1-F9 menus.

Text files are memory resident which makes for fast editing, but does mean that on the STs-25 and Am50 you can only edit text files of, at most, 200K. Not a lot when you consider that 200K of source can compile to as little as 50K of code. That said, if you're curious about writing a block-loading game or an operating system, it's unlikely you'll use a 1/2 Mbyte machine.

Typical source syntax consists of

**Devpac Amiga**  
Commanders Amiga

**DevpacST**  
Version 2 for all Atari ST Computers

**HISoft**

## IMPROVEMENTS TO ST VERSION 1.2

The most obvious difference between Devpac Version 2 and earlier versions of Devpac ST, and indeed the current version of Devpac Amiga, is that complete program development can take place from one core program: the assembler can assemble direct to memory and the code can be debugged already in core without the need for any disk access.

Subtle editing improvements include faster string speeds, limit up to 240 characters in length, new preferences option and paste mode.

Assembly is faster, has extended testing ability (source as deep as memory permits and 32 to

64,000 deep) and has extra assembler directives. For instance, `REG` produces a symbolic register list and `OPT` can show a results of new parameters following it. In addition, your code is now you've used `break` (since others' `start` code would have done). `T` checks certain types of programming expressions; if the extended debugging (which allows symbols of up to 29 significant characters).

The manual has undergone a hefty shakeup: page count is now 200, sections on interfacing to the operating system and creating desktop accessories have been included, and overall it's better. Be still in glossary or index.





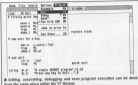
label, mnemonic, operand and comment. For instance,

| Label | Mnemonic | Operand  | Comment      |
|-------|----------|----------|--------------|
| START | MOVW.L   | D0, DMT0 | store result |

is acceptable. Each field, if used, must be separated by one or more space or tab characters. Label names can be 14 characters in length and are case-insensitive (that is, different from Start) is different from START). Mnemonics and operands can be written in either upper or lower case.

Assembler directives, which is a hacker's way of typing instructions meant for the assembler, can be included within source files. These instructions are not usually listed into objects; instead they tell the assembler to perform certain actions at assembly time. For example, DPT P4 checks that all code is code-convertible; pascal, PASCAL prevents any listing appearing during assembly; and EQU and FNE are used for conditional assembly.

From the editor you can assemble the source file (usually in memory) at the click of a button. This generates the binary bytes (machine code)



which is either executable or loadable (can be joined with other files created with Devpac or high-level languages), to produce one large executable file. It is possible to assemble or compile a file without generating any machine code - useful for testing a source file for errors.

Machine code programs - be it those created with Devpac or those from other sources - can be debugged or simply inspected by

using the supplied monitor. Code can be disassembled, examined, modified at various speeds and breakpoints inserted. The monitor is "symbolic" which means you can look at Devpac-created programs complete with original labels - (makes debugging much easier).

The monitor uses its own screen for presenting register details and so on which means the display of your program is left intact.

## HUMBLE ORIGINS

How do you take such a powerful programming package as Devpac and add together to create a \$10,000 tool and download it either ST or Amiga? For that is a device (S) - which is getting more like a glorified digital computer, and not nothing going for it apart from the fact that that little extra one - was used to develop it all. The resulting code was aimed at to be ST via a serial link.

### Features



## ST for

- Integrated editor, assembler and debugger
- Code optimising possible
- Reasonable information on GEM calls
- Programs can be assembled to memory and run

## against

- Manual has no glossary or index
- 68010 limited to 300K source files

### Features



## AMIGA for

- Powerful conditional-assembly options
- Motorola-style macros supported
- Any errors during assembly are highlighted by cursor
- Packed 68000 reference guide included

## against

- Poor manual
- Little info on accessing operating system
- Lacks the extras of the ST version, 2-D



■ Devpac Amiga works in much the same way as on the ST, except you can't see the monitor directly from the editor - it's a different program.

## SYNTAX BUSTERS

If this review leaves you wondering how often you use labels or read the following GEM calls (that's enough WHIP you - SMI):

- ADDMMEM - can move the program that creates executable machine code programs from source code or the programming language itself
- DEBUG/DBG - a debugging aid that steps a program at a particular point and displays status information
- BYTE - right (left) any number from zero to 255
- DISASSEMBLER - displays machine code or assembly
- HEXASCORAL - basic 16-counting system used for assembly programming
- LINKER - joins several pieces of machine code together to produce one executable file
- LOWER - 32 bits
- MACRO - a language of instructions represented by a single name
- MEMORIS - map English commands representing 68000 assembler instructions
- MONITOR - used for debugging, tracing and tracking machine programs
- OBJECT CODE - name for the machine code file created after assembly
- REGISTER - can be thought of as fast on-chip memory
- SOURCE CODE - the mnemonic, operands and labels making up an assembly language file
- WORD - 16 bits
- ARMAGEDDON - small, long-nosed animal that hides in corners of Format







## TIPS

### Fingers on the buttons

If you have several windows on screen — say for two or more drives, only one can be active at once (indicated by a highlighted border). If you want to run a program held in an inactive window, the normal procedure is to click once on that window to activate it and to double-click on the appropriate file icon to run the program. A much simpler method is to hold the right mouse button down while double-clicking on the required file icon with the left button. It then doesn't matter if the window is currently inactive.

#### By Bureau

Winton/Super-Mare, Avon

### Doctoring INFo

Providing you use a word processor or text editor (in fact, ST BASIC's editor will do), it is possible to load the DESKTOP file into the editor and save it to your needs. DESKTOP is the file saved to disk when you select Save Desktop from the Options menu.

Standard DESKTOP files contain information for displaying one TRASH icon and two DRIVE icons (A and B). You can add further TRASH icons or other icons by adding to the information already contained in the file. For instance, within the file there is a line much like:

```
01 00 00 02 01 TRASH 0
where:
```

01 is a letter describing an icon's function (B for disk drive and T for trash)

00 is the x coordinate of an icon

02 is the y coordinate of an icon

03 is the type of icon to be displayed (00 for floppy disk, 01 for Folder, 02 for Trash, 03 for program file, 04 for disk file)

05 is a marker. Anything that follows this will appear as text under a particular icon

06 is an end-of-text marker

It's amusing to have (0) or 15 TRASH icons on the screen at once — not at all useful, but amusing. This can be achieved by

# DESKTOP

Two pages of tips, hints, wrinkles and dodges exclusively for ST owners. Read all the bits the manuals try to hide.

repeating the line above as many times as required. If you don't change the co-ordinates of the icons each time it is repeated, all of them will be in the same place. Save your changes and reset your system. Your screen should fill with desktops. It is possible to do the same with other icons.

If you have a second drive attached and wish control to pass to drive B, on switch on, then try the following modification on the line 00 00 00 01 00 17 00 011700. Change 01 to 02 to 011700. This works, if you ensure, on boot up, that drive A contains the modified DESKTOP file.

Lee Harris

Kingshott, Northampton

### Get lost

Last month we described how to

install applications so that clicking on a data file starts up the application and loads itself into that program. That's all well and good, but what if you want to send the contents of a data file to the screen or printer and you've already installed its application? Simple, you can't. Not, that is, unless you make the DESKTOP file or change the data file's filetype.

The procedure for renaming the DESKTOP file is simple: click once on the DESKTOP icon and drag it to the TRASH icon. Reset the computer and you can now send the contents of the file to screen or printer. This is a drastic measure and not normally recommended unless you have no further use for the DESKTOP file.

Your second option is to

rename the data file: click once on its icon to highlight it and select View Info from the File menu. Press (Delete) these three and give the file a .TMP file temporarily filetype. Click on the OK button to close the info window. Now when you double click on the .TMP file, you'll be able to send its contents to screen or printer. Don't forget to rename it back once you've finished.

### Running accessories

Several readers have had trouble getting the desktop accessories from our cover disks to work correctly. Here's a step by step guide to help you install the accessories found on our disks, but first an explanation of what accessories are.

Like standard .FIG or .ICO

## INSTALLING ACCESSORIES - STEP BY STEP



(1) Double-click on the accessories folder



(2) Drag all the .ACC files on to drive D



(3) You'll be asked to 'insert disk D'. Put in the disk for copying onto, and click OK



(4) After a few moments, the files end up on D



(5) The accessories are now on the Desk menu



(6) ...and happily moving the Tray icon accessory.

files, accessories (discable by their ACC extensions) can't be deleted and run. Instead, GEM must be given instructions to load them at start-up (this is explained later). The files themselves must be in the root or main directory or GEM can find them. Once installed, an accessory is run by pulling down the Desk menu and clicking on the accessory's name (up to six accessories) can be held in memory at once - but they take up memory all the time the ST's running, so only install those you really need.

The first step is to format a fresh disk or ensure you've got a disk with plenty of space (see the "Beginner's Corner" box). Now insert the cover disk (or whichever disk you want to copy accessories from) and double click on the drive A icon; if you can't see the ACC folder, drag the scroll bars until you can. Double click on the ACC folder and all the accessories should spring to view. Once you've selected the accessories you want to copy, drag them to the drive B icon. GEM then copies the files. At various stages you're asked to insert disk A or disk B - (do so) but don't confuse them. To be on the safe side, write protect the disk you're copying from.

When the copying is finished, insert the disk you copied to into drive A and reset the ST by pressing the button at the back. Once the machine restarts, the Desktop reappears and you can run the newly installed accessories by selecting them from the Desk menu.

## MONEY FOR NOTHING

Well, that's not altogether true - but almost. We want your tips on anything and Everything ST-related. Be it tips on hardware mods, getting the best use of software, low-cost (or free) calls or money tips to ease the financial burden (hello, no debt there). In return, the star sponsor sends month after month a £20. How flat can't it be! Best money for your disbursements.

Each year GEM has the best in Desktop, ST Rings, Format, a Queen Street, South, SAC 32.2. Latest year letters clearly feature published several major ads each month, and we certainly wouldn't want your tip reaching the eyes of prospective Dealer Car Buyers.

This month's £20 prize winner is Lee Harris from Northampton, for his double ad on Desktop Info. Good if it by you next time!

## BEGINNER'S CORNER

Beginner's Corner provides more detailed information on aspects of the Desktop which may cause confusion when you know them, but can't do very much until you do.

### FORMATTING DISKS

This operation sets up a series of magnetic "markers" on the disk so that the ST can find its way around. Any new disk must be formatted before files can be stored on or read from it.

To try this out, click either a brand new disk (which has never been formatted) or a disk with no valuable programs or data on it. Don't worry if you see any warnings on screen already on the disk, or make sure you have the right one. Insert the disk into drive A, click once on the Drive A icon to highlight it and select Format from the File menu.

A message warning you that

you are about to erase the contents of the disk appears. Click on OK if you're absolutely sure you don't mind losing the data. A box appears with various formatting options: Single sided, Double sided, Format, etc. For now just click on Format and a bar graph shows the increasing proportion of the disk that's been formatted. When it's finished another window shows the amount of space available on the disk. Click on OK and the formatting options window appears again. Click on Exit. The disk has been formatted.

The other formatting options, Single sided and Double sided, refer to the number of drive heads present in the disk drive. Early 5200 disks (one-button control) needed two single sided drives, all others have double sided ones. Double

sided disks can store twice as much information as single sided disks (which Double sided from the formatting options box if you're not your disk is double sided).

### WINDOWS

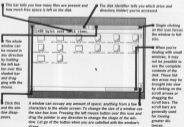
It is possible to call up a window by holding down (Shift) and clicking on a disk in the drive icon. The window shows information on the file and folder's status on the disk.

### COPYING FILES

Select the files you want to copy by holding down (Shift) and clicking once on each file's icon to highlight it. Release (Shift) and then the pointer over any one of the selected items and holding the left mouse button down, drag them all with the mouse to the destination window or drive icon.



1) Formatting a disk... (1) Choose Format from the File menu. (2) Pick a label if you want and choose single sided (if you've got an old 5200) or double sided (if it is a 5200, 5205, or new 5200 with the trigger drive).





mean you'll need to have your 5: directory assigned to the RAM disk - if you do this, make sure you save any new definitions back to floppy disk otherwise you'll lose them when you turn off.

**Michael Seabry**  
Camberley, Surrey

## Personal prompt

The CLU PROMPT command is quite a fun one to use for customising your Amiga system. Rather than the boring old 'C>' prompt, you can get the CLU to say anything you like instead, for example 'test'. Simply type

```
PROMPT "TEST"
```

If you like to have two or three CLUs at the go at once, you can arrange for the number of the current one to be displayed by inserting 'N' in the prompt string:

```
PROMPT "N: TEST"
```

to give you '1: test', '2: test' etc. To revert to the standard prompt, use PROMPT "C>".

**Craig Preece**

Chislehurst, Essex

## Scritable shortcuts

The popular Scritable window manager, as bundled with The Workbench package goes away with recent Amiga sales, has many different keyboard shortcuts. These and more are all very well, but when you're typing away it's a real pain to have to reach for the mouse and click or menu.

```
Shift+ up one screen
Shift+ down one screen
Shift+ beginning of document
Shift+ end of document
Alt+ beginning of line
Alt+ end of line
```

The manual's list of key commands on page 68 lists a series of [Alt] keys - these don't work like the right Amiga key in place of the [Alt] key and they're OK.

Users of WorkStar on other systems will be pleased to learn that Scritable allows some of its own shortcuts:

```
Ctrl+H toggle insert on/off
Ctrl+L scroll up or down a page
Ctrl+Y delete current line
Ctrl+T delete to end of word
Ctrl+Shift+L cursor one character left, right, up and down
Ctrl+J cursor one word left or right
Ctrl+K repeat search
Ctrl+G delete character right, left
```

## ASK answered

Anyone who has splashed out the £299 price for the Amiga AmigaDOS manual may have noticed a frustrating omission. The C directory of the Amiga's boot disk has an ASK command file in it, but needless to say the Commodore manual doesn't explain it at all, and even the 'Definitive' Amiga one sends it. Does it really exist?

Yes, it is the answer. It is designed to be used in command files so that you can ask a question and then take some action depending on the answer the user gives. Ask "Does printing of text?" puts "Some string of text" on the screen and waits for you to type Y or N (and [Return]). You can test the result with the IF command if the answer was Y, then the WHEN flag is set; if the answer was N, it is left unset. Here is a template for you to build on:

```
ASK "type Y or N"
IF WHEN
--commands here are run if the user typed Y--
ELSE
--commands here are run if the user typed N--
ENDIF
```

All the usual IF commands can be used, including NOT, to give a user the option to

ask

```
a command sequence.
ASK "Do you want to
erase my?"
IF NOT WHEN
DELT FILE
ENDIF
```

--Body of command file

END

As an example of nesting questions and conditions, here's an example command set which you might put in your startup sequence. It asks you if you want to set your RAM disk up to hold any CU commands, then if you reply 'Yes' it asks whether you want the full set or just the core commands.

```
DELT "Load morning"
DELT "Starting up late
morning..."
ASK "Do you want core
commands copied to boot?"
IF WHEN
CO -
ELSE
ASK "Full command set?"
IF WHEN
DELT ST TO BOOT
ELSE
COPY DEVICES RELATIVE TYPE
(DELETE INFO TO BOOT)
ENDIF
ENDIF
DELT
```

DELT RAM: ASK

CO -



■ The ASK command gives you interactive console files

## Extending your reach

Extended selection is a technique of mousemanship that all Amiga users ought to understand. When you click the mouse on an icon, the colours invert to show it has been selected. You can then drag it around, copy it and so on.

If you click on another icon, the first one becomes de-selected and reverts to its normal colours. However, if you hold the [Shift] key down and click on an icon, selected icons stay selected and the new one is added into the group.

One of the main uses of this is

in organising your window neatly with the 'snapshot' Workbench feature. You may have a disk whose icons are all haphazardly overlapping, and you want to arrange them in a particular order. You can drag the icons into beautiful sorted ranks, but the Amiga doesn't remember the order unless you save it - if you close the window and reopen it the old mess comes back.

To save the neat version, first select all the icons in the window at once, using extended selection: click on the first one, then shift-click on all the rest in turn. Now

from the 'Special' menu on the Workbench choose the Snapshot option - the positions of all the icons you had selected, in the box, are saved for future reference.

Extended selection is also used when running some programs. For example, on the NORTH case disk the slide show program VHS needs you to select all the picture files to be displayed, and then run the program. You would click on the first file to be shown, shift-click on the rest in the order they are to be displayed, then shift-click on the VHS icon to run the program without undoing the previously selected files.

## All at once

In the first issue of Format we saw how to make up a RAM disk full of useful utilities like DR, CD and so on. While this was fine, it isn't necessary to copy all the files individually in the startup sequence. You can copy more than one file at a time with a single COPY command, to a shorter startup sequence is

```
RECURSE BOOT:C
CD C
COPY DELT COPY (TYPE TO
RAM:C) COPY
RAM:BOOT:ASK
CO -
```

The interesting part is the third line - putting a vertical bar next to the backspace key on the keyboard between the arrows forces AmigaDOS to copy them all without the need to have a COPY line for each.

**Michael Tate**

Tolworth, Hants

## YOUR PATH TO FAME AND FORTUNE

Your magazine needs paid for you have any good tips for your Amiga, or even to tell whether it's an excellent CPU command, a handy mouse-trick from the Workbench, or tips about specific packages, you could have your picture appeared to ALL our readers a month. And come a program we want - you must have a few requests up your sleeve - hands submitted, neat tricks, don't lose them to your desk.

Send your tips to: Workbench, BT Amiga Forum, 4 Queen Street, Bath BA2 3LJ. As if that's not fame enough, the best tips each month win a £20 prize.



# PORTRAITS IN SILICON

by Robert Slater  
232 pp., hardback, 574 pages ■ Published by MIT Press  
■ ISBN 0-262-19260-4

Computers are so much a way of life it's easy to be lulled into thinking that they've always been around. In fact, the world's very first computer program ran almost 60 years ago to the day, on June 21st 1946 at Manchester University, England.

Rapid progress in the field has had one interesting side effect: unlike almost any other area of technology, virtually all the major people in the history of computers are still alive and active today. Perhaps in Silicon is a fascinating attempt to interview those people, find out what motivated them, how they worked, and where they think computers are going. Each chapter is an interview with a specific person, running to 30 pages or so. This is a good length, long enough to relate the important facts without labouring over boring chaff-dust biographic details.



■ Brian Randell, founder of Atlas. He made his fortune with Ping, the classic video game invented in 1932. He sold out to Warner Communications (who later sold to Jack Trammell) and went off to set up a chain of pizza parlours.

## Sitting comfortably?

The story starts with Charles Babbage, the Victorian pioneer. He built mechanical computing engines and used many of the principles 'invented' by others a hundred years later, like binary arithmetic. His assistant was Ada



Lovelace, Lord Byron's daughter - it's after her that the new programming language, Ada, is named.

Alan Turing was a brilliant mathematician who was instrumental in the British secret war effort. He built a series of 'Colossus' computers at the Bletchley Park codebreaking centre, which helped to crack the Germans' Enigma code system. The prototype Enigma machine, he would often be seen on his bicycle wearing a gas mask to ward off leaks of his brain. He died himself in 1954 after being convicted of homosexuality.

After these first two, the rest of the book's subjects are alive and kicking. John von Neumann devised the operating principles of the digital computer, but took up computing late in life after a career in mathematics including proposing the atomistic method for the Nagasaki atom bomb. Conrad Zuse, a German, may well have built the first electronic computer, but his efforts were largely overlooked in the aftermath of Germany's defeat in World War II. John Manosoff used the right to be legally credited with the invention of the computer card set, he was American.

William Shockley is an intriguing case. He invented the transistor in 1947 and won the 1956 physics Nobel prize for his work. However, instead of his name being technically, he received little exposure in his experiments as a politician which were based around a program of separating blacks and sterilizing people with feeble IQs. A real humaniser!

Grace Hopper is almost an institution in herself, she's 82 now, and finally retired from her post as a vice-admiral in the US navy three years ago. In 1959 she designed the COBOL language (the 90% of the world's finance centres still revolve around today). She was the one to coin the term 'bug' for a program error; the story goes that one of her programs went wrong one day, and after hours puzzling over the code she discovered that an insect had fallen into the computer and shorted vital circuits!

Gary Kildall, legal O.P.M. the first true microcomputer operating system and arguably the most important piece of software ever - a made programs portable between different models of computers. When IBM launched their PC around 1980, they approached Bill Gates of Microsoft under the mistaken belief that his company, Microsoft, had written CP/M, and asked him to write a version for them. Discovering that Microsoft was the better part of honesty, Gates wrote PC-DOS for them rather than give them Kildall's phone number. Kildall wasn't amused when he found out.

It's a series of interviews giving a personal perspective on specific events and inventions. Slater, while undoubtedly well connected in the field of computing, is neither an inspiring writer nor a penetrating interviewer. He seems very ready to give rhetorical asseverations, both his interviewees without any attempt to research or qualify their thought. For example, he allows John Manosoff to ramble on at length about who he was the One True Giggler of the electronic computer, which is a pretty dubious assertion.

Incidentally, apart from mentioning Babbage and Turing, Perhaps in Silicon is very American-biased. It's almost as though the early history of computing has been rewritten - maybe over here with very English-biased, but it does seem the Slater is genuinely unaware the Manchester University in England built both the first electronic computer (1946) and the first microcomputer (1970).

Even so, *Portraits in Silicon* is unarguably fascinating, is a record of the personal histories of just about all the important people



■ The Manchester Mark 1, the world's first real computer - even if the Americans won't admit it.

## Curate's egg

*Portraits in Silicon* doesn't appear to be a history of computing, and that is at times very frustrating

in the development of the computer, it's compulsive reading. And it only costs as much as one gain, after all.

# THIS MAGAZINE IS RUBBISH.

## DISK BOXES AND MOUSE MATS ARE USELESS.

### THE SPECTRUM IS THE WORLD'S GREATEST COMPUTER.

If you agree with any of these statements, please turn the page now. For those still reading, we'd like to make an offer you'll find hard to refuse. Take out a launch subscription to *ST Amiga Format* and we'll send you a complimentary gift pack, consisting of a high-quality, hard-wearing mouse mat (RRP £5.95) and a smart, lockable disk box capable of holding 40 disks (RRP £12.95).

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|         |       |           |            |
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|          |       |           |            |
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### MS Gold

The Capcom arcade game which sees the fate of the world depending on the performance of the warriors of bionic power.

|          |       |           |            |
|----------|-------|-----------|------------|
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One of the frustrations Atari ST owners face is the relatively poor Basic supplied with the machine.

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#### DIGICALC

Atari ST and Amiga • £29.95 (RRP £39.95)

This spreadsheet from Digita International has already established a reputation for itself on both the Amiga and the ST. We need say little more about Digicalc since not only have we reviewed it, but a demo of the program is included on the August issue cover disk - so here's your chance to really try before you buy!  
Order Code (ST): F0222T  
Order Code (Amiga): F0224M

#### DELUXE

### Paint



#### DELUXE PAINT II

Amiga • £59.95 (RRP £69.95)

This is something else - Electronic Arts' graphics program which comes from the US with gushing, almost embarrassing, praise. You can paint on a 'canvas' that is bigger than the monitor screen - 1008 by 1024 pixels, with 32 colours in low resolution or 16 colours in high resolution. Full percentage colour mix is possible, including hue, saturation and contrast for each colour. Full zooming in is possible, with special animation effects including Colour Cycling which offers almost cartoon-like movement qualities. There's an unlimited variety of paint brushes - you can use a complete set of shape and line tools, and a range of special effects which will let you create banners, calendars, cards, newfashies - anything can be done with a splash of style which is the result of a program which really lets your imagination loose. Try it - you won't be disappointed!  
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# GOLD DUST

Steve Gold reports on the American ST and Amiga scenes, bringing news of the good (new operating systems), the bad (viruses) and the ugly (bugs) from over the Big Pond.

**W**hich do you want first: the good or the bad news? OK, the bad news for ST users is that a new virus has popped up on the US scene, with 'lightning' in the US reported even as you read this.

When the ST is reset or switched on, it reads data from track 0 sector 0 of the disk in drive A. Since it's possible to set up that sector so the ST will auto-load a program, the virus records the sector so that it is loaded whenever the disk is used.

Once loaded into RAM, the virus resides at the tail end of the system disk buffer and attaches itself to the end of the GETBPO bus function. Thus, every time GETBPO is called, the virus is activated. If it doesn't register an image of itself on the disk, it writes a copy of itself to that disk.

Every time the virus copies itself to a fresh disk, it increments a counter after a random number of writes, the virus begins spraying random data across the root directory and FAT tables, thereby corrupting your disks.

Now comes the really bit. After all this is done, the virus detaches itself from the boot sector, thereby destroying the malware. Although the virus doesn't harm hard disks, it can still screw up your disk collection, as many auto-load hard disks, such as the Supra series, use an auto-load floppy disk in drive A, which can carry the virus.

The cure? Check out sector 00 of each disk with a disk sector editor tag the 'Key' Test accessory on the month's cover disk. If all is well, the boot sector will contain 00 hex as its first byte. If it doesn't include 00 hex as the first byte, be very suspicious.

It seems that this virus is not the end of the story. Nearly countless of the readers suggest there is a new virus around which is almost impossible to detect

since for each disk inserted it scans for any \*.PRG files and appends itself to the last segment in some way.

## The good news

The good news for ST users is that Alan is currently checking out a new version of TOS. Beta test versions are now in the hands of developers in the US and the new TOS should be with us in the UK by the Autumn. The beta test comprises:

- TOS ROM set, configured for local keyboard and American font.



- Diskette containing: RAM loadable stage of TOS, same configuration as ROM; disk cache program 'CACHExxx'; HEX Head Disk utility; HRSFULL and associated programs; Product Tracking System feature program 'SPRINT'.

- Release Notes for: TOS, CACHExxx, HRS, HRSFULL etc.; modified to 05/0688 hard disk; Draft User Manual for HEX, HRSFULL etc.; User guide for Product Tracking System; Various programs, files and tools to assist in transition.

Although the beta version of the new TOS has only been around a few days at the time of writing, the main advantages appear to be that: disk formatting is more compatible with the IBM PC format; a file can now be moved (i.e. copy then delete) in one operation; file Copy/Delete/Move can be interpreted with UNDO; GEM programs can be

auto-loaded from disk.

Other advantages of the new TOS also include: the static file allocation limit of 400 is removed and is now limited only by free primary, and all data separators are now '?'. The file selector function has also been rewritten.

Usually on the ST front for this issue, two new software packages are attracting a lot of interest. The first package is the Amnatic Amnastar System from Kinetic Microsystems (01203-303-964-5180), the second is Revolver from Interval Software (01203-513023-67114). Both packages

cost \$49.95 which should equate to about £20 when they appear in the UK.

Amnatic allows users of the ST to quickly create professional, high quality animated slides. The package includes a module called Gopher which converts animated shapes into screen-driver source code.

Revolver meanwhile, takes a program running under TOS, GEM or TTP, and translates it, writing the appropriate ROM contents to disk. The beauty of Revolver is that it's not a disk accessory and is thus active at all times.

## In the Amiga corner

Some good news for Amiga users with modems: this issue is the launch of an online newsletter for Amiga users. Any Report is the brainchild of Ron Kovacs who distributes the free newsletter each month as Computerize: the Source. Great and a growing number of online systems. Several BBSs are picking up on the newsletter which offers the immediacy of an online system with the benefits of a magazine.

If you have a modem, but have difficulty getting load of copy of Any Report, then Email me, Steve Gold, on Teleview load 724860286 and I'll send you a copy.

Issue one of Any Report came out on 11 June, coincidentally about the same time as #1 of ST/Amiga Forum hit the streets. The first issue covers such interesting topics as Amiga Flight Simulators and online conferencing systems, as well as review of Phase5, HyperPerfect Library and a number of other Amiga software packages.

## WordPerfect FOR THE AMIGA

Talking of WordPerfect, a number of bugs have been discovered in the Amiga version of the package. While spell-checking a text file containing letters and numbers, option 4 that the spell-check choice menu covers the program to crash. This bug is being fixed by WordPerfect at the time of writing.

Also giving cause for concern is the PMS7 module which loads up the Amiga for no apparent reason. The problem appears to lie with WordPerfect's PMS7PERFORM module, which Computerize has fixed on release 1.3 of WordPerfect.



# FORMAT LETTERS

So what did you think of issue 1? Here's a Summary summary of the Format postbag. Don't get left out next time though - send your thoughts, questions, praise and polemics to: Format Letters, ST Amiga Format, 4 Queen Street, Bath BA1 1EJ.

## Monoware problem

Dear Format - I own an Atari 520 STEEM with the latest version of DOS, and the latest version of DOS, and I read through the magazine to find out what was on the disk. Ooo - great! MM (Mac - low level) and all that more emulators - but would it work? Not if you're that your main emulator refuses to work on all STs with the latest DOS. The screen flashes, the machine 'beeps up' and that's all you get!

Robert Allen  
Buxfield, H. Yorks

■ Sorry, our fault. We didn't have a new ROM ST to test it out on, and by God's law it doesn't work, if it works. You should find a bug-free version this month though - look at the MONOWARE folder on the disk.

## Amiga on telly

Dear Format - I have bought an Amiga 500 and I own a Ferguson TX 14" television with RGB and would like to know if I could convert the two, either by a lead I could buy or by a home made one. I would be very grateful if you could help me.

N Bedford  
Barnes, Stoke-up-land

■ Unfortunately we haven't got a Ferguson TX to experiment on, but the Amiga puts out standard video signals, if you can get the right lead made up you'll get a picture, but unless the TX has a separate sound input you won't get any audio - and certainly not as stereo as per a real Amiga monitor.

## Picture that

Dear Format - What about an option on the mono monitor view

- with Flight Simulator II for the ST, for instance, it's a bit hard to distinguish scenery. If I had known that I might not have bought it.

The disk idea was brilliant (who wants type?)! However, one small niggle: the document files that accompany the ST programs - why do they have every line been centered? I have a printer and like to get handcopies of instructions at 80 characters per line. Please change it if that's ok, or tell me how to re-format the text using Font Work.

The disk idea would really lend itself to picture files - what about a competition for the best pictures? You could put the best images on the disk.

Paul Lewis  
Hawking, E. Sussex

■ The man responsible for centering the text has been taken outside and had his knees stacked together. A good way to get rid of spurious spaces in a WP file is to use the Find/Replace function to globally replace all double spaces by a single space, and repeat this until they are all gone.

And disk art pictures - yes, a brilliant idea. You could win, we'll see too. Get printing.

## New ST drives

Dear Format - At last, a comprehensive, unbiased, and generally brilliant 15-bit magazine. Yes, I mean your ST Amiga Format. The reviews are good, features (especially Future) better, and the cover dots... all magazines catering for us - not just your best out. So, who better to answer my question?

Firstly, do you know of any external 1 meg disk drive (3.5" of course) which I could swap, exchange for the internal 0.5 meg with my 1.5 STM and then use my old 0.5 meg with the external's

disk, given supply and leads, without having to cut either case (possibly swapping spec mechanisms)?

Next, I'd like to buy a Better Chip for my machine, but don't know whether my file II 5205TH board requires extra hardware/soft ware, or what where to buy a Better.

My final question involves how to make a GFA Basic PRG or G8000 program a disk accessory. I haven't the smallest idea how to do this, though I am considerably staying broad.

Stephen Scobrick  
Plymouth, Devon

■ Well, we've never heard of anyone trying to swap disk drives in the way you describe - proceed at your own peril. Data for one self I Mag internal and external drives (LR500 and J10400 respectively), but step around the retail order ads for a good price. As to better, you can fit them to STs, but it's a matter of soldering them over other chips.

There's no empty slots on an ST Mega. Anyway the chips are extremely hard to solder from Alan at the moment. Even the Mega STs that are supposed to have Better as standard are going out without them.

As to accessories, there aren't many good books, but HGG's *Sequencer 2* for the ST shows you to assemble programs as accessories.

## 4 out of 5

Dear Format - I have filled in your questionnaire but some of the comments I wish to make are too longheaded for the space provided.

- 1) Overall a very good well presented magazine.
- 2) Standard games reviews were very good, but the special atten-

tion given to the major games was excellent with contrasting screen shots showing the game as it was played. One minor criticism was the score scales, they could do with a larger range. It is harder to judge the difference between a 2.5 and 3.5 than between similar marks on a scale of, say, 1 to 10. 3) As a reviewer I'm sending my own computer I have had a lot of use of my parents' other machines, Amstrads, IBMs etc. I found your reviews of WPs, printers, BASIC, languages and the comparisons and information on the computers very useful.

Lastly, a question, is it possible to get a 3.25" inch disk for the 520 STEEM and a PC emulator, because both my parents use IBM computers and this would be very useful both for me and them?

Paul Edge  
Beacons, Suffolk

■ PC Data is an ST PC emulator, price £79.95 from Colsonsoft 0290 5817423. This is software only and doesn't come with a disk drive - a 3.25" drive is £189.95 extra. You may be better getting a 3.5" drive for the PC, as for ST can read and write ordinary PC 3.5" disks.

## Dark side

Dear Format - Congratulations on a very good mag. I loved the disk. After reading through your mag I was very pleased on its contents, except for one little thing. Was your camera missing dark sunglasses as the games reviewed screen shots, or were you using a black & white TV? Or did you get good most of the screen shots in B/W to save money? When you're changing £2.50?

Oh, so you get away a free disk, how much did it cost you? The public can buy double sided disks (3.5") for 85p, so when you

order 40,000 I am willing to bet that each disk never cost you more than 70p. Take that away from your cover price and you're left with some... £1.80. Take 15p away for copying costs and you're left with £1.70, and it can't even be that good! I am not asking for a cover price out, but just a full colour mag... please?

#### BMF

**Manchester**

■ In an ideal world we'd be full colour with 200 pages a month, but unfortunately it costs about four pricing calculations aren't quite right, as publishers we only get about half the cover price back from rates, after the newspaper's markup. So from a staff price of £2.50, £1.80 of that goes if we are to get 80p to cover the disk costs (looking on your figures) that means you are really getting the mag for 50p, which can't be bad, 200, we will get better and more colourful - stay around!

### Innocentist

Dear Format! - I was sitting in my room in front of my Amiga last night, mullin' pebble dill, and after telling everyone to get out of my room I turned my thoughts towards how to copy all the AmigaDOS commands to the RAM disk. Being in the unfortunate position of owning one unformatted and empty internal drive. Face it, mate!

I had managed to copy C to RAMC but couldn't make it work from there, so fiddling through the manual I came across M00N. However, there is an info on how to use it, at which point I came to the conclusion that Commodore employed a Clonemaster to write the manual. You can understand my surprise the next day when reading my computer journal that Buckle the Clime had been caught tampering about giving detailed descriptions of commands in a new manual he was writing.

Not to be outdone, I purchased and found that AG00N C: RAMC does the trick. With my confidence growing I made a simple copy on the parent directory of Workbench called CRAM and made a file of the same name containing the relevant commands to copy C to RAM etc. You're probably laughing at me, but it was worth a try. OK, so it didn't work, (I'd like to know if this can be achieved without the use of assembler, I don't want it in the startup sequence because I don't always want the RAM full and

loading would take too long.

#### Craig Elliot

**Heaton, Newcastle-on-Tyne**

■ The secret of attaching disks to Amiga files is a mystery that only a select few know. Try the PD program Aios, mentioned in this month's article on Amiga PD, or alternatively put a conditional sequence in your startup sequence with an A55 command as outlined in the 'Workbench' section.

### Diskdoctor illa

Dear Format! - You recommend with damaged disks use the Amiga's DD00000108 to fix it. I have tried this on Barbarian (Proposed) which was corrupted. It loaded fine, but when the start key was pressed - Software Failure.

Can you suggest anything to rescue the situation?

#### Brian Hynes

**Quilfin, Ireland**

■ Diskdoctor is only guaranteed to work on normal Amiga disks, it can't repair copy-protected disks such as those games come on, and you should never use it on master disks anyway. Send your Barbarian master disk back to Progress with a pleasing letter and they should swap it for a new one.

### Easy as 1, 2, 3

Dear Format! - Here are some points to improve your mag. You don't have to agree with them, but:

- 1) More games reviews needed - 7 reviews, not only enough to keep up with the growing industry, but the reviews of 'Interceptor' and 'Blitz' were the best I've ever seen, brilliant!
  - 2) Articles on the 'serious' side of computing, i.e. DSP and Superbase Professional are long, boring. Besides, if a businessman is going to buy a program for business then he won't look in a mag that reviews games! - he will find a mag that is all 'serious'.
  - 3) Into the free disk idea, it's original and great, and 'superheroes too' cartoon is hilarious.
- G Hindshaw  
**Dursley, Glos**

■ We don't want to become another 2644 gamers magazine - there are already enough of them out there. Format's strength is its balance of all aspects of the machines, and we intend to keep

it that way. Sorry, that's the way it goes.

### D-Basing remarks

Dear Format! - Does anyone else know how to obtain a copy of the manual for DD0001? The phone number given on the P.D. disk has been disconnected.

#### Ian Hawkins

**Manchester**

P.S. If you've not come across D

BASIC, it's a very nice fact, only very basic BASIC for the 387. I thought my lines faster than some commercial BASICs at real double precision maths, but apparently no 387P statements, and a pretty screen editor. I got my copy from Software PD library.

■ We've rung Software who don't seem to know much more than you. Does anybody else out there use DIBASIC and could help locate the authors?

## THUMBS UP FOR FORMAT

### More equal

Dear Format! - I think it is great... bloody great even that someone has finally noticed the Amiga/ST argument by putting both of these superb machines on an equal footing and a magazine which by its very nature doesn't spend endless drivel about the virtues of a single machine. My particular machine is an A500 Amiga, my preference.

Needless to say the Atari and the Amiga are here to stay, and we will and truly overriding the old habits - the Spectrums and C64's are on the slide. That's not to say they aren't good machines in their time, but the microcomputer industry and technology has gone on, the next generation of 16 and 32 bit micros. The future is up to the Amiga and ST users, and all the staff at SDF.

#### Martin Caldwell

**Eastwood, Notts**

### Quantum questions

Dear Format! - I eagerly awaited the arrival of ST Amiga Format. I was a little dubious about it being for both the ST and Amiga. Thinking it would perhaps be biased towards the Amiga, it was a 500/25MHz. When I finally did pick up a copy, I was instantly impressed - the layout, the style of writing, the reviews, everything seemed well done. All of the programs on the disk have been of some use to me.

You also stated in the article 'Over the Rainbow' that Quantum Part could only display at 4096 colours on a system with 1Mb of RAM. I have a 2.5Mb system and still obtain the 512/4096 modes. However, I have never tried to get all the colours on screen at once, or maybe that is where the limitations occur.

The review of Virus was outstanding, with all those screen shots showing the action - lets have more like it, please!

#### Duncan Pickett

**Quintonwood, Cleveland**

P.S. - Don't someone there have a pet armadillo?

■ Pet armadillo? What a ridiculous idea. OK, you're rambling on. I'm rather Agnes and we take her out for walks at bedtime.

### Grovel, grovel

Dear Format! - Why do magazine inter writers grovel and fawn - saying how good the magazine is. All the mag's I read, your material could be improved - it is, it only the fawning lackeys who get published?

#### Michael Kingston

**No address**

■ You don't have to fawn, but it helps. Otherwise we will end all the embarrassing bits of the letter, a bit like this one really. Seriously, you're right - all magazines can be improved and we really value suggestions from readers. Keep 'em com'ing.

### Jerk advice

Dear Format! - I am writing to congratulate you for producing an excellent first issue.

Your review system is great, separate parts going into detailed reviews about each aspect of the game. I think your mag is the only one which highlights the pluses and minuses of the graphics and sound. I mean, did anyone even ask about the slow, pinky animation or other Atari or Dolphin? No, but I'm sure you would have.

Michael Armstrong  
**Peterlee, Co. Durham**





ESCAPE SEQUENCE

### Nyet, comrade

The Russian game, Tetris has by all accounts gone down a storm in America, which is little wonder as it's a great game. What didn't go down quite so well back in the USSR was that the US conversion for the PC contained a slight modification to the title screen. This originally showed a beautiful picture of the Kremlin, but the publishers in the States added in a small plane leaving round the glowing spires — a plane not totally dissimilar from the Coyote from by Mulhous Road when he landed in Red Square leaving the

Russian defectors last year. Future licensing deals may be subject to a little more monitoring...



■ The Tetris title screen, a la Red

### Letter of Protest

After last month's survey of word processors we weren't entirely surprised to receive letters praising one particular program or another. (Even so, our cynical journalists' minds were set spinning by the following from Mr Douglas Thompson, of Thompson Computers in Peterborough.

I am writing to complain about the comments you made regarding 'Protest' in the July issue of ST Amiga Format... I have been using 'Protest' for over a year now and would not, nor would I should, use anything else... I would like to know what you found lacking in 'Protest' as I have found 'gry' little.

Everyone's entitled to their own opinion, of course, but it's interesting to note that:

- a) 'Protest's publishers, Amec, are based in Peterborough-tis.
- b) The ST 'Protest' has only been on sale for two months.
- c) One of the business cards we

recently picked up at a show had certain salient details in common with Thompson Computers:



### In parallel

It's not normally our practice to mention other publications in our pages, on the grounds that they might do the same to us. In this

case, though, we feel fairly safe as the organ under consideration is Parallelogram, a journal devoted to parallel processing (transputers and all that stuff).

Apart from the novelty of its subject matter, we had a serious misgiving recently from Parallelogram announcing a reduction in their subscription rates — they obviously had a little trouble shifting copies at their retail subscription rate of £295, and have knocked a modest amount off next year's rates. It's come down by £250 to £239 per year — now that's what we call a price cut.

As journalists, the nation looks to us for moral guidance; alone we fight the forces of bribery and corruption. In late June an invitation from French games house like Soft arrived at the Format offices for a weekend at a chateau in Brittany — we immediately recognized this as a blatant attempt to seduce the games reviewers of Compzo into covering their products, and had no hesitation in accepting the offer. Pictures here

on the steps of Chateau Ue are Andy Smith from our sibling magazine ACE, and straggled Format gambler Andy Stoner (left) the one with the silly hat, by the way. You may have noticed that to be a successful games reviewer you've got to be called Andy.

Well it's encouraging to know that the kind of cheap publicity stunt never works!



## STAMIGA

ST Amiga Format spins onto the shelves on the third Thursday of each month. Eyes peeled for issue 3 on August 18th.

## Superheroes, Inc.

by Sarkis





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