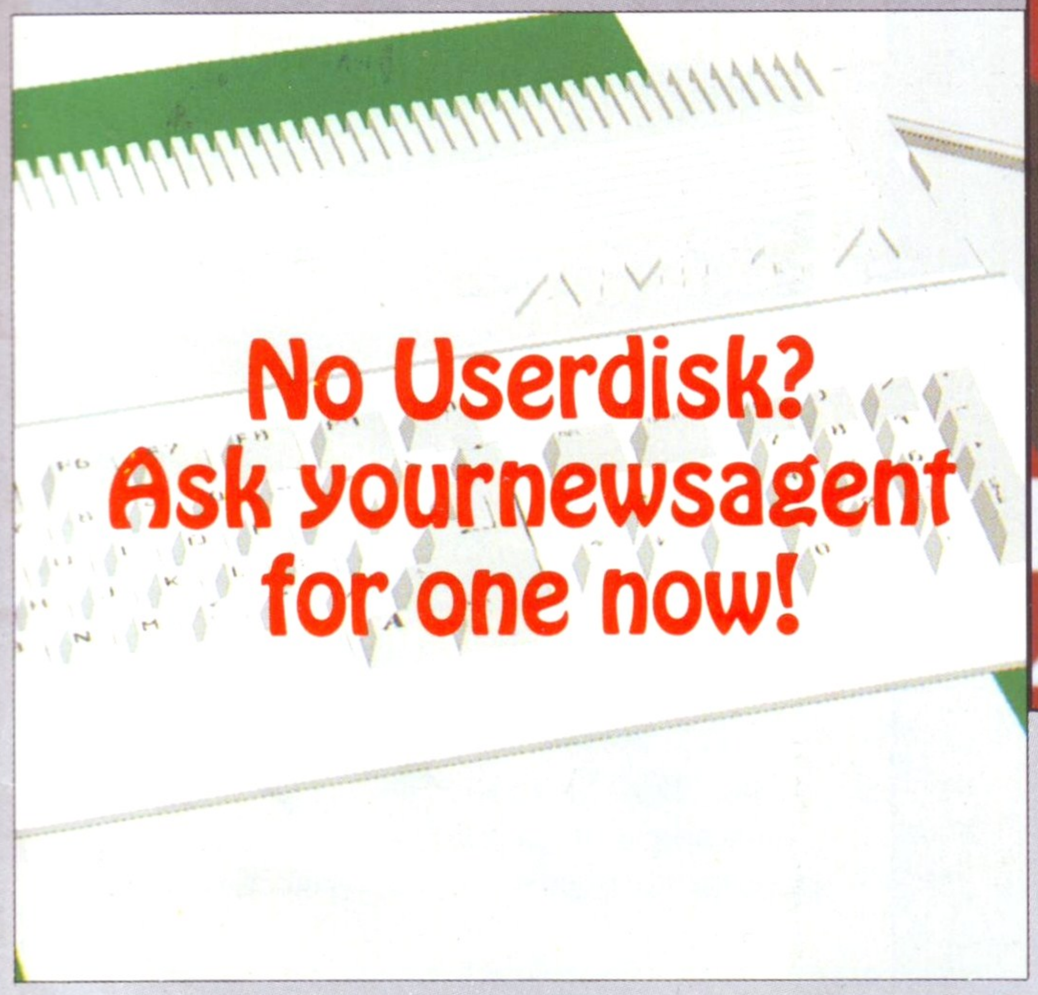
AMIGA USER INTERNATIONAL

June 1991 £2.95

AUI 2.0!
The New, Improved Version of the first and still the best Amiga Magazine . . .

***This month* • Rombo's Colour Solution • C.A.'s Supercalc • Newtek's Video Toaster Softwood's PenPal Alternative's Big Scroller**

Special Features – Getting Started with your Amiga . . . Understanding Workbench *and* How to Use a Modem



The Top Amigames . . . Pang, Narc, SuperCars II, PGA Golf, and much, much more

9 770955 107017 06

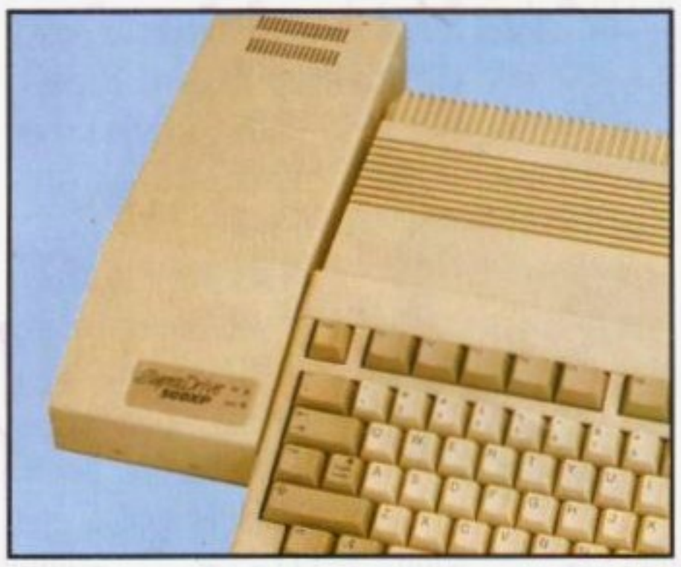
GREAT FULL MEGABYTE DISK FOR YOU!

WIN! The latest versions of Fatter Agnes chips and Kickstart and *all* the games reviewed!

SupraDrive™ Floppy
Quiet, reliable floppy disk drive works with all Amiga® computers. 1MB unformatted capacity. Pass-through port for connecting additional drives.

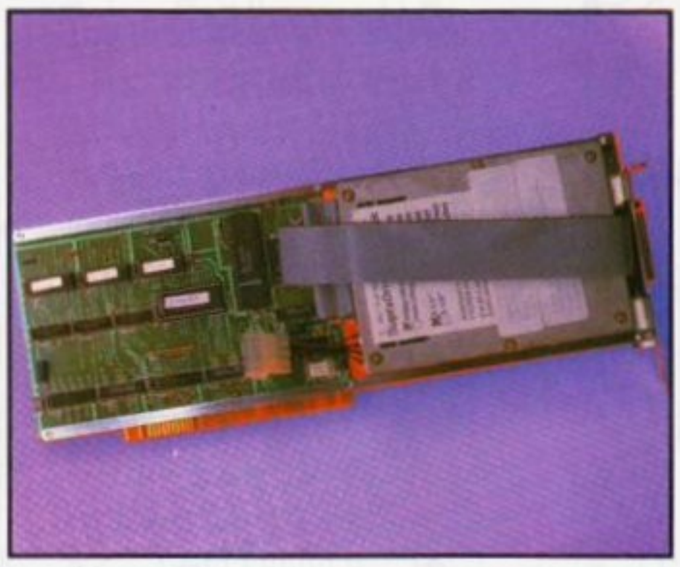
SupraDrive™ Removable
Syquest™ removable cartridge drive for the A500 or 2000. Great for primary & back-up storage. Comes complete with SCSI interface, or as add-on drive.

SupraModem™ 2400
100% Hayes™-compatible 300, 1200, 2400 baud modem for virtually all computers. Compatible with all popular telecommunications software.



SupraDrive™ 500XP

Micro-power hard drive, SCSI interface, & RAM for the A500. Easily expands from 1/2 to 8MB RAM. Includes Amiga bus pass-through, SCSI port, software.

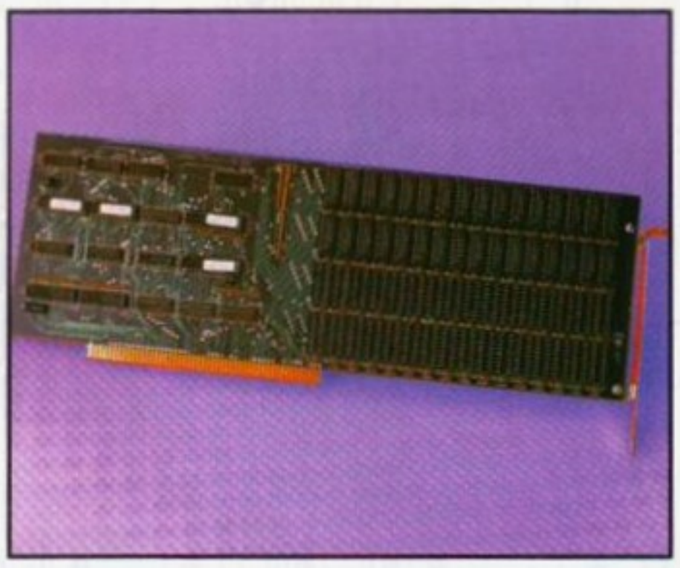


SupraDrive™ WordSync™

Easy-to-install, autobooting hard disk card for the Amiga 2000. Uses high-performance Quantum™ hard disk & includes SCSI port, utility software.

SupraRAM™ 500RX

1/2, 1, 2, 4, or 8MB of FAST RAM for the Amiga 500. Easy to expand. Zero wait states & hidden refresh. Amiga bus pass-through.

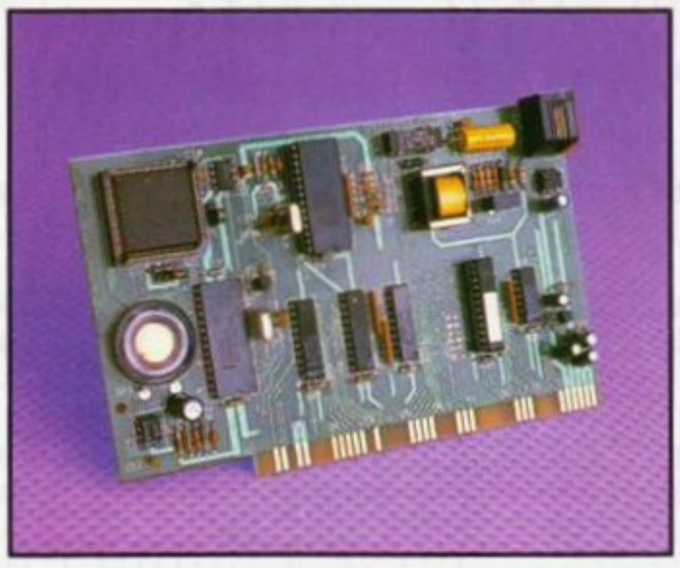


SupraRAM™ 2000

2, 4, 6, & 8MB of FAST RAM for the A2000 & 3000. Easy to expand. Zero wait states & hidden refresh. Four-layer board improves reliability.

SupraModem™ 2400 Plus

SupraModem 2400 with MNP5 & V.42bis error correction & data compression protocols. Allows transmissions up to 9600 bps.



SupraModem™ 2400zi

Internal half-card modem for the Amiga 2000 & 3000. Installs easily in any Amiga bus slot. Supports multiple modems on one computer.

Four Reasons To Consider Supra:

QUALITY

Supra has earned an excellent reputation for supplying high-quality, reliable Amiga products — engineered, built, and tested for optimal performance and reliability. We stand behind these products 100% with warranties ranging from 1 to 5 years.

CUSTOMER SATISFACTION

Supra has been successful for the last 5 years in part because we provide the products you need at excellent prices. But we also go further, taking care of you after the sale with knowledgeable, courteous technical support.

VALUE

Supra always offers the best value for your money. There may occasionally be a cheaper product, but is it really built that well? Will the company be around next year when you have a question about the product?

EASE OF USE

Supra products are designed so you can install and use them quickly, and to help you avoid any potential problems, we include every part you'll need plus comprehensive instruction manuals.

Available at your local stockist, or call us:

Supra Corporation

503-967-9075

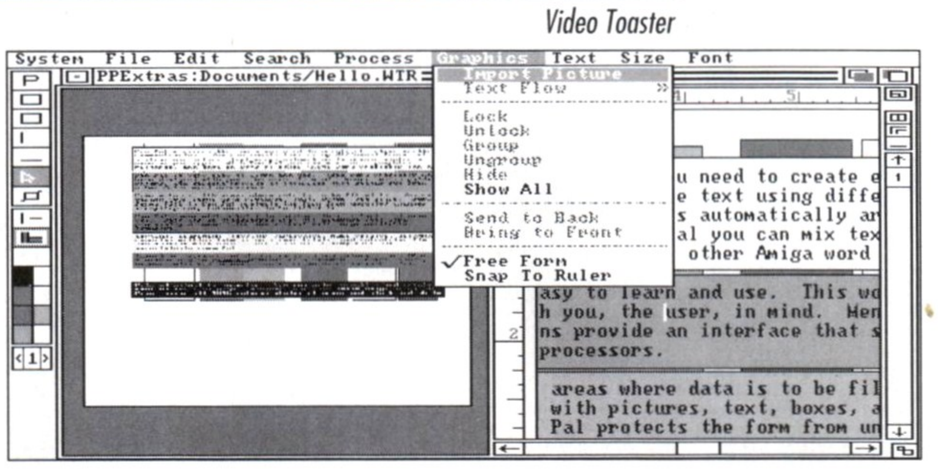
1133 Commercial Way
Albany, OR 97321 USA
FAX: 503-926-9370

Supra, SupraDrive, SupraRAM, WordSync, & SupraModem are trademarks of Supra Corp. Amiga is a registered trademark of Commodore-Amiga. Syquest is a trademark of Syquest Technologies. Quantum is a trademark of Quantum Corp. Hayes is a trademark of Hayes Microcomputer Products.

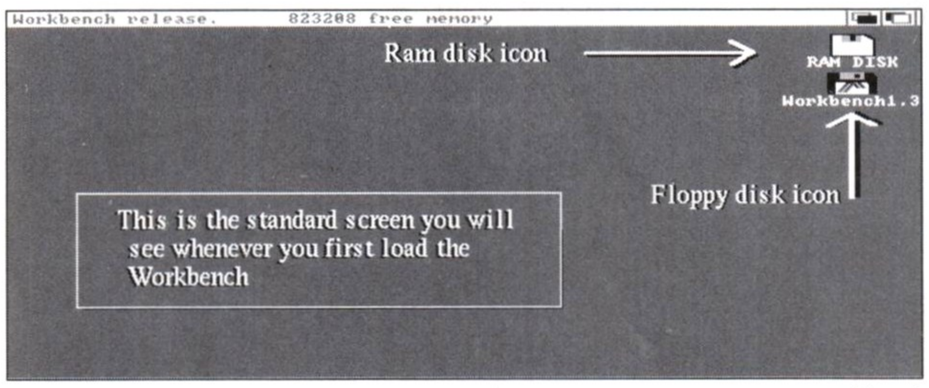
AMIGA USER INTERNATIONAL

JUNE 1991 VOL 5 NO. 6

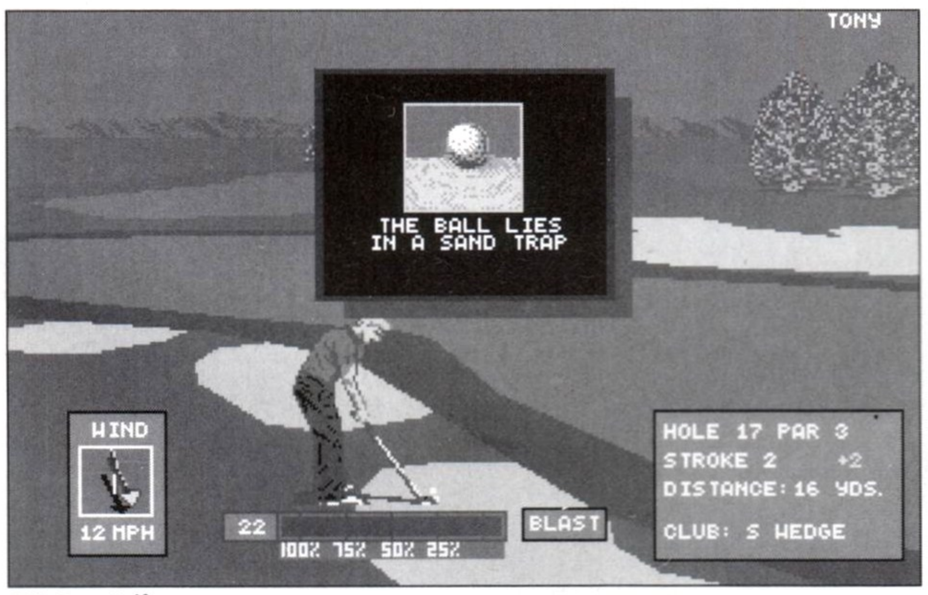
Video Toaster



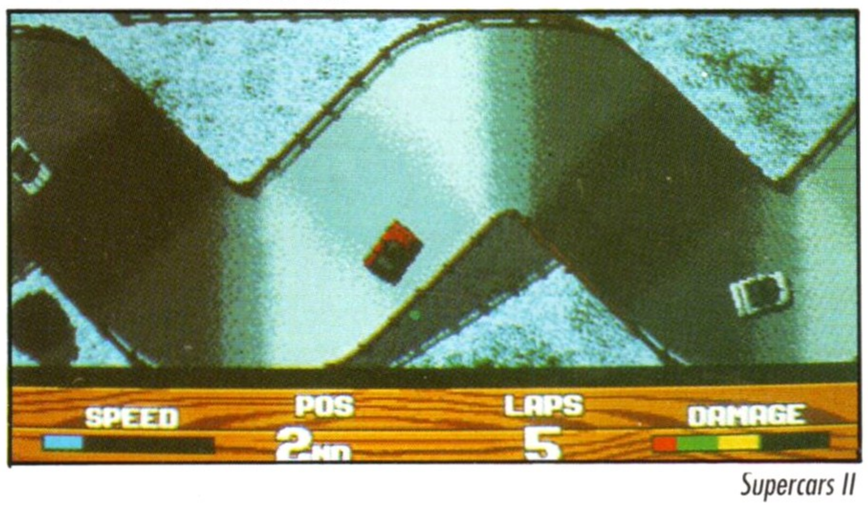
Pen Pal



Workbench



PGA Tour Golf



Supercars II

CONSTANT FACTORS

5 Amiga Dimension: Antony Jacobson traces a little Amiga history and warns against imitations.

34 Newsfile: News and clues to what is happening from around the globe in our techie world.

125 Amiga Answers: Three full pages of searching readers' queries. Andy Eskelson comes up with the right solutions.

129 Write to Reply: If you have anything at all to say now's your chance. Bud Vennos picks the Star Letter. Think of getting your name in print before the whole world of Amiga users!

FIELD REPORTS

22 At An Arcade Near You: Alan Puzey reports on the official world launch of the amazing Virtual Reality.

51 New York Ami-Expo: Last month in a hot preview we promised this full report. Mike Nelson still awe-struck from his exposures to a new Amiga dimension gives a full run-down to the rest of us non-jetsetting Amiga owners on a show that sent him out with a kind of glow.

110 All About ICPUG: What is ICPUG? You'd better read Janet Bickerstaff.

MENTOR

58 Fractals and Chaos – Part 2: John Kennedy concludes this provocative look at the chaotic behaviour of fractals.

105 Understanding the Amiga – Workbench Part 1: Ever needed a helping hand through the Amiga's so called user-friendly interface? John Kennedy gives some simple, but often unknown, tips in his easy-to-follow guide through the Workbench.

112 Laser Printers – Part 1: Laser printers are still for most of us state-of-the-art technology. Martin Witton starts a two-part quest to explore their internal workings.

115 How to Use a Modem: John Kennedy explains how to get yourself switched onto the biggest users' conference since C.B. radio.

USER PORT

8 Coverdisk. Full instructions for the Big Alternative Scroller plus a trip to Hong Kong!

96 Anarchy is Back!: Gary Fenton thinks that the latest P.D. demos can bring back the joys of anarchy to the Amiga.

122 ***AUI*** Spell Part 5: Paul "It will be working soon" Overaa gets closer to creating the runnable version.

ART

26 Amiga Art: Bud Vennos selects the best of the artistic submissions of the potential Leonardos among ***AUI***'s talented readers

COMPETITION

8 Competition!: Win loads and loads of. . . Turn to page 8 now to find out! (But you can start with every game reviewed in this ***AUI!***)

TEST DRIVE

13 The Video Toaster: Mike Nelson was invited to experience Newtek's revolutionary video device.

16 The Colour Solution: An entire video digitising package in one bargain pack says Mike Nelson.

19 Pen Pal: Word processing and graphics power close at hand when you've a Pen Pal. Desk Top Publishing guru, John Walker, investigates.

24 Keep Those Credits Scrolling: It's on our amazing cover disk, but what does Alan Puzey, professional video editor, think of it?

56 Printer of the Month: The Panasonic KX-P1123 24-pin printer is put through its paces by Pat Kelly.

63 SuperCalc5: Mark Rose tests this top PC professional spreadsheet, now down to only £79.

102 Iconmaster: Hartmut Schumacher fishes through the P.D. pool and comes up with this little gem.

116 Z88-to-Amiga Link: If you are lucky enough to use a Z88, of course, you want to transfer text files to-and-from the Amiga. John Kennedy tests a comms link which does just that.

118 1.5Mb Expansion Unit: Pat Kelly expands the office A500 to a 2 Megabyte RAM machine with this neat and inexpensive add-on unit.

119 Evesham Replacement PSU: When your Amiga power supply puffs its last who are you going to call? Pat Kelly powers up a solution.

120 Zydec Speakers: If hi-fi is what you want from your Amiga you'll do no better than to take advice from Tony "The Sampler" Horgan.

121 MED V1.3: This new PD utility allows you to create and sample music. Tony Horgan pumps up the volume.

SPECIAL OFFERS

7 ***AUI*** Subscription: Subscribe before 13th June and receive the Userdisk free for a full year.

75 ***The Directory!***: Subscribe to the unique Amiga and ST product guide and receive a free game.

ENTERTAINMENT

A new look at the best in Amiga entertainment from the best gameplay judges around – with the help of King Tut and the Gorilla!

70 PGA Tour Golf – Electronic Arts Winner of the first ***AUI*** Classic game award

73 Supercars II – Gremlin Graphics

77 Super Monaco Grand Prix – US Gold

78 Pang – Ocean

79 Narc – Ocean

80 Chip's Challenge – US Gold

82 Carrier Command – Mirror Image

82 3D Pool – Mirror Image

83 Monster Pack Volume 1 – Psygnosis strong compilation

83 Quadrel – Loricel

85 Adventure Now! – News, views and reviews with Andy Moss

87 Colonel's Bequest – Sierra

87 Lurking Horror – Infocom/Virgin

87 Shogun – Infocom/Virgin

89 Games Without Fears – Wargames Special with Nick Veitch

89 Action Stations – Panther Games

90 UMS II – Microprose

90 White Death – Storm Computers

91 Fire Brigade – Panther Games

95 Games News – Tony Horgan heard it on the grapevine

100 Charts – The top ten this month

100 Decision Making – How to judge if a game is right for you

100 Recommended Games

A New AUI Dimension

Dear Amiga User,

Beware of imitations. . . What you are reading is, however, no imitation of ***Amiga User International***, it is the real thing – in its 2.0 Version. We hope you like it in its new format. It is after all the longest established UK Amiga magazine. And I hope you will be wary of imitations that make false claims to being "the longest running British Amiga magazine" – whatever that may mean!

Most magazine readers don't like changes in publications they are used to. But ***AUI*** has not changed since it was started some five years ago, which was two years before any other UK Amiga magazine saw the light. So we thought it due for an upgrade. While we have spent considerable time on bringing in the changes, what we have done is not set in stone and we would be happy to hear what you think about the new features both in content and design. We plan, anyway, to make further enhancements later in the year.

One clear improvement is the coverdisk. When we started ***AUI***, I wanted to have a coverdisk but wrongly allowed myself to be argued out of it. 3½" disks were in those days expensive so we had on the cover a crib card each month which was very popular too. But the disk is long overdue.

We intend to have coverdisks that really encourage you to use the interactive talents of the Amiga and not simply fill the disk with bits and pieces of largely easily available PD. We will also be providing full 1 Meg disks, as we believe most ***AUI*** readers have or are about to upgrade.

The Amiga has come a long way since we began supporting it when no-one else in the publishing world and few in the software business were interested. We can claim a happy prescience of which everyone involved with ***AUI*** can be proud. As an illustration of how right we were, this is a quote from ***AUI*** of May 1987 – by the way, a year before that "longest running" magazine appeared and some months before the A500 hit the U.K. scene – "My bet is that the A500 will get out in substantial numbers before the software houses, especially games companies, will have really got to grips with the potential of this 16 bit blitter blaster that could really take the games market by storm."

Well, it happened just that way and the Amiga is in another era, far ahead of its competitors and one of the world's most successful computers. Now ***AUI*** is making a move into a more advanced stage too. We hope you will enjoy its new form and its new dimensions.

Yours sincerely,
Antony Jacobson
Managing Editor

CREDITS

Managing Editor and Publishing Director: *Antony Jacobson* Editorial Coordinator: *Pat Kelly* Staff Writer: *Tony Horgan* Contributors: *Janet Bickerstaff, Andy Eskelson, John Kennedy, Andy Moss, Mike Nelson, Paul Overaa, Alan Puzey, Mark Rose, Hartmut Schumacher, Nick Veitch, Bud Vennos, John Walker, Martin Witton* Consultant Art Editor: *Graham Baldock* Production Controller: *Jayne Penfold* Production Executive: *Michelle Evans*

Deputy Managing Director: *Ray Lewis* Managing Director: *Peter Welham*

Editorial & Advertising: Panini House, 116-120 Goswell Road, London, EC1V 7QD Editorial Telephones: 071 490 7161 extn. 26 071 490 7833 extn. 210 Advertising Telephone: 071 490 7161 extn. 19 Subscriptions Address: M.S.M Subs Dept, Lazahold Ltd, PO Box 10, Roper Street, Pallion Ind. Estate, Sunderland SR4 6SN Subscriptions Telephone: 091 510 2290 Published by: Maxwell Specialist Magazines Distributed *by: COMAG, Tavistock Road, West Drayton, Middx Typesetting & Origination by: Ford Graphics Ltd, Fordingbridge, Hants Printed by: Chase Web Ltd, St Ives plc Disk Duplication by: TIB plc, Bradford*

Amiga User International – an independent magazine for Commodore computer users – is not connected in any way with Commodore Business Machines UK. It is published 12 times per year by Maxwell Specialist Magazines on the first Thursday of every month. The publishers do not accept any liability for any incorrect statement or errors contained in material from independent sources or authors which may be produced from time to time.

WIN Upgrades for your Amiga!

Competition

WIN! WIN! WIN!

10 x Kickstart V1.3 and Fatter Agnus upgrade chips
20 x Amiga Hardware Reference Manual Revision 2
and All of the games reviewed in this issue!

To celebrate the all-new ***AUI*** upgrade in collaboration with Checkmate Digital Systems. We are giving away upgrade chips which will allow you to have the latest in Amiga technology. There's also a chance to win every single game reviewed in this issue. Yes all of them!
If that's not enough, as part of the great offer, if you subscribe to ***AUI*** before 13th June 1991 you won't have to pay for the Userdisk for a year – see the page opposite for more information.
If you'd like to win Kickstart V1.3 and a Fatter Agnus upgrade kit, then answer the two questions (answers can be found in this issue) and insert the missing number in the last sentence:

Who produces the Video Toaster?

Which new Amiga graphic device will Checkmate be distributing?

The new-improved upgraded ***AUI*** is available on subscription for only £_____ for 12 issues with a disk.

To win one of the twenty Amiga Hardware Reference Manuals from Addison Wessley, worth £25.00 each answer the following question:
Which ***AUI*** contributor is teaching new Amiga users the basics of the Workbench?

Every one of the games in this issue can be yours, all you have to do is tell us the number of games reviewed in this ***AUI*** and which received the highest award.

Competiton Sponsored by Checkmate Digital Systems Ltd, distributors of CAN DO, HAM E and the A1500.

Rules

You don't have to enter into all three competitions, only those which apply to the prize, or prizes, you want to win.
The closing date for entries is 30th of June.
Entries can be submitted on this page, a photocopy of this page, or a postcard

Send your entry to:
Upgrade Competition,
Amiga User International,
Maxwell Specialist Magazines,
116-120 Goswell Road,
London EC1V 7QD.

AMIGA USER INTERNATIONAL

FOR ONE ISSUE ONLY YOU CAN SUBSCRIBE TO AMIGA USER INTERNATIONAL AT THE OLD SUBSCRIPTION RATES, AS SHOWN ON THE COUPON. FROM NEXT MONTH THE NEW RATES WILL COME INTO FORCE, DUE TO OUR CHANGE IN COVER PRICE.

THIS IS YOUR LAST CHANCE TO SUBSCRIBE AT THE OLD RATES. DO IT NOW!

Fill in the coupon below and send it with your remittance to: MSM Subscriptions department, Lazahold Ltd., P.O. Box 10, Roper Street, Pallion Industrial Estate, Sunderland SR4 6SN. (The first issue of a new subscription to be delivered will be one or two issues after the one you placed your order in.) Offer closes 30th June 1991.

Please send me my 12/24 month subscription to AUI. I enclose my cheque/money order for £ made payable to MCPC Ltd or debit my Access/Visa card.

No. Expiry date

Name ..... Address .....

(Please enter postcode to ensure prompt delivery)

Signed ..... Date ..... AUI 0691

UK	**£23.40 12mth**	**EUROPE**	**£45.00 12mth**	**REST OF**	**£65.00 12mth**
	£46.80 24mth		**£90.00 24mth**	**WORLD**	**£130.00 24mth**

USER PORT

THE *AUI* USERDISK

Instructions for using the Big Alternative Scroller

The Big Alternative Scroller - written by Amiga graphics experts Alternative Image - is a powerful and yet simple-to-use program which can generate multi-coloured static and scrolling messages in a variety of typefaces.

The most obvious use of the Big Alternative Scroller (BAS) is to provide titles to add to your DIY video productions, but other uses - such as animated shop window displays - will soon suggest themselves.

BAS's main feature is its incredible ease of use: You can create your own scrolling messages within minutes of loading it. Even complete Amiga-novices should be able to produce titles that Sir Steven Spielberg would be proud of!

How to use the BAS

Using the Big Alternative Scroller couldn't be easier. Just switch on your Amiga without anything in the internal drive, and wait for the usual picture of a hand holding a disk to appear. Now slot in your Amiga User International coverdisk and wait. After a few seconds a loading screen will appear, and a short time later the program will have loaded and will present you with the Main Menu screen.

All the operations available from the BAS can be controlled from the function keys, so to demonstrate the point, try pressing Function key 1 (F1). The screen should clear, and a short message will move smoothly upwards. You can control the speed of the scrolling by pressing any of the numeric keys from 1 (slow) through to 9 (fast). Pressing the 0 key will pause the scrolling until you select another speed. When you have seen enough of the scrolling, press the escape key to return to the Main Menu.

To change the words which scroll up the screen to your own requirements, press F3 to enter the Editing mode. You should now see all the text that appeared during the scrolling along with a flashing vertical line (the cursor). Using the arrow keys, you can move the cursor around the screen, adding and deleting text as you go. In this demo version of BAS you are limited to 100 characters, where in the full version, of course, no such limit exists. Once you have entered the words of wisdom you wish to use, you can experiment with the many fonts (typefaces) available. Try holding down either of the shift keys and pressing any of the ten function keys. The text on screen should immediately change to one of the twenty fonts available.

Once you have entered the words of wisdom you wish to use, you can experiment with the many fonts

From Editing mode, it is possible to highlight some text by changing its colour. Position the cursor before the words you wish to emphasise and then press F1, F2 or F3. When you are happy with your text, press ESC to return to the Main Menu.

To change the colour of either the text or background, select option F5 from the Main Menu and then choose the item whose colour you want to change. You can control the amount of Red, Green and Blue in the colour by pressing R, G and B. The three digit 'number' which changes as you press R,G or B a hexidecimal (base 16) representation of the colour. Each digit will range from 0 (dark) through to 9 and then from A to F (light). This gives each R,G or B component up to sixteen levels and therefore there are 16 times 16 times 16 = 4096 different colours available for you to choose from. Remember to press ENTER when you finished making your choice. Note: If you are intending to use a genlock, your background colour should be 000 (black). If it isn't, the text will hide the image.

By pressing F6 from the Main Menu, you can alter the position of the drop shadow under your text. Use the arrow keys to move the shadow and so give the text the effect of being raised from the screen.

You can 'fine tune' the spacing between letters and words by pressing F7 from the Main Menu. Use the left/right arrow keys to alter the distance between letters and the up/down keys to alter the space between words.

Summary of Options from the Main Menu

F1 - Start scrolling the text up the screen
F2 - Start scrolling the text from right to left across the screen
F3 - Edit the text
F4 - Set scrolling parameters (see later)
F5 - Set coloursF6 - Set shadow
F7 - Set spacing
F8 - Disk menu (not available from the demo version)
F9 - Choose keyboard type (defaults to GB layout)
Left Shift and F1-F10 - Choose fonts from bank A
Right Shift and F1-F10 - Choose fonts from bank B

Summary of Editing Options

Arrow keys - move the cursor one character in any direction
Shift & Arrow left/right - move the cursor one word
Shift & arrow up/down - move the cursor one line
Shift & delete (DEL) - clear all text off the screen
F1, F2, F3 - choose the colour of the text following
F5 - Switch on/off the text's shadow effect
F6 - Enter a pound sign
F7 - Enter a copyright symbol
F8 - Justify (line up) the text to the leftF9 - Centre the text
F10 - Justify the text to the right

ESC - Return to Main Menu
Hints

Pressing the HELP key from either the Main Menu or the Editing screen will provide you with a list of commands.

If you don't want your text to scroll, for example you just want it to appear under someone's face, use the editing screen. You can make the cursor disappear by pressing the left button.

If you are using a genlock, ensure it is connected and working before running the software.

You can speed up/slow down the scrolling text by holding down the right/left mouse buttons.

If the flickering effect (due to using Interlace mode) is too noticeable in your recorded work, try altering the choice of colours and/or typeface.

You can control how the text looks when it scrolls by selecting the Set Scrolling Parameters (F4) from the main menu. For example, you might decide to have all your text moving up the far left of the screen by moving the guide lines to the left with the left and up arrow keys. The horizontal guideline marks the position where the top of any text scrolling from right to left wil appear.

How to record your titles

The Amiga has a quality of video output greatly exceeding that which could be expected from a home computer and it's just perfect for connecting to a video recorder. The easiest way to do this is to make use of the colour video modulator which comes with most Amiga packs. Not only is there an RF ouput (for connection to your television), but there is `composite out` signal. This signal is compatible with the `Video In` socket of most video-recorders. The connecting lead you will need depends on your video, but is typically a Phono to BNC lead.

If your video-recorder is quite new and has a SCART socket, you can benefit from using the raw video signals from the 23-way connector at the rear of the Amiga. This is achieved by making use of an Amiga to SCART connecting cable, so pay a visit to your local television repair centre. The staff will be happy to advise you and will probably even build you a cable.

There are two main ways of recording your titles. The first way does not require any extra hardware, just the right cables. Once you have connected your Amiga to your video recorded. all you have to do is create the titles with the titling program, and then start recording. Easy.

The second method is to use a 'genlock'. A genlock is a wonderful piece of hardware which can do something rather special. It will take a video signal and combine it with the output from the Amiga. Any part of the Amiga screen in a background colour of black becomes transparent, and the video signal underneath shows through. A typical example would be a picture of someone appearing on-screen, with their name superimposed underneath. To make use of this technique you need a video source (which supplies the picture to superimpose the Amiga graphics onto) and a video recorder to store the results. This means that you either need two video recorders or a video camera and a video recorder.

The Big Alternative Scroller is such a terrifically easy program that just using will take you toward being a video expert. That is why AUI chose this fully useable, interactive demo version as its cover disk. For a full review of the complete program see page 24.

Faulty Disk?

In the event taht your Userdisk fails to load, please return it to the address below for a free of charge replacement, and allow 28 days for delivery:

AUI FAULTY DISK RETURNS, TIB PLC., 36-50 Adelaide Street, Bradford, BD5 0EA.

Please include your name and address in BLOCK capitals.

Please note that whilst MAXWELL SPECIALIST MAGAZINES and their agents make every attempt to ensure cover disks are free from viruses, no responsibility is accepted for any damage or loss arising directly or indirectly from disks supplied or for any damage or loss arising by reason of anf failure of the disks to comply with the specification or with the statutory requirements. Whether attributable to negligence or otherwise, save to the extent that the exclusion of liability is prohibited by law.

IMPORTANT OVERSEAS READERS' NOTICE

Due to difficulties in importing genuinely usable software into many countries, you may not have been fortunate enough to receive the all-new *AUI* cover-mounted Userdisk. If you subscribe to the magazine using the special page inside, the cost of the subscription will include packing to enable you to receive the disk with each issue of the magazine. If you do not wish to subscribe, each disk will be available at a price of £4.00 from the following address:

Lazahold Ltd., P.O. Box 10, Pallion Industrial Estate, Roper Street, Sunderland, England. SR4 6SN.

Please make all cheques/International Money Orders payable to MCPC Ltd for £4.00 per disk. This price will include packing and Airmail service to all overseas destinations.

Make readers of other covermounted disks go green with envy when you win the yearly "Trip for TWO to Hong Kong" prize.

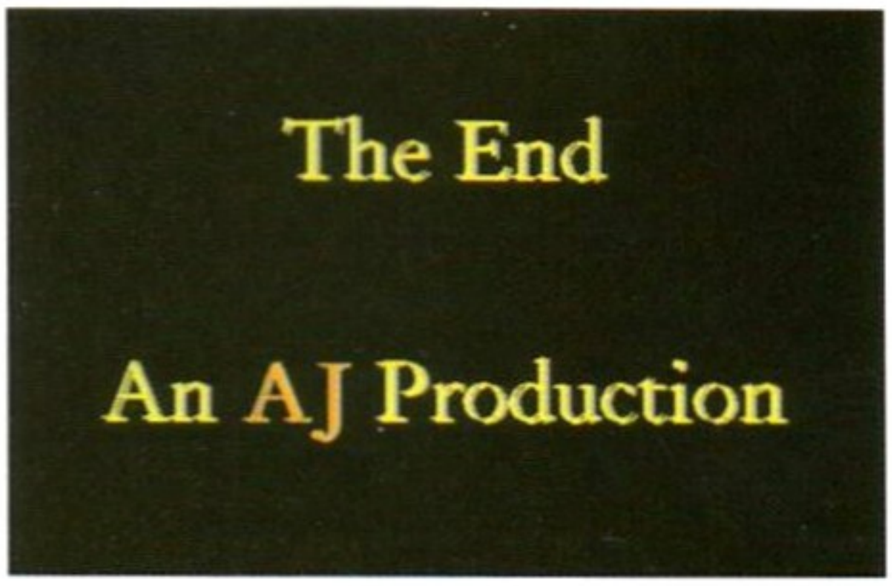
GREENER BY CHOICE

Make readers of other covermounted disks go green with envy when you win the yearly "Trip for TWO to Hong Kong" prize. If that weren't enough there are also two monthly prizes of a free subscription for you or anyone of your choice.

This `Green with Envy' draw can be entered by simply returning your used Userdisks, once you have finished with them, to TIB PLC. They will supply *AUI* with names and addresses of readers who return their disks. Each month the draw is made for the FREE subscription offer. If you already have a subscription you can extend it further or supply it as a present to a collegue.

In September of each year the major draw will be made at our London offices and a lucky `green' reader will win the fabulous holiday for two in Hong Kong with hotel, flights and spending money! You are allowed as many individual entries as you wish! For each disk you return a separate entry into the draw is made. Of course disks must be of an acceptable standard - as if they are not they'll be rejected and you'll lose out on your entry as well as your disk. Returned disks will be recycled so helping to save material and protect the environment.

Send your used disks to: GREEN DISK RETURNS, TIB PLC., 36-50 Adelaide Street, Bradford, BD5 0EA.



YOUR QUEST FOR SPEED STARTS HERE

ACCELERATORS UNLIMITED

TURBO 68000 7/15MHZ SWITCHING

for 500/1500/2000 plug-in pcb and software at £45

HARMS 68020 cards

7/14/20 mhz 68881 from 16 to 30 mhz up to 4 meg ram
68000 fall back mode and they start at only £150

C.S.A. 68030 MEGA MIDGET RACER

20/ 25/ 33 mhz 68030, 20 to 50 mhz 68882
SRAM for kickstart in 32 bit memory and true 32 bit memory from 1 to 8 megs
Prices start at £350 for 500/1500/2000

SAVE £50 on a CSA system (Call and see how)

A 25 mhz board with 512K SRAM and 2 meg 32 bit ram would be £674 r.r.p. £724
68030 25mhz with 1 meg £575 68030 33 mhz with 512K SRAM & 4 megs £945

What the press said.....*AMIGA FORMAT 'The CSA RACER took 96 seconds beating the A3000 by about 36%' AMIGA WORLD 'I was impressed with the sight of a mere A500 running as fast as an A3000 or a Macintosh IIci. Going back is tough indeed' AMIGA USER INT 'The only major problem was that I had to give it back' AMAZING COMPUTING 'It offers all the features that users want at an unheard of low price' INFO MAGAZINE 'It delivers big performance at a relatively small price...maximum bang for a buck.'*
They all had one thing in common-THEY PRAISED IT.

HARMS 68030 cards

for the 2000/1500 Amigas running the 030 chip at 28 mhz
with a 68882 co-pro and 4 meg ram £1099 (expandable to 16 meg)

G.V.P. 3001 68030 Systems

for the 2000/1500 Amiga A3001 28 mhz 68030/68882 with 4 meg ram £1345
A3001 50 mhz 68030/68882 with 4 meg ram expandable to 32 meg £2099

BRAND NEW SERIES 2 ACCELERATORS Call for latest prices
look at these features though.....22mhz 33 mhz or 50 mhz with co-processor with 1 meg 32 bit ram installed (60 nanosecond speed) with the 22 or 33 expandable to 13 meg and the 50 to 32 meg. The 22 and 33 have a built in SCSI interface with the 030, memory and SCSI all on one card! The 50 has the AT hard drive interface and all boards have a 68000 fall-back mode. Hard drives are DMA transfer for extra speed and the Bridgeboards work without the 6 meg limitation. By the time you read this we will have the best prices so call for them. We have a range of SCSI drives so ask about them.

C.S.A. 68040 CARD the '040 MAGNUM'

This is the latest and the best. If you want performance then this is the one.
Ffor the 2000/1500 only and features 4 meg 32 bit installed memory expandable to 64 meg. The 040 chip has the MMU and FPU built-in and has the power and speed to perform animations and graphics in real time.
Call for launch price and be one of the first in the UK with this POWER!

WE ARE THE UK's SPECIALIST IN AMIGA TURBOCARDS, FASTER PROCESSORS, 68030 AND 68040 CARDS. NOW YOU KNOW WHERE TO COME FOR THE RIGHT PRODUCT AND SERVICE. TECHNICAL SUPPORT HOT-LINE MOST WEEKDAYS 7PM TO 9PM CHRIS on 0860444816 or BOB on 0925763946

AS THE OFFICIAL CSA SPIRIT & HARMS DISTRIBUTOR FOR THE U.K., WE GUARANTEE PRODUCTS BOUGHT ONLY THROUGH US OR OMEGA PROJECTS PRODUCTS NOT AVAILABLE ELSEWHERE OR AT THESE PRICES.

C.S.A. SPIRIT G.V.P.

G.V.P. SERIES 2

GVP A500 IMPACT Series 2 - probably the best hard drive for the A500
SPECIAL OFFER of 42 meg drives £479 zero K can expand to 8 megs using SIMMS
or a 52 meg zero K £525
SERIES 2 1500/2000 8 meg memory cards with 2 meg installed at a ridiculous £189
SERIES 2 IMPACT SCSI interface and zero K £179.00 expands to 8 megs
SERIES 2 IMPACT hard drive with 17 millisec 80 meg Maxtor drive £524
As above with 8 millisec 105 meg Quantum drive £645 or 52 meg Quantum £469
SIMMS modules to expand the GVP range 2 megs £75

MEGACHIP 2000

This is the expansion the 1500/2000 owner has been waiting for. No need to buy a 3000 now when with this board you get the 3000 Agnus chip plus 1 meg of extra chip memory. We take back your old Agnus and supply you with the new Agnus installed and 1 meg extra chip memory. Compatible with K/S 2.0 and the ECS your hard drive, existing memory and more. **THIS IS THE UPGRADE COMMODORE NEVER WANTED TO SEE** and only £250

SPIRIT - THE 'Ultimate' INMATE

For the 500/1500/2000 an internal 8 meg card (uses ZIP chips) 1 meg to 8 meg pathway of true fast memory with facilities to instal a 20 mhz co-processor and with a super fast SCSI interface built on the board. This is the 'all you ever wanted' on one board. Uses low power CMOS technology. Even the 68000 is CMOS and square. We can supply hard drive cases with PSU, cables and super fast SCSI drives. Call for sizes and prices 45 meg to 200 meg
Zero K board now an amazing £199 Co-Pro £55 2 meg ram uses A3000 ZIPS £99

SPIRIT - STUDIO A Broadcast Genlock

Now a professional amiga genlock/encoder/switcher/keyer built to studio specification.
Key-Mix; program cut; fade to black; mix and disolve 100%; key-in 0-100% £645
Optional RGB upgrade module composite decoded to RGB and RGB splitter £199
Y-C Component (S-VHS and HI8) video transcoding composite to Y-C and back £330
Computer control upgrade plug-in daughterboard for software control of all functions £99

ICD

Flicker fixer for flicker-free video full overscan and does not use up the video slot for all 500/1000/1500/2000 machines. £250
AdRAM 540 fit up to 4 meg in the 500 trap door Zero K £89 2 meg £155 4 megs £220
AdRAM 560D is the extra 2 meg module to plug onto the AdRAM540 to give 6 megs £145

512K with clock £24.95 No clock £21.95

A590 CONVERSIONS TO LARGER DRIVES CALL FOR OPTIONS AND PRICES.

BYTE'N'BACK V3.0 fastest ever hard disk back-up £19.95
For all versions of Kickstart, Workbench or Amiga's.

All these products and more so call for prices and free brochure from one of the leading Amiga specialists

MORE TOAST FOR LESS BREAD from

Bytes & Pieces (Europe) Ltd,
37 Cecil Street, Lytham, Lancs, FY8 5NN
Tel 0253-734218 Fax 0253-736035

MasterCard VISA

Open 11am to 6pm Monday thru' Friday. Callers most welcome by appointment

NO VAT INCREASE UNTIL END MAY, 1991

FREE
INFORMATION PACK
TELEPHONE
(0933) 650677

ANNOUNCING THE *A5000* AND *B5000*

IS YOUR AMIGA STILL IN THE STONE AGE?

"UNLEASH THE POWER OF YOUR AMIGA"

▼ JUST ADD TO YOUR AMIGA FOR ▼

- ***B5000-25 Faster than the CBM A3000-25***
- ***500-1000% Faster than your Amiga***
- ***Massive 4-32Mb of superfast memory***
- ***100% Software compatibility***
- ***Plug-in up to a 50 MHz Maths Co-Pro***
- ***B5000 has advanced 32-bit Paged-Mode design***
- ***32-bit Kickstart — five/ten times faster***
- ***Three models — A5000-16/B5000-25/B5000-40***

• THE MACHINES •

A5000-16: 16.67 MHz Asynchronous MC68020RC 2-3 MIPS (6 MIPS peak)
B5000-25: 25.00 MHz Asynchronous MC68030RP 5-6 MIPS (12 MIPS peak)
B5000-40: 40.00 MHz Asynchronous MC68030RP 8-9 MIPS (18 MIPS peak)
FPU: 12.5 MHz-50 MHz Asynchronous MC68881RC or MC68882RC
A5000-16 RAM: 4 Megabytes of 32-bit RAM 256 x 4 80ns DRAMs
B5000-25 RAM: 16 Megabytes of 32-bit RAM 1024 x 4 80ns DRAMs
B5000-40 RAM: 32 Megabytes of 32-bit RAM 1024 x 4 80ns DRAMs
SHADOW ROM: Move your Kickstart into 32-bit SUPER-FAST-RAM
SOFTWARE: 68000 Fallback mode for 100% software compatibility
HARDWARE: 100% Compatible with Amiga 500/2000 and add-on cards
INTERFACE 1: Plugs into 68000 processor socket inside your Amiga
INTERFACE 2: A/B2000 Co-processor (Zorroll) card (for B5000-40 only)

A5000-16 £295
(Price includes 1Mb RAM)

B5000-25 £595
(Price includes 1Mb RAM)

B5000-40 £1162
(Price includes 4Mb RAM)

(All prices inclusive of VAT)

SSL

SOLID STATE LEISURE LIMITED

FIELD REPORT

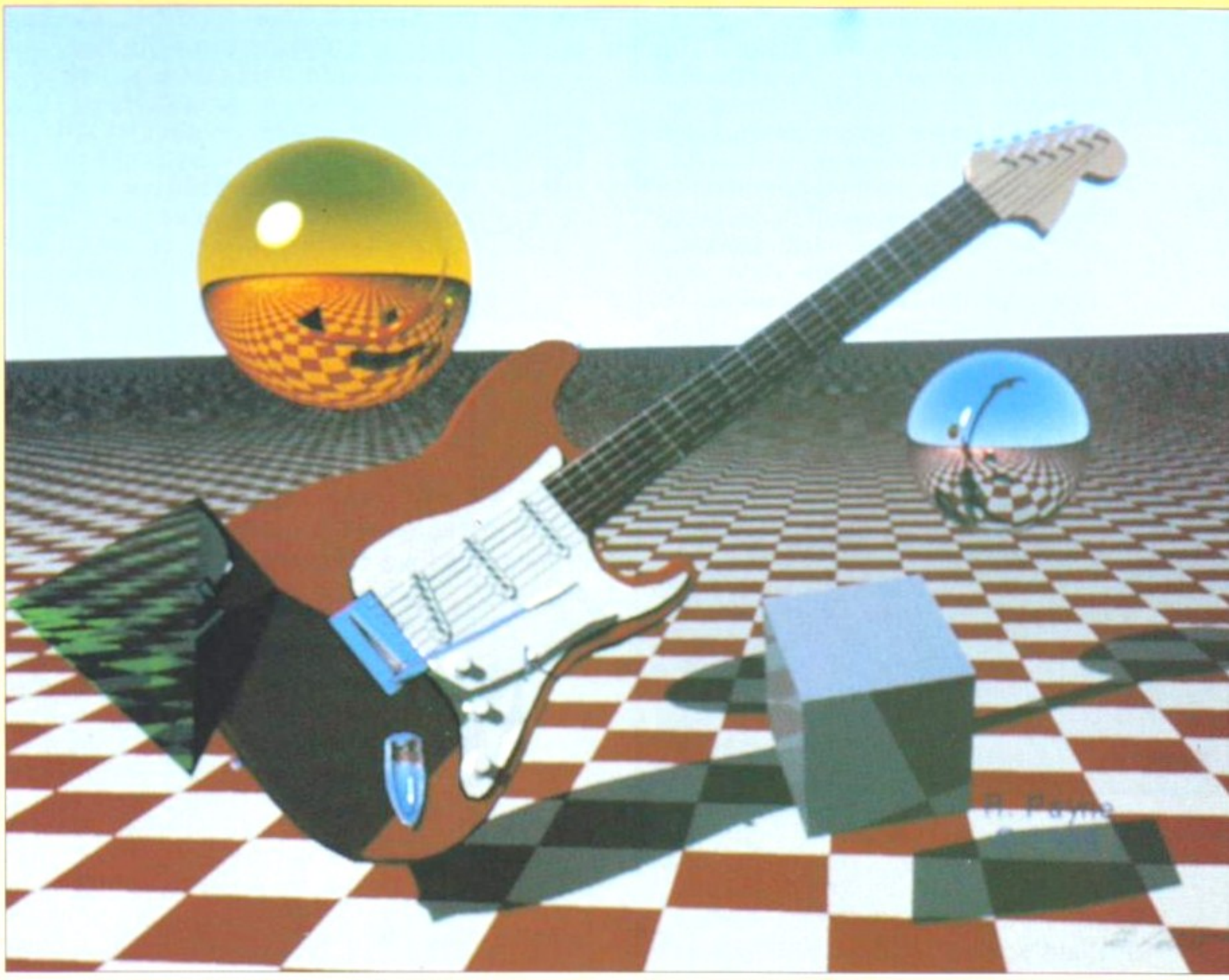
THE VIDEO TOASTER

The Video Toaster. Is this the launch pad to the mainstream that the Amiga has been waiting for? Mike Nelson explains how one product can be the 'hottest' and the 'coolest' of the year...

The AmiExpo show report else wherein this issue gives you some idea of the importance of the NewTek Video Toaster, but its capabilities are not as well known over this side of the Atlantic, so now that it really exists, here is the lowdown on the beastie.

The attention generated by the Toaster is little short of phenomenal, surpassing even the most optimistic hopes of NewTek's Marketing vice-president, Mark Randall. Even now, some four months after shipping commenced and the initial atomic blast-like impact, the media interest is staggering. The vagaries of the American use of English allow the Toaster to be simultaneously the "hottest" and "coolest" product of the year, and the fact that three channels on television were concurrently using Toaster graphics, with another one talking about it, on one night, just goes to show that there is no sign of this momentum slowing down. Randall also reported seeing Toaster effects in a rather dubious video, called something like Catalina Girls, with a more "limited" distribution! (How he came by this tape is a matter for conjecture, however!)

The existence of the Toaster has been a closely unguarded secret for several years now, with occasional glimpses of its potential to seriously whet even the ▶



FIELD REPORT

THE VIDEO TOASTER

most anorexic of appetites. The Toaster and Amiga combination's main feats include literally hundreds of special effects, like on Top of the Pops where the picture shrinks and rapidly disappears up the presenter's nose, after flying around the screen a bit. In addition to the fades and wipes, the Toaster can freeze a frame into its memory, before saving it to the hard disk.

The Toaster is marketed as an all-in-one broadcast studio, and this is pretty close to reality. The hardware plugs into the video slot on the right of an A2000, but does not fit into an A3000, which is due to the smaller case of the latter, but Commodore apparently did not actually warn developers of this alteration, and also the Toaster does not quite see eye to eye with the new Denise chip. NewTek are currently thinking about these problems with a view to getting an A3000 version on the shelves, but there is not real hurry with everything going so well on the A2000; sales have soared to reach several thousand, and demand is still outstripping supply to such an extent that some dealers are selling it for three times its list price.

When the fairly substantial board is located, there are a couple of outputs, and four inputs for the switcher part of the package. These are your video sources and could be cameras, VCRs or laser disks etc. Connecting several sources, particularly VCRs, causes a slight problem in that the signals seen by the Toaster are likely to be out of phase with each other, and so a piece of hardware called a time base corrector is needed to synchronise the frames and smooth everything out. This can add another $1000 or so to the cost, but many manufacturers are actually building time base correctors into their VCRs, and also their price is falling steadily, so this should not be too much of a barrier to happy toasting. In addition to the four inputs, the Toaster allows two 24-bit digitised pictures in memory, and it will also provide a coloured background as a seventh source. Switching between the different sources using a variety of transitions is simply a matter of selecting the two icons for the two frames, and either using the automatic function with its definable speeds, or by sliding the T-bar using the mouse to determine speed.

"NewTek's own 4 VLSI chips extend the graphics resolution of the Amiga to such a degree that the results are equivalent to true television broadcasts"

The key to the Toaster's potential is that NewTek's own 4 VLSI chips extend the graphics resolution of the Amiga to such a degree that the results are equivalent to true television broadcasts. The Toaster is also supplied with a paint program which works on this 24-bit image, allowing the artist access to a mere 16.8 million colours, at a resolution of 768 x 480 pixels (that's NTSC). Such numbers make you wonder how HAM artists manage with only 4096, doesn't it?

NewTek are not renowned for underdoing things, so they popped an excellent 3D-Rendering program (Lightwave 3D) with hundreds of predefined objects into the package. This, coupled with the paint package, is easily enough to justify the cost of the Toaster, but Newtek wanted to be sure that nobody would accuse them of being miserly by throwing in a character generator for doing captions, just to be on the safe side. Naturally this works to the high standards demanded by professional "videographers", as they are known in the U.S.A. The cost of the Toaster is insignificant when compared to the £250,000 you would have to fork out for several boxes of traditional equipment, which don't even play Lemmings.

How does the Amiga fit in? As AUI readers, you are doubtlessly convinced about the Amiga's attributes, with its incredible graphics and stereo sound, but the rest of the computing world is largely unimpressed, preferring monochrome Macs, and mute PCs. The big boys are running scared, and it is all because of the Toaster. NewTek have astounded the established aficionados by declining massive financial inducements to develop a Toaster for both the Apple and IBM machines, self-proclaimed as the ultimate video platforms. Why is this?

FIELD REPORT

The Amiga was designed with video applications in mind, and hence its entire architecture is timed to be compatible with video standards, and the overscan graphics modes are further testament to this. (This explains why the clock speed is actually 7.16 MHz, rather than 8, and is exactly double the video requirement of 3.86 MHz, so conversion is apparently easy). The PC and Mac would require very expensive circuitry to match this, and the cost will be far more than buying an Amiga 2000! Commodore are naturally laughing all the way to the bank; A2000 (or the A2500 — a 68030 version not sold in the UK) sales are reported to have doubled

"Except when it comes to designing things, NewTek are not known for their serious, mature attitude to life"

since the Toaster hit the streets.

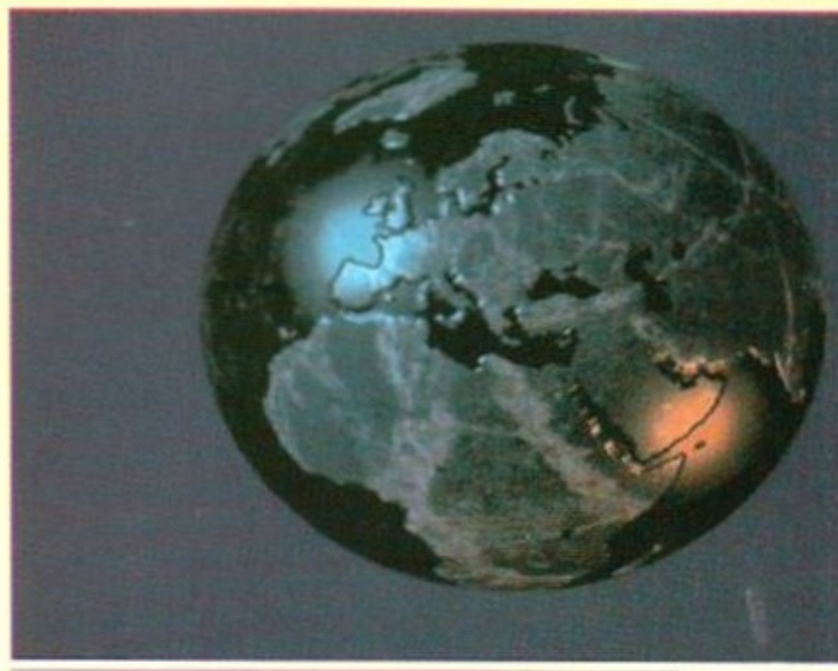
From a technical viewpoint, the secret of the Toaster's low pricing is largely to do with the fact that most of the trickery is done by the considerable amount of software which totals about 5 Mb on 8 disks, rather than expensive, inflexible hardware. This approach also means that further developments are possible, simply by writing new code.

You may be wondering how the Toaster got its rather unusual name. Except when it comes to designing things, NewTek are not known for their serious, mature attitude to life (anyone who has a sign reading "Nuclear Waste Disposal Systems" above their premises cannot be totally sane!), and so when asked about their current developments, they are reputed to have replied that they were making a computer-controlled toaster which burned the company logo into the bread! Whatever the truth, the name was adopted and the Toaster was born.

The last few months have seen the Toaster touring all manner of exhibitions, some of which may have seemed slightly inappropriate. NewTek are Amiga fans par excellence, and they were really upset when Apple started pushing the Mac as the best thing in video, so they sneaked into a MacWorld show with an Amiga, Toaster and Macintosh computer. Calling their system "Trojan Horse", it was soon realised that the Amiga was behind the amazing display of video effects, and NewTek proved a point eloquently by walking off with the accolade of "Best Product at MacWorld" from many pundits. Byte magazine also named the Toaster as one of the best products of 1990.

It may be too early fully to judge the impact of the Amiga in the exciting new video arena, but many experts point to the story of the Apple Macintosh computer and its struggle in the PC-market. Until Aldus Pagemaker provided that unassailable niche for the Mac in the desktop publishing world, the computer was an expensive toy with no real benefits over existing business machines. Laser printer technology became affordable, and a new computer industry was born, taking the Mac with it. The Toaster is being seen as that impetus which the Amiga requires to shake off the games machine image, and show the world what a remarkable machine it is. After all, if you really want a PC, a Macintosh, and a broadcast studio that plays Lemmings, all you need is an Amiga with a couple of hardware emulators, a Toaster and, of course, a copy of Psygnosis' horridly addictive entertainment!

"The Toaster is marketed as an all-in-one broadcast studio, and this is pretty close to reality"



Contact: Newtek, 215 S.E. Eighth Street, TOPEKA, KS 66603
Tel: (010)-354-1146

TEST DRIVE

Has Mike Nelson finally discovered the secret of Amiga digitising?

The Colour

For most of the Amiga's life, the digitiser of choice has undoubtedly been the famous Digiview from NewTek, but over the last year, a British product has been gaining ground on the undisputed champion. Manufactured in Scotland by Rombo Limited, the Vidi series is certainly beginning to give the American counterpart a good run for its money. AUI originally reviewed Vidi-Amiga last year, but Rombo have now packaged up all the individual components, initially sold separately, and thrown in a copy of Photon Paint for good measure, calling their offering "The Colour Solution". It is worth describing how the system works, and what it is capable of accomplishing.

Digitising is the process of converting any analog signal into the 1s and 0s used by the computer, which then converts them back again! The procedure can be applied to almost any source, including sound although this form of digitising is called sampling. Vidi is concerned with pictures, taking a video source of some description as its input, and passing the information to the Amiga which can then do almost anything with it. The obvious thing to do is simply display the picture, but as this image is inside the computer as a series of numbers, the full power of paint packages like Photon Paint can be applied to alter the picture.

The video source will usually be a camera, or if you Åare trendy enough, a Camcorder will give you excellent results. The idea is that you focus this on your source, fire the system, and the Amiga monitor displays the results. The source will usually be still pictures as trying to digitise living people or animals is pretty difficult for, unless they are dead or severely anaesthetized, any movement will blur the image. This occurs because it can take several seconds for the computer to do its thing, and Rover is unlikely to stick around long enough to be digitised!

Amiga users will know that their machine comes with 4096 possible colours, and also a special display mode called HAM (Hold and Modify) to allow them to all appear simultaneously. Usually, screens are limited to 16 or 32 colours from this palette of 4096, but HAM is a design quirk which thankfully got left into the final Amiga specifications.

Before you can understand how a digitiser works, you need some inside information on how the Amiga colour system functions. If you look at the colour requester of programs like Preferences on the Workbench disk, you will notice three sliders labelled Red, Green and Blue (RGB). Each of the 4096 colours is composed of a certain mixture of red, green and blue, a value between zero and 15 to be exact. For the mathematically-minded, 16 x 16 x 16 comes to the magic number of 4096. Further, if you need four bits to represent 16 numbers, 4096 numbers need 12 bits.

The picture from a television or video contains considerably more information to describe the image than the Amiga is capable of dealing with, so digitising at this level will only ever be an approximation to reality. How well this approximation occurs is naturally limited by the resolution of the hardware doing the digitising, and as the photographs show, the results are very impressive indeed.

The problem of getting a television picture into the 4096-colour mode of the Amiga is largely one of historical interest, rather than any practical hindrance. This is mainly due to the first of the Colour Solution components under consideration, the Vidi-RGB colour splitter. In the old days, the only method available was to hold a series of red, green and blue filters in front of the camera, while digitising each component individually. This was necessary because the television signal comes as a composite of these elements, but the advantage was that a low cost black and white camera would be used. This was fine for people who wanted to do only digitising, but for the most part, the monochrome camera was a great restriction as home videos were becoming increasingly popular, and understandably the demand was for colour.

The Vidi-Amiga with Vidi-Chrome combination has really come into its own as a result of the splitter

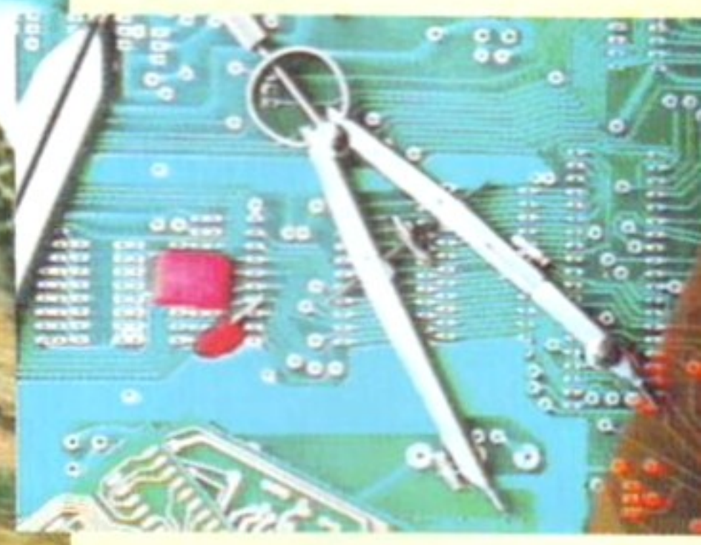
Around the time of Vidi's birth, colour cameras were becoming much cheaper and the signal quality suitable for digitising, but the central problem of the composite signal remained. In response to this, Rombo developed the colour splitter to separate electronically the RGB portions, and hence do away with the need for filters. This greatly enhances the practical usage of Vidi as the entire process takes a matter of seconds and there is no user intervention. At this point, it is worth noting that the splitter is available as a separate entity and works well with Digiview, but is not automatic - a button on the unit toggles the current colour being separated, and the Digiview software just thinks there is a filter in the system, as normal. This also functions with Vidi, so you can digitise your mother-in-law using just bullfrog green if it makes you feel any better. (Please don't send us the picture though!)

The Vidi-Amiga with Vidi-Chrome combination has really come into its own as a result of the splitter, but it scores highly too because it is so easy to use. Digiview is incredibly fussy about the camera it requires (black and white is still the order of its day), and also the lighting has to be just right; realistically you need quite a pricey set of lamps. Vidi is much more tolerant of conditions, partly because it is so flexible in that brightness and contrast levels can be set by the software, and also by control potentiometers in the black box as well. The picture of the owl was taken from an album cover, on my floor, using sunlight as the illumination! You can't get a cheaper set up than that.

The other big advantage of using Vidi-Amiga is that it can take stills from a paused video recorder, assuming the pause is stable enough. Older machines tend to be unable to cope with such an idea, but modern VCRs provide a perfectly adequate pause function for Vidi. Another use for this system is in taking 16-grey shade stills from a moving video source, and if you have a large enough Amiga, the system is fast enough to form a simple animation. I have seen this very set up used in a prototype ultrasound scanner which could be used to produce images of the heart moving around - without cutting the person open!

The pictures, although very good, can sometimes require a little attention to

Solution



touch up the defects, and what better to use than Photon Paint, one of the most popular HAM paint packages available? As well as messing about with the colours, you can also cut and paste between images very easily, so it is now possible for you to score that final touchdown in the Superbowl, or join Luke and the boys as they zoom in to blast the Death Star (again!). Ever wanted to see what the lounge would look like in a nice shade of purple? Just zap it into the Amiga, and use Photon Paint before even a drop of real paint is applied. Another possibility is a nose job before the plastic surgeon so much as sets foot in an operating theatre, or possibly a customised car! The list is endless, and Vidi is an excellent way of exploiting your Amiga, especially if you can't draw!

The Colour Solution fully lives up to its name, and at £179 represents very good value for money. Camcorders are appearing at ever-decreasing prices, and so you could easily find yourself expanding the horizons of your Amiga beyond measure. In addition to the practical benefits of Vidi-Amiga, the fun factor almost justifies the price on its own. Ease of use comes built in, and the product is well made, robust and complete with cables and excellent value. What more could you want?

Price: £179
Contact: Rombo. 6, Fairbairn Road, Kirkton North, Livingston, Scotland, EH54 6TS. (0506) 414631.

AEGIS SOUNDMASTER™

Get the sound in and get it right with Aegis SoundMaster. Aegis SoundMaster was designed to provide the highest-quality digitized sound possible at a reasonable price—with AudioMaster III software, SoundMaster can sample up to a true 56KHz in stereo, a higher frequency than the CD industry standard of 44.1 KHz. The built-in microphone lets you sample sounds right away.

High speed stereo digital audio sampler

SoundMaster features include:

- **Input from any source including CD's and microphones—mix or dub over sound samples**
- **Sampling rates up to 56k in stereo**
- **Realtime volume control**
- **Mono and stereo microphone input in addition to built-in microphone**
- **Overload indicator—keeps the "Ouch" factor out of your samples**
- **Computer-controlled microphone—sampling rates from 20–12,000 Hz**
- **Draws power from computer—no external power required**
- **Lengthy cord for ease-of-use**
- **Compatible with AmigaDOS™ 1.3 and 2.0**
- **Works on any model Amiga computer—including the Amiga 3000**

Includes AudioMaster III

Aegis SoundMaster is a trademark of Oxxi Inc.

AUDIOMASTER III

Painting With Sound

AudioMaster III is the next generation of Amiga sound sampling software for the Amiga. Using the most advanced technique for real-time sound sampling, **AudioMaster III** gives you sample rates up to 56K in stereo on a standard Amiga! All current sound sampling hardware is supported for sampling from sources such as a microphone, CD player, video system, or anything you can plug into your sampler.

Special effect tools allow you to visually alter the waveform in a true interactive editing environment. Add echo to your sound, backmasking, low pass filtering, flanging, alter pitch and playback speed and much more! Effects such as echo, digital delay, and flange can all be accomplished in real time as well!

AudioMaster III's newest and most exciting feature is the sequencing. Where most sampling packages give you the ability to repeat a single loop over and over, **AudioMaster III** allows you up to 999 separate loops within a single sample. What this means to you is the ability to take a 20 second sound sample and turn it into a song lasting as long as 2 hours! Try to imagine the many possibilities for soundtracking of video, creating your own remixes, or just playing around! **AudioMaster III**'s sample length is limited only by your machine's main memory, a tremendous amount of high-quality audio is possible!

That's not all **AudioMaster III** has going for it! The author, Peter Norman of RamScan Software, has an affinity for compact discs. Thus we have included the Aegis CD Player Simulator for your listening pleasure. Load up to 20 songs or samples to play in the background via a fully-simulated compact disc player. Since it's fully multi-tasking, the Aegis CD Player can bring a whole afternoon of music to you while you work on other projects!

Oxxi Aegis
WE FOCUS ON TECHNOLOGY
P O BOX 90309, LONG BEACH, CA 90809-0309 USA
Telephone: (213) 427-1227 FAX: (213) 427-0971

Aegis VideoTitler 3D, Aegis AudioMaster III and Aegis CD Player are trademarks of Oxxi, Inc.
Amiga is a trademark of Commodore-Amiga.

TEST DRIVE

Pen Pal V1.3

Examining the upgraded and debugged version of this graphics orientated word processor, John Walker sees how W/P and DTP are moving closer . . .

Pen Pal is an innovative word-processor that provides many of the facilities of desktop publishing programs. It can mix text and graphics on the page, run words around a picture and output colour. It sets new standards for an easy-to-use interface, has good on-screen help, and includes a forms designer and a fast flat-file integrated database.

The version reviewed was 1.3 revision 14, which indicates the amount of debugging and enhancements that have gone on since the program was first published. Six months ago, for example, version 1.3 was on its first revision. The program now seems stable and can offer a serious challenge to most other Amiga word processors. As a graphics-orientated program, its only serious rival is ProWrite 3.0.

Pen Pal requires a minimum of 1 megabyte of RAM and, preferably, two disk drives. It comes on two unprotected disks together with a fat manual that has a good index, and a slim addendum to explain the changes made to the latest version. Transfer to a hard disk is made easy by a supplied installation program.

What strikes you first about the program is its interface. The display is closer to a desktop publishing program. At the top is a menu bar with a clock below that a ruler, and down the left-hand side a tool-box. There is a scroll-bar and other controls to the right and another scroll-bar at the bottom.

The interface has been well thought out. The ruler and some of the scroll bars can be hidden and there is a zoom gadget to expand the text window to its biggest possible size. You can also call up a split-screen view that shows your document in miniature as it appears on the page.

When you move the mouse-pointer either to the ruler or the tool-box, it changes. Put it over an icon on the tool-box and it will tell you the icon's function. Place it on the ruler and a little box appears labelled Set-Tab, so that you can define the tab settings you require.

This is particularly helpful in the early stages of using the program since you always know exactly what action you are about to take because the pointer tells you what it is. As you grow more confident, you can use keyboard equivalents instead of pointing and clicking. There is also on-line help that covers the program's main functions.The toolbox has one disadvantage. It means that there is less space to display the width of a page so that, if you are using a page more than seven inches across, the screen scrolls to accommodate the line of text. This, of course, makes it impossible to read full lines of text without scrolling back and forth, which can be irritating.

The tools provided are for drawing lines and boxes, which can be filled with patterns or which ever colour you require. Those with colour printers will find that Pen Pal provides good results using the Preferences' printer-drivers, although there may be problems when printing with the Xerox 4020, Okimate and Okidata printers.

Pen Pal can do things some other word processors cannot. It lets you see a full page in miniature on-screen, a useful facility that is lacking in its main rival Amiga programs.

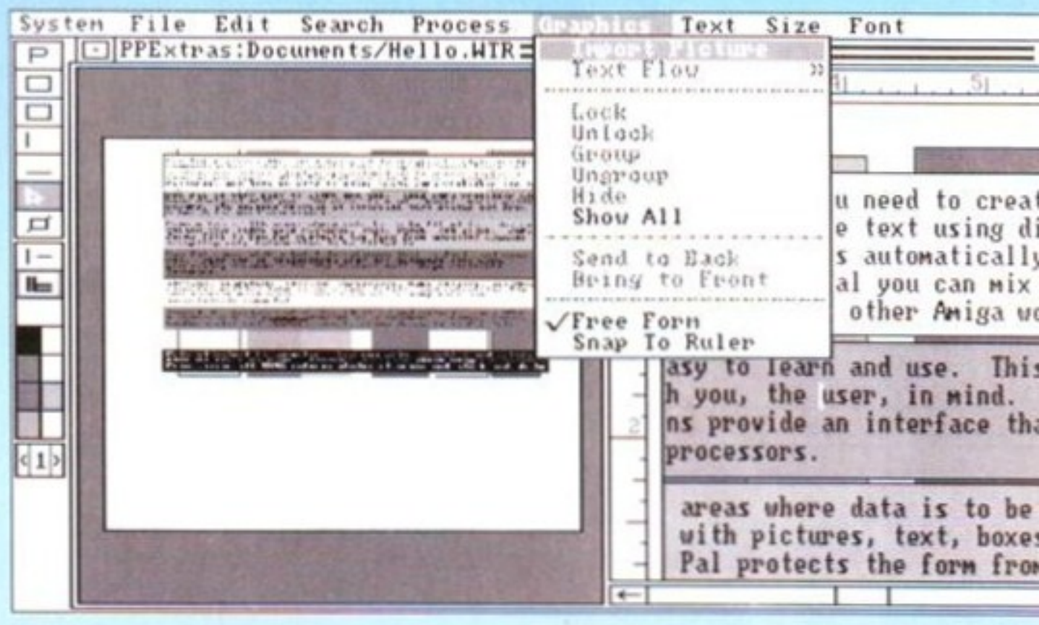
"Pen Pal can incorporate graphics in any resolution, including HAM images with 4096 colours."

It can also run text around irregularly-shaped graphics, which no others can do. You can achieve a similar effect with ProWrite, but only by moving each line of text manually. Text can only appear on one side of a graphic however, either to the left or the right.

Pen Pal can also incorporate graphics in any resolution, including HAM images with 4096 colours. When printing, it allows you to make a graphic print using the Amiga's bit-mapped fonts or a text print employing your printer's built-in fonts so that you can combine graphics with the best possible quality of print. Up to 200 bit-mapped fonts can be used at a time, and an enhancement to the 1.3 version makes it easy to switch from one font directory to another. The best results, though, will come when using the printer's fonts.

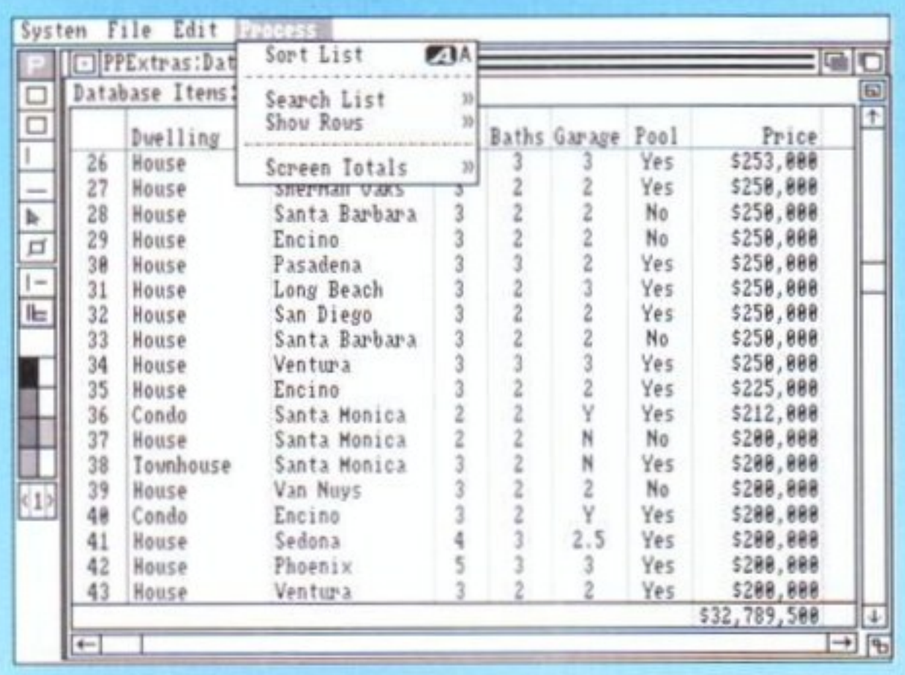
There are limitations, though. In text printing, you are restricted to one font in a document and the text can be printed only in black. So that what you see on the screen resembles what is printed, you must use a font that has characters of a fixed width. When using text printing, the only way you can get more than one font in a document - say, for a headline - when using the printer's built-in fonts is to import the words as a graphic from a paint program.

Pen Pal's graphics handling is excellent. Images can be quickly cropped and re-sized and text will automatically be re-flowed to the left or right. Graphics can be locked in position on the page and cut, copied and pasted with ease. When you import graphics, the program sensibly informs you of the amount of memory needed and how much is available to you. You can alter the size of the draw- ►



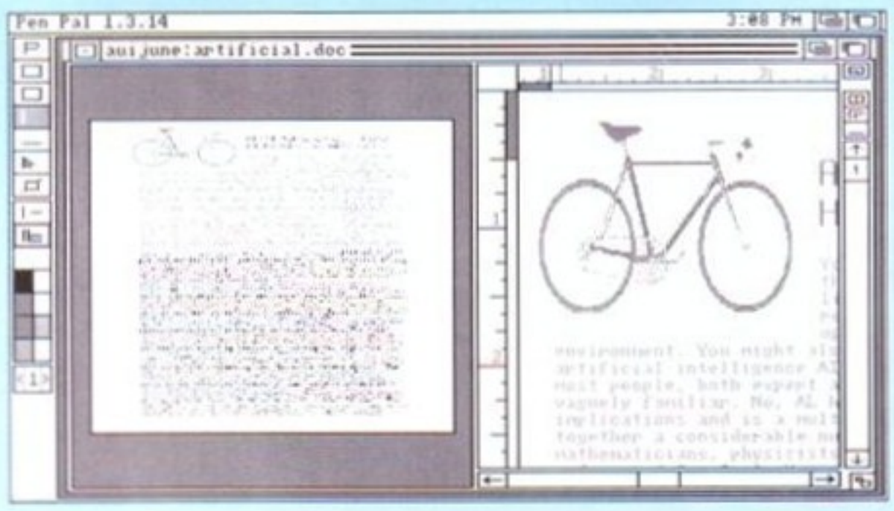
TEST DRIVE

Pen Pal V1.3



◀ing, maintaining or changing its proportions as you do so. Once on the page, the picture can be cropped and resized.

"Uniquely among Amiga word processors, Pen Pal includes a good forms creator and a database which integrates well with the word processor."



On-screen, the picture is shown with eight colours, but it will print with its original colours. Two or more pictures can be grouped so that they form an entity and can be modified or moved together. A graphic can also be locked so that it cannot be moved. An "Undo" function allows you to reverse many actions on text as well as graphics.

Uniquely among Amiga word processors, Pen Pal includes a good forms creator and a database which integrates well with the word processor. You can have up to four documents and databases open at a time and cut and paste between them all.

The database, which resembles a spreadsheet in using rows, columns and cells to contain its data, is fine for for name and address files, which can then be used with the word processor for mail merge purposes in sending the same letter to several people, or for printing labels. It has a simple report generator of its own, but its data can be merged with templates created in the word processor to produce fancier layouts.

Like a spreadsheet, you can use it to perform calculations, although only simple ones with formulae limited to 256 characters that use the four standard arithmetical operators: add, subtract, divide and multiply. Columns can contain besides calculations and the amount that result from them, text, alphabetical characters, a date, a time, a Yes/No toggle, or phone numbers. The size of each field is small - a text field can have no more than 64 characters. Future versions of the database may include sound and graphics.

The database has reasonably good sort and search facilities - certainly adequate for the purposes ancillary to the word processor for which it will be used. Other databases can be imported in ASCII format providing that a field has no more than 64 characters, no more than 32 fields to a record, and no record contains more than 1024 characters. You can also export a database as an ASCII file, and the same company's SoftWood File IIsg can also read Pen Pal's databases.

"Images can be quickly cropped and re-sized and text will automatically be re-flowed to the left or right."

Pen Pal's forms creator can be used for many purposes, from labels to complex invoices. To create a form, you enter the text and then use the program's tools to draw lines and boxes around the words. It is also possible to import any Amiga graphics as part of the form.

It works particularly well with forms intended to be filled out on the screen before they are printed. A special feature permits information to be entered only in designated spaces. Once one section is filled in, Pen Pal automatically moves to the next insertion point. After it has been printed or saved to disk, the form can be restored to its original state so that it is ready to be filled in again.

Pen Pal has all the functions that you would expect from a standard word processor - except one. You cannot directly insert a file into another document. You need to load the file first into its own window and then cut and paste between windows. As you can have up to four documents or databases open at a time this is not too much of a disadvantage.

The program comes with a 100,000 word dictionary. The spell-check is on the slow side, taking 40 seconds to complete a 4,000 word document containing no errors. But Pen Pal lacks a thesaurus and facilities for indexing and adding footnotes. It has no macros nor any automatic hyphenation of text or control of widows and orphans (short lines at the bottom or top of a page).

Rather than providing just a word count, Pen Pal gives the number of sentences, paragraphs and characters used in a document, together with statistics on the size of words, sentences and paragraphs, and a indication of the reading level required to understand the document. It also tells you how much chip and fast memory is available, the amount that has been used, the space available on your disk and the amount required by the document.

Unlike some graphic word-processors, Pen Pal's screen updates are fast. It kept pace with my typing in a document of 4,000 words. But in some respects, it is slow, particularly when loading a document. It takes a tedious 72 seconds to load 4,000 words in ASCII format. In comparison, Gold Disk's Write (also known as Transcript) loaded the same document in four seconds.

In the future, I would like to see support for Compugraphic fonts and for PostScript printers. For those with colour printers, there is probably nothing better for integrating text and colour graphics in the form of a straightforward report. As a page layout program, though, it has the great drawback of not allowing more than one column of text to a page.

These weaknesses have become more noticeable with the release of ProWrite 3.0, another graphics-oriented word processor which allows multiple columns, and has a thesaurus, an ARexx port and the ability to use a printer's pica, elite, condensed and wide fonts at the same time.

Pen Pal's forms creator and integrated database give it facilities to be found nowhere else. A lot of effort has gone into making the program easy to use. It remains a very versatile word-processing program with a few surprising omissions and some unusual strengths - but one that will soon be in need of updating if it is to survive and prosper.

Price: £129.99
Contact: Softwood Inc., Post Office Box 50178, Phoenix, Arizona 85076.

If your database looks like this, you're ready to face the future.

Given the chance to gaze at the future of database computing, what would you see?

Graphical applications that are intuitive and yet incredibly powerful, supporting sound samples and even pictures.

Applications like Superbase 4 Amiga.

Unique features like the VCR panel mean browsing and reporting on data have never been simpler.

Superbase's WYSIWYG Form Designer lets you draw and design forms that are easy to understand and use.

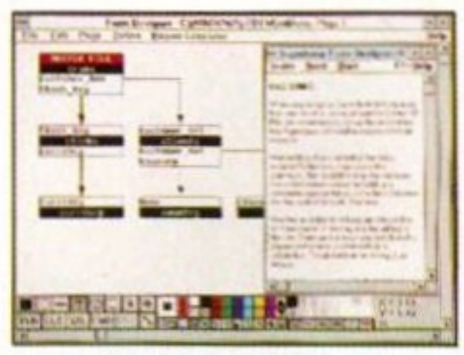
And, with its own comprehensive Database Management Language, you can develop professional applications.

You can share data with users of IBM-compatible PCs, while developers can make sophisticated database solutions available on both Amiga and Microsoft Windows platforms.

All trademarks acknowledged. Screen shot taken on an IBM PC.

Superbase 4 Amiga also supports import/export of dBase, Lotus 1-2-3 and Microsoft Excel files.

So, for your future's sake, clip the coupon, send us your business card or call us on **081 330 7166** to find out more about Superbase 4 Amiga. After all, the benefits are staring you in the face.



Denote the relational links between the files referenced in your form.

SUPERBASE® PROFESSIONAL 4

I currently own a copy of:

☐ Superbase Professional ☐ Superbase Personal 2

☐ Superbase Personal ☐ Neither

Name _____ Job Title _____

Company _____

Address _____

_____

Postcode _____ Tel _____

Precision Software Ltd. 6 Park Terrace, Worcester Park, Surrey KT4 7JZ.
Tel: 081 330 7166 Fax: 081 330 2089

Coming soon to an arcade near you!

Virtuality pods, or modules, in the arcade.

Alan Puzey is plunged into the world of Virtual Reality - will his real world ever be the same again?

Insert the latest game into your Amiga, boot up, dim the lights and enter the world of dreams that only the Amiga can give. But wait - is it good enough, anymore? The graphics are great - sure, but there are distractions, and does the sound from that monitor give you the illusion of sensaround? And how many games can you link up with ten other players, either to fight against, or form a battle unit together? Or are you waiting for VIRTUALITY?

The world of virtual reality has just been revealed to a select audience of invitees at Wembley Conference Centre, at the world launch of Virtuality. Virtuality is the name used by W Industries, for a range of their projects based on virtual reality, which is the concept of immersing the user within a computer-generated world where the normal aural and visual senses are severed from the real world. However, what is sheer torture for one person is the ultimate thrill for another - that is how closely this entertainment resembles the sensory deprivation and white noise torture that we frequently see spies undergoing in movies!

With the use of helmets and other body mounted devices, people can see, hear, touch objects and each other in a virtual sense. The illusions of walking, flying, tunnelling - almost anything, are possible by the appropriate interfacing of these devices to graphic and sound reproduction

"Your hands rest on the two joysticks, controlling all the usual airborne manoeuvres and weaponry."

W Industries discussed and demonstrated a number of virtual reality applications, but the main launch concerned itself with the games aspect, centred on a 'pod' in which the player sits and participates in Virtuality 'experiences.' These pods are like modern plastic and metal versions of fairground dodgem cars. Players are then given a helmet which incorporates quadraphonic headphones and two colour liquid crystal displays which cut out normal sound and vision, replacing them with computer images. These give full stereoscopic vision and CD quality music and sound effects, creating the the impression of being inside the game itself. W Industries thought that the term 'experiences' was more appropriate than games. Virtuality was launched with two experiences ready for playing, but this should be increased at least to eight by the end of the year. It is hoped that a juke box of constantly changing experiences will keep the players returning to the arcade for more.

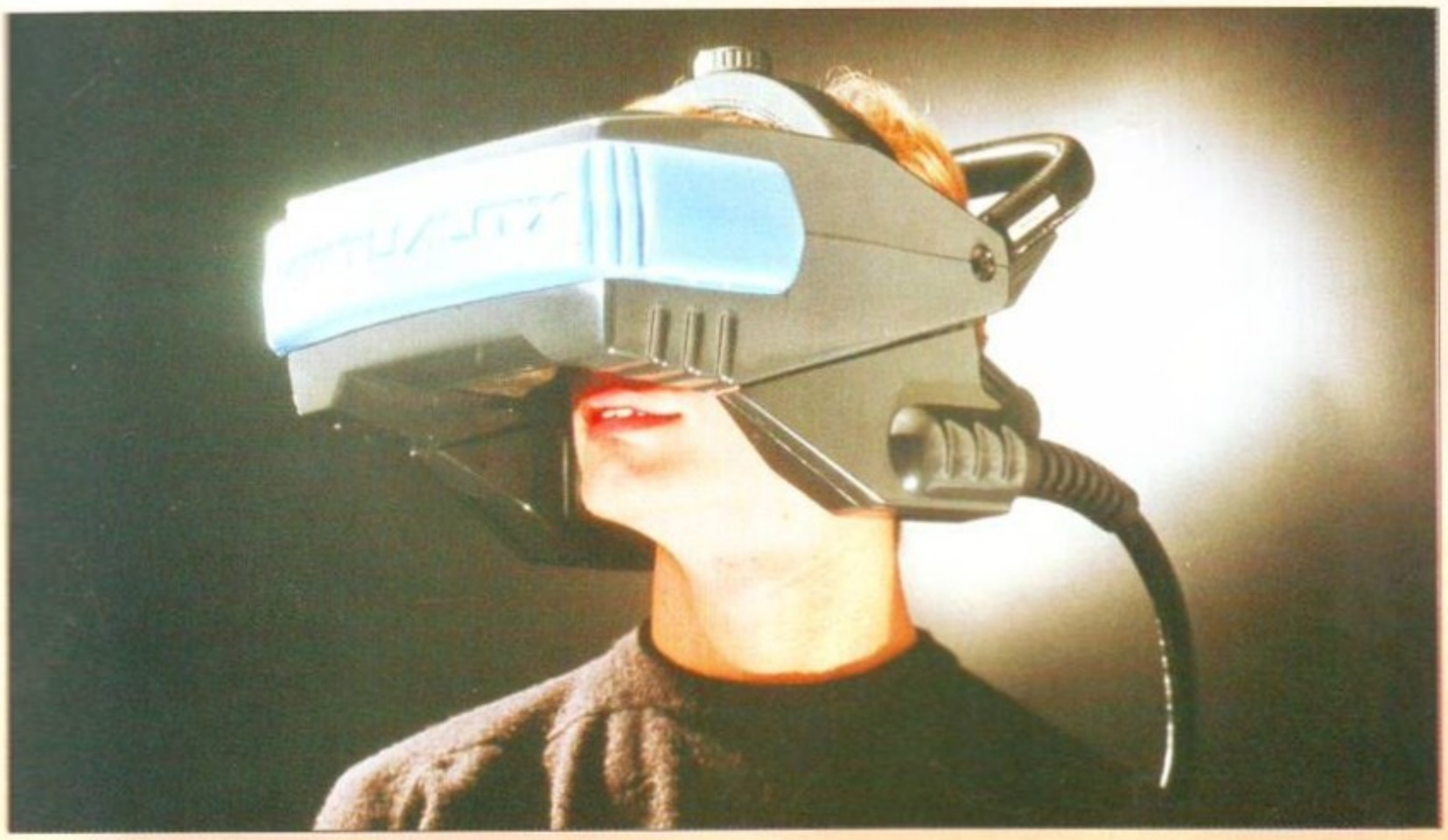
Of the two games available, Virtuality combat game involving a Harrier jump-jet, proved the more popular - probably because of its familiar form from conventional games. The excitement of playing this in virtual reality, however, greatly enhances the experience. The image constantly changes as you look up, down or behind. The quadraphonic music and digital sound effects leave only the smell of burning napalm to the imagination... An inbuilt microphone allows communication between friendly or competing players. It's not all fighting, as precision flying and refuelling must be achieved to progress to the next stage. The second game, or experience, was Battlesphere, where, as a future space pilot (what else is new?!) you have to outmanoeuvre other pilots in a dangerous asteroid environment.

These games proved very popular with those present, and I overheard a number of interested parties saying how they would soon be introducing them into their games arcades. The initial cost of participating in a 'virtuality experience' was expected to be £1, which would give the player from three to seven minutes playing time, depending upon the skill shown, as usual. Where an attendant is present, and a group of players wished to play together, it was intended that a fixed rate could be applied for say half an hour's play on a number of machines. If you have room at home and fancy a machine all to yourself, be prepared to part with £20,000. Now you know why a single game is being priced at £1.

Although the launch concentrated on these games, other virtual reality developments in the areas of military simulation and commercial use were discussed. The military uses of simulated movement within alien environments hardly needs elaborating upon to seasoned gamesplayers, but the commercial uses are equally interesting. We're all familiar with the use of CAD in the design of modern buildings, and interfacing this with a virtuality system would provide the possibility of people simulating working or relaxing within the projected environment and judging its suitability.

"If you have room at home and fancy a machine all to yourself, be prepared to part with £20,000"

On display with the pods, or sit-in modules, was a stand-up version incorporating more body-mounted devices. Primarily, this took the form of a glove with sensitive pads. As the wearer touched an object in virtual reality, the pads on the glove would convey a tactile response to the hand. If the wearer flexed his hand as if gripping an object, that object would be gripped in virtual reality. Presumably, this could be taken to logical conclusions with an intense grip supposedly crushing the virtual object or a throwing action



The helmet, or Visette, which is the main interface between operator and the virtual world.

resulting in the virtual object being thrown. For the future, it is hoped to produce a body stocking that would enable these interfacing pads to operate all over the body. Just don't ask me what future games developers will do with that!

What on earth is all this doing in an Amiga magazine, you ask. Well, entertaining you I hope, but there is a more pertinent reason. Behind every one of these Virtuality modules there lurks an Amiga 3000. Denuded of its case maybe, but there nevertheless, providing unrivalled computer power to these futuristic fantasy machines. Back in the mid 1980s, W Industries started developing virtual reality technology using the A500 because of its graphics and sound capabilities at an unbeatable price. Sounds familiar, eh! Work continued with the A2000 when that was released, and after close association with Commodore, the units as they exist today were perfected using the new A3000.

"The mammoth task of presenting real time graphics in a scrolling 360 degree environment is left to two very powerful, second generation Texas chip sets"

In fact the graphics side of the Amiga is not so crucial as the sound output. The quality of the four digital sound channels enables them to be used as the sole provider of high quality sound for the Virtuality system, whereas Amiga graphics only provide the still frames used for presentation, scoring, etc. The mammoth task of presenting real time graphics in a scrolling 360 degree environment is left to two very powerful, second generation Texas chip sets. W Industries also use the comprehensive Amiga input and output ports extensively within their systems. It was reassuring to hear the technical people on hand speak so highly of the Amiga component in this project.

Future developments in both software and hardware are planned. For the moment W Industries intends to produce all software internally, but are considering issuing licenses to third party software houses at a later date. The company was keeping pretty quiet about future games - for fear of piracy of ideas? - and the only scenario mentioned was a game based on powerboat racing.

On the hardware side, virtually all the components are modular, allowing easy replacement of chip sets as they are developed. Movement of the pod during gamesplay should be the next development. The onboard computer already does the necessary algorithms to match this to the games action and the bolt holes are already there in the pod, awaiting the mechanical linkages. To those of you who have experienced the sensation caused by this sort of effect - it has been used on various rides in Disneyland for a number of years, you will know how much extra reality it brings. The sense of smell may also be embraced in future modules.

Looking further into the future, Dr Jon Waldern, Managing Director of W Industries, predicted that the helmet would be replaced with a design based on a combination of Walkman plus spectacles. Avid gamesplayers would be able to purchase these sets and plug into special sockets where Virtuality was sited. It is not anticipated that the size of computers would diminish sufficiently for players to carry the whole system around with them, like the Walkmen of today. The carnage produced by the mixture of the real world and virtual one, in a situation such as that, would be devastating! The health and safety aspects of participating in virtual reality have been taken very seriously. Ten medical consultants were asked to look at possible repercussions, both psychological and physical. You will be pleased to hear that Virtuality has been cleared for take off and is not considered dangerous to your health.

"Ten medical consultants were asked to look at possible repercussions, both psychological and physical"

So, look out for Virtuality pods – coming soon to an arcade near you, and wonder if these developments have any place in the future development of the Amiga. After all, if W Industries can monitor the development of the Amiga and incorporate it into their machines, what could happen if Commodore do the same?

Battlesphere, hunting opposing celestial battlecruisers.

TEST DRIVE

Alan Puzey examines the full version of the program demoed our Userdisk

"Keep those credits SCROLLING"

Scrolling, scrolling, scrolling, Keep those credits scroling, Scrolleeerr!" You may well sing this along to the old Rawhide theme (if you're old enough to remember it!), as you breeze through this new program from The Big Alternative. Scroller may well qualify for the "easiest program to use" award, which is a big plus for Big Alternative as their stated objective was to produce a no-nonsense scrolling titler for video titles and credits.The single, protected disk comes with an explanatory instruction sheet which is hardly needed. On autobooting, the program is loaded into memory and an introduction/tutorial scrolls up the screen, going through the various aspects of the program, inviting you to try them out. The program really is so easy to use that this introduction will have you using the program to almost full capacity within ten minutes.

There are already titling and scrolling programs such as Pro Video, Video Titler, which offer more facilities, so why use Scroller? For sheer speed, ease of use, cheapness - £49, and smoothness of its scrolling; certainly as smooth as anything I've seen before, professional or amateur.

After the introduction you are invited to try out the various features, which are virtually all obtained by function key presses, plus - of course - typing in text in the usual manner. Pressing 'Esc' takes you back to the main menu. Because Scroller does not use standard Amiga Dos, it does not multi-task and you cannot import fonts or previously saved text. You can save Scroller data, on a specially formatted disk, which again cannot be accessed by normal Amiga Dos means. This does mean that you cannot check data disk contents, without first loading Scroller. As Scroller is intended for one purpose only - that of producing video titles, this may not be considered an obstacle. You simply use this one program when producing titles, put them down onto video, then go back to your normal Amiga work.

Scroller will scroll text upwards, or horizontally left to right, at nine different speeds. It contains twenty different fonts, though some of these are very similar, but of differing sizes. Familiar styles are there, similar to Euro, Swiss, Script and Chelt - basically a good range of both serif and sans serif typefaces. For vertical scrolling, text can be central or left or right justified and the text width and screen position can also be set. The vertical position of horizontally scrolling text can also be set anywhere on the screen. Scroller works in overscan which guarantees that you get no nasty, unwanted edges to your titling. You can alter the spacing between letters and words, to suit, but these are global settings and apply to all the text in a particular file.n you are restricted to that font for all the titling in that file. This could be restrictive if you wanted a larger font for main titles, you can only differentiate by use of upper and lower case or colour changes.

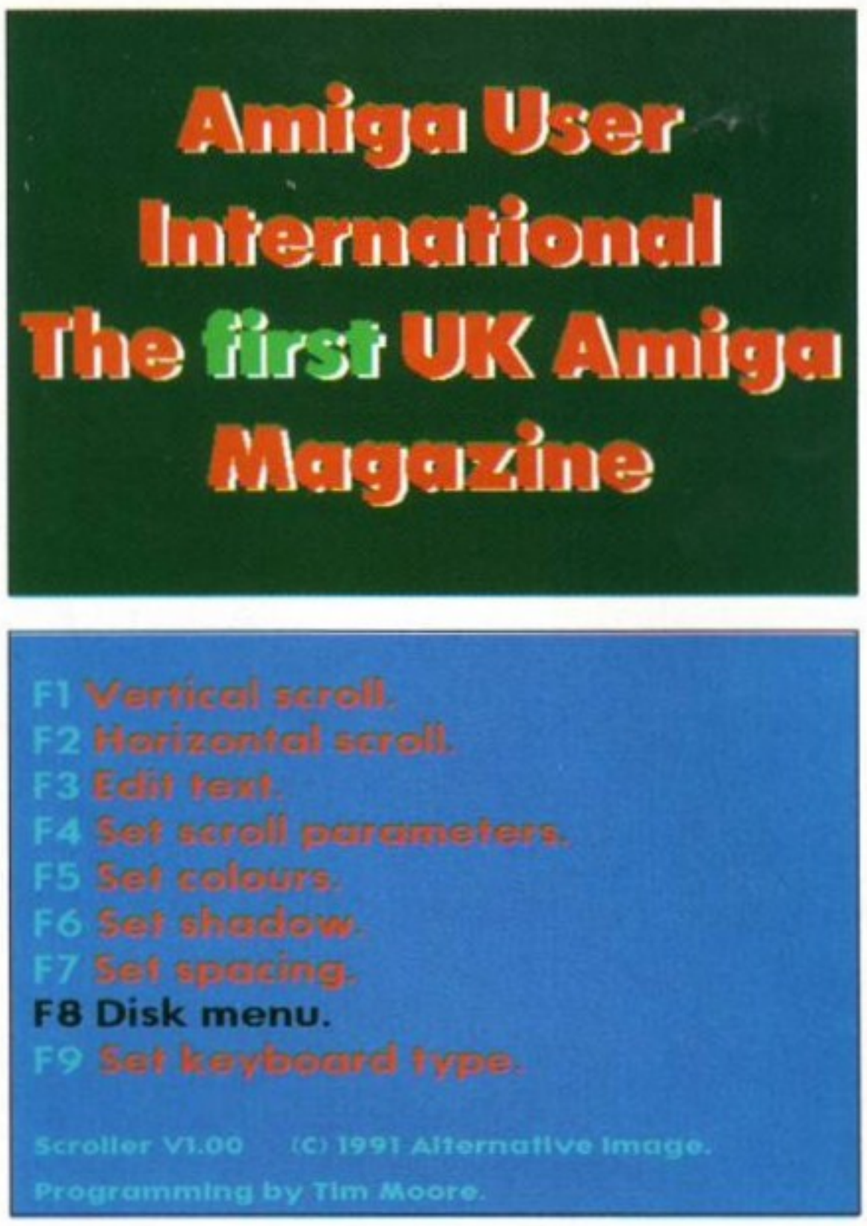
There are two basic pen colours and a variable drop shadow can be added, if required. If not required, this can act as a third pen colour. These, and the background colour are changeable throughout the 4096 basic Amiga colours. This is done by a strange-at-first keyboard operation, rather than the familiar sliders, but is very fast as you get used to it. This keyboarding style is symptomatic of Scroller functions, and works well. Sorry Mouse!

In a working situation, Scroller performs well, both on screen and when downloaded onto video. The normal warnings regarding titling prevail: as it's in high res, there is the chance of flicker if you use thin fonts, thin drop-shadows or too-fast a scrolling speed. In practice, with text on a plain background, I found that speeds 1 and 2 were too slow, 3,4 or 5 were the best and 6 to 9 caused flicker or were too fast. When using the text superimposed on a genlocked moving video background, the flicker was far less noticeable and speeds 6, 7 and 8 were far more acceptable. Speed 0 stops the scrolling; this could be useful for emphasis, as the speed setting can be changed during a presentation or when transferring to video. A useful function.

In conclusion, it must be said that this is its intended use and makes it a winner. Big Alternative may add the following features to the next version: multi-tasking, installation to hard disk, mixing fonts within a file, the loading of ASCII files and the use of standard Amiga fonts. Whilst these are all desirable features, will they detract from the speedy, efficient program that Scroller is now? Only you, the user, can decide.

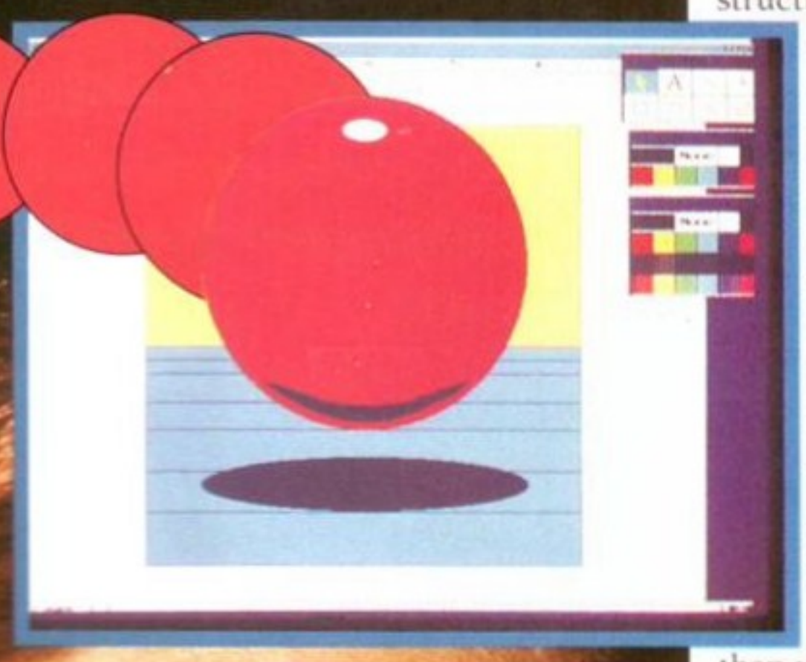
The scrolling text, recorded on video, looked even better than when working with it on the Amiga monitor.

The Big Alternative Scroller
Price: £49.00
Contact: Alternative Image, 6 Lothair Road, Aylestone, Leicester. LE2 7QB.
Tel: 0533 440041



DESIGNWORKS. THE PERFECT CREATIVE TOOL FOR THE AMIGA MIND.

Unleash The Artist Within
No Natural Talent Required



Put DesignWorks To Work For You

If you've been looking for a fast, easy-to-use, high quality structured drawing program, look no further. Now you can unleash the artist within with DesignWorks, the structured drawing program designed for the Amiga mind.

Creativity In The Fast Lane

DesignWorks is built for speed. No longer are slow and cumbersome programs needed to achieve professional results. DesignWorks is the ultimate in simplicity, with a responsive interface and design set.

The Highest Form Of Self-Expression Is Now The Least Expensive

DesignWorks costs far less than you would expect from a structured drawing program with this much speed and flexibility. With a Bezier smoothing algorithm, unlimited numbers of drawing layers, flexible text handling system and user-definable multi-color patterns, you don't need to be a professional engineer or CAD programmer to achieve quality results. And high resolution printing means you get near-PostScript quality output from your dot matrix printer.

Stop by your local Amiga dealer to see DesignWorks in action.

Draw Your Own Conclusions

- Fast and intuitive structured drawing
- Create lines, rectangles, ovals, polygons, and freehand objects
- Smoothed (Bezier) curves
- Optional arrows on lines
- Duplicate, rotate, flip, and scale objects
- Text with multiple fonts, sizes, styles, and colors
- Import/export IFF pictures
- Automatically align objects relative to each other
- Automatic grid snap
- Group objects together
- Variable line thickness
- Customizable multi-color fill patterns
- Multiple drawing layers
- AREXX port
- Macros, when used with AREXX
- Magnified and reduced views
- Drawing up to 100 inches by 100 inches in size
- Up to 10 drawings open at the same time
- Inch or centimeter rulers
- Near-PostScript quality printing on dot-matrix printers, full 4096 color printing
- Complete printer control, including sideways printing
- Fully customizable
- Full support for Kickstart 2.0
- Requires Kickstart 1.2 or later and 512K of memory
- Suggested retail price: $125.00

NEW HORIZONS

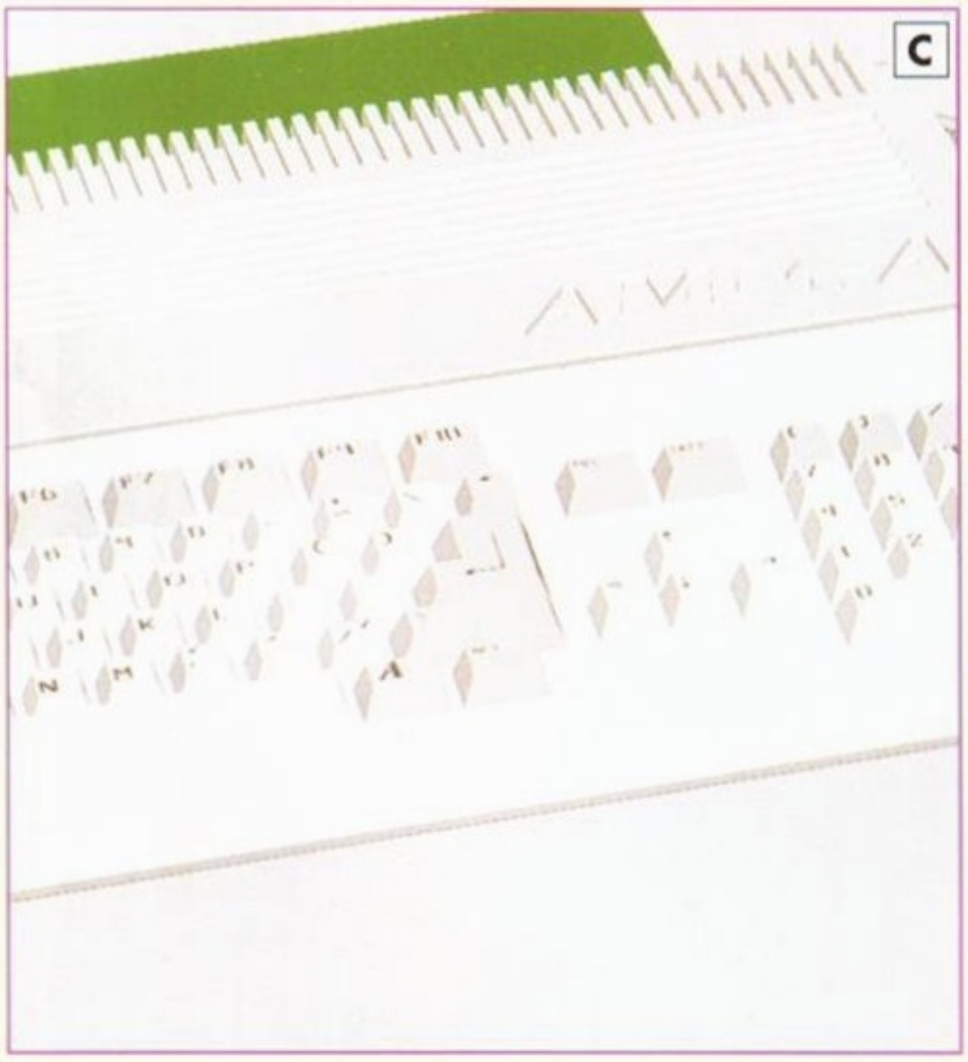
206 Wild Basin Road, Suite 109
Austin, Texas 78746 (512) 328-6650

Amiga® is a registered trademark of Commodore Business Machines, Inc.
DesignWorks™ is a trademark of New Horizons Software, Inc.

USER PORT

AI

(pics a, b, and c)
These delightful ray-traced artworks were created using an Amiga 2000, Sculpt 3Dxle and 4D. All of the images were produced by Malcolm Thornton of Frimley on an Amiga using Sculpt 4D's 24-bit option. The image area measures 2800 pixels wide by 1900 pixels high, therefore one image is about 15 Megabytes in size. Each image was rendered using various 68000 series processors and took differing amounts of time to complete, from 17 hours to 120 hours.
(pics d,e,f,g)
These super quality digitised images come from a commercial source, Nick Williams Broadcast (0792 470503) and were produced using a television broadcast quality camera. The pictures are part of a library which is being compiled and created to offer users a high quality pictures at low cost.
(pics h, i, j - please use titles)
These graphics were created by K.J.Doughty of Milton Keynes and have been titled, Atmosphere2, Personal computer, and Sound Station, by the artist. The design packages used in their creation were Deluxe Paint II, PhotonPaint & DigiPaint.



AMIGA ART

Bud Vennos searches out readers' amazing art contributions and selects some of the best... If you have talent, the right equipment, and hundreds of hours to spare, you could probably do as well, couldn't you?

G

H

I

J

AUI welcomes readers' art submissions for publication. Come on, international artistic fame is waiting for you!

WE WILL BEAT THAT PRICE UNTIL IT HURTS

WE WILL BEAT THAT PRICE UNTIL IT SCREAMS

DIAMOND

COMPUTER SYSTEMS LTD

On all OKI, Commodore & Philips computer products and peripherals, we **will** match any lower quoted price from **any** of our competitors and give you an **extra £5.00** off. This applies only to genuine U.K. stock. **Our staff will smile even if we lose money.**

NEW 1Mb AMIGA PACK NEW 1Mb AMIGA

AMIGA 500 MEGA PACK INCORPORATING AMIGA 500 +

- 512K RAM
- 1Mb Disk Drive
- 4096 Colours
- Mouse
- Extra 512k RAM with Clock
- Three Manuals
- Operating System
- Built-in Speech
- T.V. Modulator

ONLY **£285.00**

WITH

8833 MK II Colour Monitor

ONLY **£449.00**

PACK

AMIGA 500 MEGA PACK INCORPORATING

- 512K RAM
- 1Mb Disk Drive
- 4096 Colours
- Mouse
- T.V. Modulator
- Three Manuals
- Operating System
- Built-in Speech Synthesis

*** MEGA PACK 20 GAMES ***

Chess Player, Datastorm, Dungeon Quest, E-Motion, Grand Monster Slam, Kid Gloves, Rick Dangerous, RVF Honda, Shufflepuck Cafe, Soccer, Golden Axe, Hard Drivin, Phobia, North + South, Silkworm,Shockwave, Continental Circus, Turrican, X-Out, Ninja Warriors + JOYSTICK

ONLY **£309.00**

WITH

8833 MK II Colour Monitor

ONLY**£475.00**

NEW PACK NEW

AMIGA 500 AXE PACK INCORPORATING

- 512K RAM
- 1Mb Disk Drive
- 4096 Colours
- Mouse
- T.V. Modulator
- Three Manuals
- Operating System
- Built-in Speech Synthesis

*** 10 GAMES ***

Golden Axe, Hard Drivin', Phobia, North & South, Silk Worm, Shockwave,Continental Circus, Turrican, Ninja Warriors + JOYSTICK

ONLY **£285.00**

WITH

8833 MK II Colour Monitor

ONLY **£449.00**

PACK

AMIGA 500 SKILL PACK INCORPORATING AMIGA 500 +

- Disk Storage Box
- 1Mb Disk Drive
- 4096 Colours
- Mouse
- T.V. Modulator
- Dust Cover
- 10 3.5" Disks
- Three Manuals
- Operating System
- Built-in Speech Synthesis
- **EXTRA 512k RAM**
- Mouse Mat
- Dpaint II

DIAMOND MEGA 10 GAMES

Chess Player 2150, Datastorm, Dungeon Quest, E-Motion, Grand Monster Slam, Kid Gloves, Rick Dangerous, RVF Honda, Shufflepuck Cafe, Soccer + Joystick

ONLY **£309.00**

WITH

8833 MK II Colour Monitor

ONLY **£475.00**

PACK

AMIGA 500 NINJA PACK INCORPORATING AMIGA 500 +

- Disk Storage Box
- 1Mb Disk Drive
- 4096 Colours
- Mouse
- T.V. Modulator
- Dust Cover
- 10 3.5" Disks
- Three Manuals
- Operating System
- Built-in Speech Synthesis
- **EXTRA 512k RAM**
- Mouse Mat
- Dpaint II

DIAMOND MEGA 10 GAMES

Golden Axe, Hard Drivin', Phobia, North & South, Silk Worm, Shockwave, Continental Circus, Turrican, X out, Ninja Warriors + Joystick

ONLY **£309.00**

WITH

8833 MK II Colour Monitor

ONLY **£475.00**

PACK

EDUCATION PACK FROM DIAMOND

- AMIGA 500
- 512k RAM board
- Mouse mat
- Dust Cover
- Funschool

ONLY **£299.00**

INSTRUCTIONAL VIDEOS

AMIGA MADE EASY part 1

ONLY **£13.00**

AMIGA MADE EASY part 2

ONLY **£13.00**

All prices exclude VAT

No. 1 FOR

Diamond Retail Outlets Around The United Kingdom

- Dorset ✆ 0202 716226
- Bristol ✆ 0272 693545
- Manchester ✆ 061 257 3999
- Southampton ✆ 0703 232777
- London ✆ 081 597 8851
- Warwickshire ✆ 0926 312155
- Edinburgh ✆ 031 554 3557

512k RAM
Upgrade
with clock
ONLY **£25.00**

512k RAM
Upgrade with clock
AND Disk Drive
ONLY **£69.00**

COMPUTERS FOR BUSINESS

At DIAMOND COMPUTER SYSTEMS we can provide you with expert advice on all your business requirements. We always have a large range of computers and software in stock. In addition to our desktop range of both Amigas and PC compatibles, we also carry a wide choice of laptops and personal organisers.

9 PIN QUALITY PACK Word Processor & DTP

AMIGA 500

* 512K RAM board
* Philips 8833 Mk II Monitor
* STAR LC200
* Connecting Lead

PLUS HOME OFFICE
The ultimate word processor/DTP pack
* Intergrated Word Processor
* DTP
* Spreadsheet
* Database

£649.00

24 PIN QUALITY COLOUR PACK THE ULTIMATE PACK

AMIGA 500

PLUS HOME OFFICE
The ultimate word processor/DTP pack
* Integrated Word processor
* DTP
* Spreadsheet
* Database

PLUS
24 pin SWIFT 24 colour printer
Including colour kit
PLUS
512K RAM Board
Philips 8832 Mk II Monitor
£699.00

PACK

A590

20Mb Hard Disk with 2Mb RAM

* 20 FREE 3 1/2" disks
* 80 Disk Capacity, Disk Box

ONLY **£289.00**

A590 20Mb Hard Disk
0Mb RAM £229.00
512K RAM £249.00
1Mb RAM £265.00
2Mb RAM £279.00

IVS TRUMPCARD

D590 40Mb Hard Disk

0Mb RAM £299.00
2Mb RAM £349.00
4Mb RAM £399.00
6Mb RAM £449.00
8Mb RAM £499.00

For Details of Mr. Diamond's Incredible A2000 Part Exchange Deals, See Page 3 Of This Advertisment

LEISURE SOFTWARE SPECIALS

Golden Axe	£4.25
Hard Drivin'	£4.25
Phobia	£4.25
North and South	£4.25
Silkworm	£4.25
Shockwave	£4.25
Continental Circus	£4.25
Turrican	£4.25
X-Out	£4.25
Ninja Warriors	£4.25
Table Tennis	£4.25
Chess Player 2150	£4.25
Datastorm	£4.25
Dungeon Quest	£4.25
E-Motion	£4.25
Grand Monster Slam	£4.25
Kid Gloves	£4.25
Rick Dangerous	£4.25
RVF Honda	£4.25
Shufflepuck Cafe	£4.25
Soccer	£4.25
Menace	£4.25
Blood Money	£4.25

APPLICATION SOFTWARE

HOME OFFICE KIT ONLY £59.00
For a very limited perion, Mr Diamond is virtually giving away the Home Office Kit. This package comprises a suite of six programs selected for their flawless performance and ease of operation. Everything you need to analyse your cashflow to producing a professional reports.

Word Processor	KindWords2.0
Spreadsheet	MaxiPlan Plus
Database	InfoFile
Paint	Artist's Choice
Desk Top Publishing	PageSetter

PLUS
35 Cale Fonts and the Postscript utility LaserScript

GENLOCKS

Rendale 8802	£99.00
G2	£499.00

THE GREAT DIAMOND PART EXCHANGE DEAL

TRADE IN YOUR OLD AMIGA 500 FOR ONE OF OUR NEW AMIGA 1500's.

You get the base unit plus the 1500 software pack comprising Deluxe Paint III (the video paint system) + four games.
Their Finest Hour, Sim City, Populous, Battle Chess.
FREE collection from your home or office!
PRICE ONLY £425.00

With a monitor £599.00

DISKS DISKS DISKS
SONY BULK
3.5" 135 tpi
ONLY 30p each

WANT A 2000?
GOT A 500?

AMIGA POWER

SWAP IT
FOR ONLY
£299.00

GREAT AMIGA DEALS FROM DIAMOND

AMIGA 1500

A 1500 1Mb RAM,
3.5" floppy disk drive,
base machine with 2x 3.5" floppy disks
and software pack **£559.00**

all above + Monitor **£735.00**

with XT Bridgeboard **£835.00**

INCREDIBLE PX OFFER

visit Mr. Diamond and discover what your A500 is worth in part exchange

XT Bridgeboard
5.25" floppy drive **£129.00**

AT Bridgeboard with either
3.5" or 5.25" floppy drive **£499.00**

AMIGA 3000

The NEW
Commodore AMIGA

AMIGA 3000-25-40 25Mhz, 40 Mb hard disk
£1995.00
AMIGA 3000-25-100 25Mhz, 100Mb hard disk
£2295.00
AMIGA 3000 4Mb RAM expansion
£299.00

This machine is a veritable workstation; it comes with Workbench 2.0 - The new Commodore Multi-tasking Operating System - It can run the normal video monitor or a multisync monitor without having to fit a flicker fixer. It can even run under UNIX. This is the machine to set the standard for professional use in the 1990's.

AMIGA 2000

If you have reached the limits of the A500 then take advantage of the **Diamond Part Exchange Upgrade Option.** Swap your 1Mb A500 for an A200 for **ONLY £299.00**

Mr. DIAMOND AMIGA 2000 PACK
A2000 Rev. B 48Mb Autobooting Hard Disk,
28ms average access ONLY **£789.00**
With Colour Stereo Monitor ONLY **£959.00**

A2000 base machine **£399.00**
Ex-demo A2000 **£549.00**

PC XT & AT Compatibility for AMIGA
XT Bridgeboard
5.25" floppy drive **£129.00**
AT Bridgeboard with either
3.5" or 5.25" floppy drive **£499.00**

IVS TRUMPCARD for AMIGA 1500 & 2000

The IVS Trumpcard is the top selling SCSI hard drive controller. Representing the latest in technology directly from the USA, it will fit in either the A1500 or A2000. It is the only controller which will support IBM, Amiga and Apple MAC partitions on one hard disk. This allows you to run software for the three main hardware platforms in one machine. No more compatibility problems, only one computer can do this.

HARD DRIVE UNITS

ST157N-1	48Mb 28ms	£199.00
ST177N-1	60Mb 20ms	£239.00
ST1096N	83Mb 20ms	£285.00
ST296N	84Mb 28ms	£239.00
ST1126N	111Mb 15ms	£449.00
ST11262N	142Mb 15ms	£499.00
ST1201N	177Mb 15ms	£599.00
ST1239N	211Mb 15ms	£629.00
SYQUEST	44Mb 28ms removeable cartridge drive.	£539.00
IVS Trumpcard for above add		£99.00

Installation and formatting **£25.00**

Memory Upgrades for your **Amiga 1500 & 2000** with the **SUPRA 8Mb RAM board**

Bare board **£69.00**

2Mb populated **£59.00**
4Mb populated **£117.00**
6Mb populated **£175.00**
8Mb populated **£233.00**

High Res
1024 x 768, 0.28 dot pitch
Multisync Monitor
£295.00

AMIGA
3.5" external
Drive
£45.00

To get those flicker free high res modes, use the FLICKER FIXER video card. ONLY **£259.00**

Speed Up
your 1500, 2000, 3000 with a
Co-processor Board
Phone for details

PHILIPS
8833 MkII colour monitor
only **£199**

D501 512k RAM card + clock
ONLY **£25.00**

D501 512k RAM card + Disk Drive ONLY **£69.00**

CHIPS & DISKS

We only sell new chips

A590 Memory chips
0.5Mb **£15.00**
1.0Mb **£30.00**
2.0Mb **£59.00**
A590 2Mb Populated **£279.00**

8UP BOARD & CHIPS
Bare Board (0Mb) £69.00
add cost of RAM to your specification
2Mb +**£59.00**
4Mb +**£117.00**
6Mb +**£175.00**
8Mb +**£233.00**

DISK CONTROLLER CARDS

The GRANDSLAM, new SCSI controller from IVS. Extra Parallel port - space for 8Mb on board RAM
ONLY **£199.00**

NEXUS SCSI hard disk controller card - space for 8Mb on board RAM.
ONLY **£175.00**

MONITORS

ALL PHILIPS U.K. MONITORS HAVE 1 YEAR ON SITE GUARANTEE

PHILIPS 8833(U.K.)
Colour Monitor with stereo sound
+ FREE LEAD & DUST COVER
Only **£199.00**

DIAMOND Multisync Monitor
Only**£295.00**
COMMODORE 1084/s
Only **£189.00**
COMMODORE 1084/SD Monitor
Only **£199.00**

DISKS

FOR A LIMITED PERIOD WE ARE SELLING HIGH QUALITY 3.5" SONY BULK DISKS AT ONLY **£0.30** EACH

PRINTERS & RIBBONS

STAR LC200 COLOUR	**£163.00**
CITIZEN 124D	**£162.00**
OKIDATA LASER 400	**£599.00**
PHILIPS MNS 1432	**£99.00**
CITIZEN SWIFT 24	**P.O.A.**
WITH COLOUR	**P.O.A.**
PANASONIC KXP/1123	**£159.00**
OKIMATE 20	**£130.00**
STAR LC MONO	**£119.00**
STAR LC/24/10	**P.O.A.**

RIBBONS	QUANTITY EACH 2	6	12
OKI 20 COLOUR	**£7.00**	**£6.50**	**£6.20**
OKI 20 BLACK	**£6.60**	**£6.20**	**£6.00**
PANASONIC KXP/1124	**£7.50**	**£7.00**	**£6.50**
KXP1080/1/2/3	**£3.95**	**£3.80**	**£3.60**
JUKI 6100	**£1.75**	**£1.60**	**£1.50**
M.TALLY MT80	**£3.50**	**£2.70**	**£2.50**
STAR LC10	**£3.95**	**£3.70**	**£3.50**
STAR LC10 COLOUR	**£6.50**	**£6.00**	**£5.50**
STAR LC24/10	**£6.50**	**£5.90**	**£5.50**
EPSON LX800	**£2.50**	**£2.10**	**£1.90**
AMSTRAD PMP4000	**£3.85**	**£3.70**	**£3.40**

APPLICATIONS

XCAD Designer	**£59.00**
Platinum Works!	**£75.00**
Transcript W/P	**£25.00**
ProPage 2.0	**£99.00**
ProDraw 2.0	**£69.00**
Superbase 4.0	**£99.00**
Hyperbook	**£29.00**
Descartes Maths	**£19.00**

VIDEO SECTION

PAINT		FRAMEGRAB	
Deluxe Paint III	**£49.00**	DigiView Gold 4.0	**£75.00**
Digipaint III	**£50.00**	Rombo Vidi	**£69.00**
Photon Paint II	**£20.00**	Disney Animation Studio	**£70.00**
Spritz	**£3.00**		
Icon Paint	**£3.00**		
Comic Setter	**£20.00**		

VIDEO TITLING
Video Studio **£99.00**

AUDIO MUSIC AUDIO

All the latest and best audio and music packages from Mr. Diamond at the keenest prices

MusicX ver 1.1	**£59.00**
Perfect Sound	**£39.00**
Audio Engineer	**£149.00**
MasterSound	**£25.00**
Quartet	**£33.00**
MIDI I/F	**£26.00**
Keyboard	**£25.00**

HOW TO ORDER

Simply telephone through your order, giving your Access or Visa card Number or send a cheque or postal order to your Local Dealer.
All prices exclude VAT unless otherwise stated.
Next Day Courier Service Delivery **£10.00**
Please allow 5 working days for cheque clearance.
Bankers drafts clear on the same day
All prices are correct at time of going to press but may change without notice.

THE DIAMOND PRICE PLEDGE

"In the extremely unlikely event that you are able to find a better price on any goods currently available through Diamond, then we will match that price; and on Commodore & Philips products we will not only match the price of our competitors, we will even give you £5.00 as well."

This does not apply to sales or special prices and only applies at the time of purchase.

LHC Microsales
121 Regents Street
Leamington Spa - Warks
TEL 0926 312155
FAX 0926 883432

▼ OPEN ON SUNDAYS ▼

Diamond Computers Ltd
144 Ferry Road
Edinburgh
Scotland
TEL 031 554 3557

▲ OPEN ON SUNDAYS ▲

Diamond Computers Ltd
1022 Stockport Road
Manchester
TEL 061 257 3999
FAX 061 257 3997

Diamond Computers Ltd
84 Lodge Road
SOUTHAMPTON
TEL 0703 232777
FAX 0703 232679

Diamond Computers Ltd
406 Ashly Road
POOLE - Dorset
TEL 0202 716226
FAX

Diamond Computers Ltd
227 Filton Avenue
Bristol
TEL 0272 693545
FAX 0272 693223

LAN Computer Systems
1045 High Road
Chadwell Heath -
Romford
TEL 081 597 8851
FAX 081 590 8959

This Voucher is worth 25% off all ABACUS computer books
WHEN ORDERING PLEASE QUOTE **AUI06**

COMMUNICATE WITH DIAMOND

THE NETWORKING AND DATACOMMS SPECIALISTS

In this age of Information Technology, so much of what we do is becoming more and more dependant upon computers and their ability to communicate with one another over distances. We are bombarded with new jargon and concepts from all sides and keeping up can be a real problem. Serial ports, parallel ports, packet switching, modems, bits & bytes and networks and a confusing mix of baud rates and protocols all add up to a bewildering maze.

As a service to our vast customer base we are installing Bulletin Boards at all of our shops. Very soon, you will be able to link into a world of public domain software, conferences on a wide range of subjects and discusss technical problems with experts in many fields; all for the price of a phone call.

This service will be free to our software club members.

MODEMS

AMSTRAD SM2400	£185.00
Miracom WS4000	£114.00
Miracom WS3000 V22	£221.00
Miracom WS3000 V22bis	£290.00
Pace Linnet 1200 V22	£177.00
Pace Linnet 2400 V22bis	£248.00
Cable for modem	£15.00

SOFTWARE

KComm2	£29.00
Bulletin Board s/w	P.O.A.

DIAMOND PROJECT SHEET

DATA COMMUNICATIONS

What do I need?

To gain access to the world of data communications you will need five things. A telephone a computer, a modem and a cable to connect the modem to the computer and finally some communications software.

What is a modem?

A modem is a device which converts between digital computer signals and sound signals and sends them down and receives them from a telephone line.

What is Communications Software?

This is a program which converts your computer into a terminal. It will perform a number of useful tasks such as making an appropriate modem automatically dial the service that you wish to use. It will have a number of ways of downloading files that ensure that what you get is free from error and it will allow you to have typewritten conversations with or send prepared documents to bulletin boards etc.

What is a bulletin board?

A bulletin board is a program run usually by enthusiasts which stores messages and files which you can swap. Depending on its size it will have areas of special interest such as Graphics, Music, Communications and Programming etc. It is from bulletin boards that a lot of public domain software is distributed; sadly viruses also get around in the same way. Please be careful!!

PACK

DIAMOND DATACOMMS PACK

* **Miracom WS3000** 2400 baud modem
* **KCOMM2** communications package for the Commodore Amiga
* **Serial lead**

ONLY **£299.00**

NETWORK SOLUTIONS

At Diamond Computer Systems we pride ourselves on our ability to produce network solutions at competitive prices. Whatever the topology or platform, if it is possible to do we can link two or two hundred computers.

The Commodore Amiga has a number of networking options allowing a variety of gateways into existing networks or the building of Amiga specific local area networks (LANs).

Please call any of our branches and arrange an appointment to discuss your network requirements.

WE'LL BEAT THAT PRICE UNTIL IT HURTS!

WE'LL BEAT THAT PRICE UNTIL IT SCREAMS!

DIAMOND SPECIAL PRODUCT PAGE

GOLDEN IMAGE HAND-HELD SCANNER for A500/A1500/A2000/A3000

Ideal for all Desk Top Publishing and General Graphics Applications!

Imports images from paper to screen in seconds

Scans at up to 400 Dots per inch. Also Includes fully featured 'Touch-Up' Software Free!

PACKAGE INCLUDES: Golden Image Hand-Held Scanner, Interface kit , AC Power Adaptor, Touch-up Application Software, User Manual, One Year Warranty.

ENHANCED SCANNER FUNCTIONS

* Large scanning width (105mm / 4.13") on one scan and up to (300mm / 11.8") on multi-scan.
* Speed indicator light
* High resolution with 100 / 200 / 300 / 400 DPI (dots per inch) selectable modes.
* Ultra high 64 halftone levels for three different halftone mode settings and one letter mode.
* Adjustable contrast setting for light and dark images.
* Simple installation - can be ready to scan in just one minute.
* Compact interface

FREE 'TOUCH-UP' SOFTWARE FEATURES

* Directly support the Golden Image hand scanner
* Scan and edit almost anything of any size and resolution
* Supports a variety of formats: IFF, IMG, PCX, TIFF, MACPAINT and many more
* Standard commands, plus ROTATE BY DEGREE, SALANT, STRETCH, COMPRESS, BLOD, MASK, and OUTLINE
* Complete paint program with B-SPLINE and BEZIER CURVE BRUSHES, plus LASSO, FATBIT, and AIRBRUSH features.

All this for only **£135.00**

ULTRA-SLIMLINE 3.5" FLOPPY DRIVE

Quality Metal Case with Thru-port for Daisychaining. Also includes on/off Switch.

Includes Five blank discs and Drive Cleaning Kit

£45.00 + V.A.T.

CO-PROCESSORS

Power-Up Your Amiga 500 / 1500 / 2000 and even 3000 with Diamond's extensive range of co-processors

from only **£339.00**

RAM UPGRADES

512k RAM UPGRADE

Complete with Real-Time Clock

only

£25.00

8Mb RAM BOARD

for the Amiga 500

COMING SOON FROM DIAMOND

SWIFT 24 Only £249.00 including FREE lead

FREE Colour kit with every Printer bought in April!

Save an Amazing £49.00

NEWS

SOFTWARE COMPANY SHAKEOUTS

SIERRA ON-LINE AND BRODERBUND TO MERGE

Sierra On-Line and Broderbund Software have announced they are to merge. Sierra are well known for their entertainment software, especially the King's Quest and Space Quest series. Broderbund is a leading publisher of educational and productivity products, such as The Print Shop and the Carmen Sandiego series.

The consolidated company will be renamed Sierra-Broderbund, Inc. with a turnover exceeding $70 million (about £40 million). Ken Williams, Sierra's boss will be Chairman, President and CEO of the consolidated company. Doug Carlston, Broderbund's Chairman and CEO, will be President of Broderbund, which becomes a wholly-owned subsiduary of Sierra.

According to Ken Williams, "This really is a `merger of equals' in that, post consolidation, Broderbund and Sierra will exist as sister companies sharing a common distribution mechanism".

Doug Carlston added, "The consumer software market can be thought of as being comprised of three major categories: entertainment, productivity and education. Sierra is a market share leader in the entertainment market but does not participate, to any significant degree, in the other two segments, where Broderbund is a market share leader."

Sierra On-Line Inc., recently established a subsidiary office in the U.K. as a launch pad for a drive into Europe.

Howard Swallows the Turkey

Long time Amiga software company The Disc Company has made a suprising but successful raid on the erstwhile world Number One in entertainment software Activision. It captured 25% of Mediagenic, Activision's parent company, and forced a change of control of the company. Effectively, the Disc Company, led by Howard Marks and ex-Activision staffer Thomas Ormond, based in France, have as in some computerised business game, swallowedd up Activision, the tottering giant, and will now manage all its software operations.

Rod Cousens, for some years a leading figure in the U.K. software industry, appears already to have bowed out of Activision U.K. of which he was boss and that now seems to have been rapidly disappeared. There are numerous rumours that Cousens is suing for the fulfilment of his lucrative contract, which he was once photographed waving cheerfully, to scotch rumours that he was leaving the ailing Activision.

Activision is thought to have hit trouble because of an expensive lost lawsuit which cost it millions of dollars and by a series of software sales disasters including 'Howard the Duck' - or as it was called in the trade 'Howard the Turkey'.

HEWSON SHOT DOWN

The software house led by Andrew Hewson, one of the most popular and longest lasting figures in the U.K. entertainment scene, has like an expected other 40,000 British companies this year of economic recession, hit trouble and gone into administrative receivership.

Hewson, who has been writing and producing 'shoot-em-ups' since 1981, created such legendary arcade type successes as Paradroid, Uridium and Stormlord. One of his major collaborators was ace programmer Andrew Braybrook whose desertion to the also now defunct Telecomsoft led to a legal dispute between the then B.T. offshoot and Hewson. Telecomsoft were later to go the way of all flesh (I hope this is not a reference to their full figured M.D. Paula Byrne! Ed) were taken over by MicroProse, then run by Stewart Bell who now bosses Electronic Zoo. Yes, the software business is really a game of musical chairs!)

The fate of Hewson as a straight-down-the-line shoot-em-up company is an indication of the changes that have come about with the older, more sophisticated games audience which emerged with the 16 bit machines like the Amiga and that it is, as in all maturing industries, more difficult now for small companies to survive. Watch out for the shakeout of more companies...

VIRUS? TELL THE YARD!

U.K. figures are unclear because victims are frightened of publicity about computer crime causing a commercial backlash, but according to the head of Hoskyns' IT security division, Diana Billingham, the U.S had 25,000 disruptive virus incidents last year and there is no reason to think that the U.K. and Europe do not sufer at least in proportion.So now Scotland Yard has appealed to the nation's virus hunters to help it collect evidence of computer crime.

Thirty-five virus researchers invited to a recent Scotland Yard conference, organised by London's Metropolitan police force's computer crime unit were asked to volunteer information about virus incidents nationally.

"We would like incidents reported to us wherever they occur - the Met has some national responsibility for that," said Detective Constable Christopher Pierce of the crime unit. "In order to ascertain the size of the problem it has to be reported. We would like to know when, where and how people are attacked. We are setting up a national strategy to tackle the problem and now we would like researchers and consultants in the field to do so too - it's a two-way thing".

The police are concerned that many people remain unaware that virus-creating is a criminal offence under last year's Computer Misuse Act, carrying penalties of up to five years imprisonment and /or an unlimited fine.

"We've had quite a lot of publicity but there is no compulsion on anyone to report a crime," Pearce added, pointing out that the Act has led to more reported cases of computer crime than before.It not generally a case though of vicious hackers or gangland organized computerised heists fort he majority of the IT crimes committed are employee-related.

ROLLS ROYCE OF MICE?

The continuing boom in Amiga sales has resulted in Logitech - the Swiss based company who claim to be `the world leader in computer input devices' - launching its first product for the machine. It comes in the form of LogiMouse Pilot for the Amiga - a two-button replacement mouse which features high tactile feedback and is claimed to be recognised as being" the best of its breed". Ergonomically designed for comfort and precise cursor movement, the mouse uses the opto-mechanical technology pioneered by Logitech.

LogiMouse Pilot is claimed to be at the same time be both more comfortable and more efficient than other standard mice.
The hardware itself incorporates
a self cleaning ball cage which keeps the mechanism free from lint and dust over miles of use. The LogiMouse Pilot's resolution and smooth running enables the user, say Logitech, to get more productivity from any application whether it be desktop publishing, spreadsheets, word processing, graphics or games.
Guaranteed for two years,

LogiMouse Pilot for the Amiga will be priced at £27.
"When people say `A mouse is a mouse is a mouse', they couldn't be more wrong",
says Simon Barnard, head of Logi UK, the British subsidiary of Logitech. "And as Amiga users will soon discover now that we have launched our first - but certainly not our last - (not ultimate then? ED) - product for the machine that has had such a major impact on the computer scene, our mice prove that there is a difference"

CONTRIVER TO SAVE SPACE

In the so-called space efficient 'Age of the Microcomputer' where huge amounts of information can be stored on disk, one of the largest space consuming items is the computer printer and the yards and yards of paper it requires.Contriver now sell a Printer Pak which is aimed to contribute significantly to reducing clutter on a desk.
The Contriver Printer Pak consists of a printer stand which leaves room for paper, a cable and over 100 yards of computer paper.

Without the stand, say Contriver, that amount of paper would be awkward and look untidy. With the stand, it is both easy to handle and very convenient.
Contriver boss, Adolfo Giannini, commented ' Our Printer Pak is a must for anyone who uses a printer.' The Contriver Printer Pak retails for £19.99. They also sell a printer stand for £14.99.
Contact: Contriver, Unit 3, Buckingham Industrial Park, Buckingham, MK18 1UH. Tel: 0280 822803.

CUMANA'S CD-ROM SEXTUPLETS

A CD-ROM system comprising six optical drives has been produced by Cumana. The CDS-436 can be configured to run with one IBM PC compatible or a number of networked pcs and has an access time of 350ms.
Each drive includes an audio capability - useful for identifying the number of audio

tracks, total playtime, the track currently being played, and the length of play. MTBF (Mean Time Between Failure) is 25000 hours.
The simplified disc loading system uses a cartridge (CD caddy) for easy handling and storage of the CD-ROM disc. Each disc cartridge ejection is achieved via three methods: automatic ejection via the host p.c.; manual ejection using the eject button; and emergency ejection via an access hole on the front panel.
The CDS-436 measures 340mm wide x 280mm deep x 190mm high and weighs about 16kg. retail price is around £3000 ex-VAT.

Introducing Saxon Publisher & Draw 4D to the UK...

Saxon Publisher provides you with performance unparalleled by other DTP programs, with features so powerful and flexible that even the most complex documents can be created in a fraction of the time. A program that incorporates numerous advanced typesetting features not available anywhere else - at any price. Saxon Publisher will change your perceptions about what a truly professional DTP program should be...

SKEWING

The DTP Standard for the Amiga

- Text sizes up to 2000 points
- Import text from any Amiga WP
- Rotate, Scale and Skew text in any direction
- The ability to import and print 24 bit images without convertions utilities
- Support for Encapsulated PostScript

ROTATION

Draw 4D is the first Multi Dimensional Structured Drawing and animation software for Desktop Publishing and Video. The interface is the fastest, smoothest and easiest to use available on any computer.

- Zoom range is nearly unlimited
- DRAW 4D is fully multitasking

PICTURE DISTORTION

Saxon Publisher V1.2....£249.95
Draw 4D....£149.95
Saxon Publisher/Draw 4D Package...£349.95

...and the New Supra Range

SupraDrive™ Floppy quiet reliable floppy disk drive works with all Amiga® computers. 1MB unformatted capacity. Pass-through port for connecting additional drives...£89.95.

SupraDrive™ Removable Syquest™ removable cartridge drive for the A500 or 2000. Great for primary & back-up storage.Comes complete with SCSI interface, or as add-on drive. INTERNAL £599.00 EXTERNAL £599.00

SupraDrive™ 500XP Micro-power hard drive, SCSI interface, & RAM for the A500. Easily expands for 1/2 to 8MB RAM. Includes Amiga bus pass-through, SCSI port, software. From £425.00

SupraDrive™ WordSync™ Easy-to-install, autobooting hard disk card for the Amiga 2000. Uses high-performance Quantum™ hard disk & includes SCSI port, utility software. 40MB £425 · 52MB £475 · 105MB £625

SupraRAM™ 500RX 1/2, 1, 2, 4 or 8MB of FAST RAM for the Amiga 500. Easy to expand. Zero wait states & hidden refresh. Amiga bus pass-through. from £129.95

SupraRAM™ 2000 2, 4, 6 & 8MB of FAST RAM for the A2000 & 3000. Easy to expand. Zero wait states & hidden refresh. Four-layer board improves reliability. From £119.00

SupraModem™ 2400 100% Hayes™ - compatible 300, 1200, 2400 baud modem for virtually all computers. Compatible with all popular telecommunications software. £149.95

SupraModem™ 2400 Plus SupraModem 2400 with MNP5 & V.42bis error correction & data compression protocols. Allows transmissions up to 9600 bps. £199.95

SupraModem™ 2400zi Internal half-card modem for the Amiga 2000 & 3000. Installs easily in any Amiga bus slot. Supports multiple modems on one computer. From £119.95

All modems have a five year GUARANTEE

Supra Corporation

All prices include 17.5% VAT.

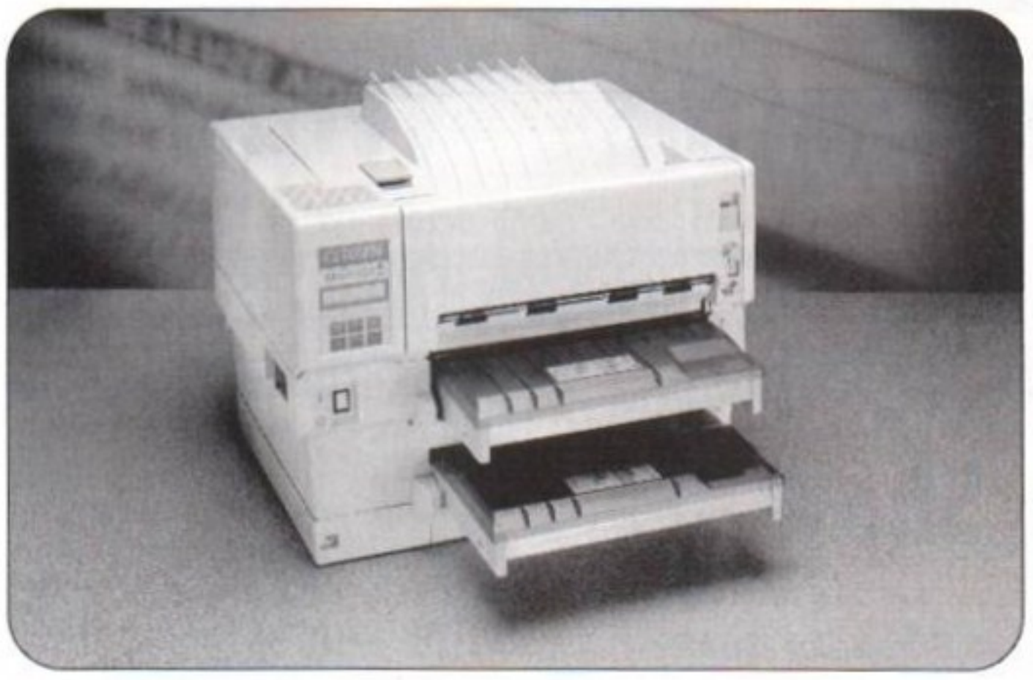
Dealer enquiries welcome

Access & Visa Welcome

Surface UK Limited

SURFACE UK LIMITED · 5 ROCKWARE AVENUE · GREENFORD · MIDDX UB6 0AA
TELEPHONE 081-566 6677 EXT 204/205 FAX 081-566 6678

CITIZEN'S PERFORMANCE LASER PRINTER



Citizen Europe have unveiled a new, powerful DTP laser printer - the ProScript 12 - a high performing Postscript compatible machine, capable, say Citizen, of handling the most complex of publishing tasks directly from the user's desktop..
The ProScript 12 supports a resident Postscript compatible board. Printing speeds are quoted at just over 11 pages per minute. A wide variety of built-in emulations including HP Laserjet 11, IBM Proprinter 11, Epsom FX80, Diablo 630 and HPGL, allow the printer to be used in conjunction with almost all popular software. Standard parallel and serial interfaces provide hardware compatibility.
The powerful Postscript board, with 2.5Mb of on-board memory, promotes rapid processing speeds, freeing up valuable computer time. Results from a number of tests, claim Citizen, show that the board is almost twice as fast as many of its competitors.
A choice of 35 resident fonts are offered including the popular industry standards - Type 1 Adobe postscript downloadable fonts and Apple Laserwriter fonts.
The ProScript 12 Plus retails at £2,695 excluding VAT. this price includes a one year on-site warranty covering all parts and labour.
Contact : Citizen Europe Ltd. 0895 72621.

FREE OFF-PEAK ACCESS FOR MICRONET

From 1st April 1991, Micronet subscribers, including those using Amigas, have had unlimited free off-peak access to all Micronet and general Prestel information for the cost of a local telephone call.
With the introduction of the new tariff, Micronet users pay £30 for a quarterly subscription (unchanged for business users, previously £20 per quarter for residential customers) and 8p per minute for use of the service during the peak hours from 8am to 6pm, Monday to Saturdays. Access at all other times is free of any time-based charges. These costs apply to all information available on Micronet and Prestel with the exception of those areas which carry a premium charge.
Kevin Smith, Micronet Marketing Manager explained : "I'm sure that our Micronet customers will be delighted with this change in the pricing structure. The majority are residential customers for whom free off-peak usage - reintroduced in response to public demand - will mean a considerable decrease in costs. And our more canny users will notice how favourably the costs compare against rival services, once usage goes past one hour per month."
Contact: 0800 200 700. Customer Help Desk: 0442 237237.

PROBLEMS AT 2AM?

We have received information on the formation of a club for Amiga users with a 24 hour telephone helpline for all members. A year's membership costs £5. New members are supposed to be able to get the telephone helpline number with their membership number.
Members, say the organisers, can ring night or day and discuss their hardware or software problems with a team of 'Amiga experts'. (At that time of the night they may get some other problems to deal with too! "My wife says I should come to bed and stop plaing with my Amiga...")
Send an SAE for details to Club Amiga, 5 Bowes Lea, Shiney Row, Houghton Le Spring, Tyne and Wear DH4 4PP.

BARNEY BEAR GOES CAMPING

Free Spirit Software has announced the release of Barney Bear Goes Camping - an educational game for children ages 2-6 for the Amiga. (1 Mb. required).
Barney Bear Goes Camping has graphics especially designed for young children. The Amiga's built in speech is used to tell stories and give information about animals in the woods. While playing Barney Bear Goes Camping, the child can choose to play connect-the-dots, identify animal tracks, match animals with their shadows, help a squirrel through a variety of mazes or colour pictures in the full-reatured colouring book.
A special feature of Barney Bear Goes Camping is the ability to create a slide show. During the game, Barney is carrying a camera with which up to 24 pictures of anything on the screen can be taken. After returning to the camp, the child can watch a slide show of pictures which Barney and she/he took.
Barney Bear Goes Camping is, say Free Spirit, the perfect program for young children. "They can understand what to do and how to do it. There is enough variety of activities to keep them coming back for more while they learn about the computer and nature".The suggested retail price is $34.95.
Other titles in the popular Barney Bear series include: Barney Bear Goes to School, Barney Bear Goes to the Farm and Barney Bear Goes to Space.
Contact: Free Spirit Software, P.O. Box 128 - 58 Noble Street, Kutztown, P.A. 19530. Tel: (215) 683-5609

NEWS

Desktop Video Workbook

Microsearch say video is a popular and promising application for the Amiga's talents, but it is difficult to understand in some ways because the available source material is written in highly technical video jargon. So MicroSearch has announced the publication of the Amiga Desktop Video Workbook, by Jay Gross. This book puts in plain english the information you need to know, in order to understand - and do - desktop video on the Amiga. All the necessary topics are covered, including scripting, editing, pre-production processes, post-production, sound mixing, animation, budgeting and the skills involved in all of this, and more. In addition, the book includes extensive information and guidance for opening and operating your own video business.The Amiga Desktop Video Workbook takes a common-sense, largely non-acronymic approach to explaining the techniques, concepts and processes involved in video at every level of the business from home users `just having fun' to serious professionals making their living in the industry.

MicroSearch recently announced the first affordable chroma key video adapter for the Amiga.

Jay Gross, a well known author, editor and reveiwer in the Amiga market is a contributing editor of AVid, the video magasine specific to the Amiga, and has written extensively for many other Amiga publications in the U.S. and abroad, including ***AUI***.

The Amiga Desktop Video Workbook, ISBN 1-879211-00-9, 240 pages, soft cover, with bound-in disk (AmigaDOS format) of video specific utilities and resources..

Contact: MicroSearch: 9896 S.W. Freeway, Houston TX 77074, 713-988-2818.

MULTIMEDIA and CD-ROM On Show

The first European Conference and Exhibition on Multimedia and CD-ROM will be held from September 9-11, 1991 in Wiesbaden, Germany. Pioneer Laser Technology will be demonstrating its six disc CD-ROM changer at CD-ROM Europe '91. Andrew Wilson, Information Systems Manager, reports a rapid development in the market for the changer, particularly in applications where sets of CD-ROM discs tend to be used - for example to store medical records and chemical data sheets, and in libraries where it is not desirable for users to handle the CD-ROM discs.

Ticket Hotline: For tickets to the CD-ROM exhibition, for further information, or to reserve conference places, call the organisers, Agestream Ltd, on 0733 60535.

Psst!

Want an Oh Forty?

At the Amiga Show in New York (see page 51), the first 68040 boards began appearing. Motorola had been promising bulk deliveries of the most advanced Amiga chip for some time but has only recently been able to supply the growing demand. The first in the field to tout their wares are likely to be Progressive Peripherals, Supra, GVP, RCS and,unsurprisingly, Commodore.

The Progressive board has already been on show, though under glass to stop curious prying fingers, and is expected to hit the streets for about $1000 (around £650 if the exchange rate holds up).The board is initially for the A3000 but is expected to move down to the A2000 before long.(If the A2000 with an 030 is an A25000, what will an 040 make the A2000, A3500?).

Supra say they aiming to get their boards for the A3000 and A2000 down below the $1000 mark and should have their first on the market by mid-summer. And CSA are well-advanced toward a launch of their own, which is hardly surprising considering that they are known to carry out both research and customizing work for Motorola.

Further down the line is RCS who are going for the top of the market with a board starting either at 4 or 8 Meg - isn't 8 a nice figure to start with? - and expanding to a modest 32 meg. According to what we have heard the price today for a bog standard 68000 chip is just $5 (And so why does Apple charge so much for the Macs?). The new 040 chips are being quoted at around $600 a throw - but that is if you buy a 1000 at a time.

One company who ought to be able to buy lumps like that is CBM themselves who, we hear, are already in possession of a fully functioning 68040 Amiga. Don't hold your breath till it is released though, they still want to sell the A3000 in bigger quantities than they have so far. (And they are not too happy with Newtek for releasing the wildly popular Video Toaster only for the A2000).

What might appear before a fully-fledged A4000 is a Commodore 040 accelerator card which we believe that a recent visitor from the U.K. was shown. CBM refused to comment on a possible release date or price yet. Any bets on this year's Santa Claus bringing one if you send him a cheque, C/o West Chester, for £2000?

NEW MONARCH WORKSTATION

Monarch's new low-cost workstation, designed to accomodate computer and printer in a minimum of space at moderate cost, is available from Action Computer Supplies at £87.80. Complete with side extension, top shelf and catch-basket, the recommended retail price is £146.60.

It has a bottom shelf for stationery, a sliding printer shelf that will hold a 132-column printer, and a 750x750mm main shelf for computer and keyboard.

Contact: Action Computer Supplies, Alperton House, Bridgewater Road, Wembley, Middlesex, HAO 1EH. Tel: 0800 333 333.

BYTEBACK

FAST DELIVERY SERVICE

Ring us Now! **0636-79097** *we're programmed to help*

...and the keenest prices

THE BEST OF THE PUBLIC DOMAIN

DISK PRICES

All disks Guaranteed Virus Free!

1 disk £1.99
10 disks + File Box £15.99
20 disks + File Boxes £24.99

Prices are inclusive, nothing to add!

AG. GAMES

AG.01 Star Trek: Superb game based on TV series. Featuring superb digitised graphics and sound! (2D-MB-3 disks)
AG.02 Various; Gravwars, Jackland, Pacman, Othello, Empire, Hanoi. . .
AG.03 Star Trek (Agatron): Strategy game by Tobias Richter, Germanys No.1 Trekker! English version (2D-2 disks)
AG.04 Monopoly; full version of the classic property trading game!
AG.05 Pacman 87; Multi level version of this addictive arcade classic.
AG.06 Various; Cosmoroids, Amoeba, Crazy Eights, Blackjack, Backgammon, Daleks, Yahtzee, Stone Age, Ratmaze, Klondike, Keno. . .
AG.07 Board and Card games; Cluedo, Othello, Klondike and Cribbage
AG.09 Puzzle maker; Jigsaw puzzles from IFF files. Plus Puzzle Pro.
AG.10 Space Invaders; Arcade Classic version! Plus: Lander, Amoeba. . .
AG.11 Tennis; excellent shareware sports simulation. (MB)
AG.14 Flascheiber; Boulderdash style game. Almost Commercial quality!
AG.15 Paranoid game; Arkanoid style, including a screen designer.
AG.16 Castle of Doom; Adventure game with graphics - beginners level.
AG.17 ST Bash; Superb Space Invaders inspired shoot-em-up where the aliens are Atari ST related sprites!
AG.18 Golden Fleece; Superb Infocom standard adventure. Train; design a railway with 2 trains! Tron; 2 Player Light cycle game. Plus: Star Fleet, Kamikaze Chess, Tumbling Tots. . .
AG.22 Return to Earth; Elite style Space trading game with excellent graphics and digitised sound.
AG.24 Drip; Arcade quality game with digitised sounds and smooth sprites! Plus: China Challenge, Super Gridder, Frogger, Air Traffic Control sim., Mutant, Ping Pong.
AG.26 Zerg; Ultima style Role Play. Plus: World; Infocom type adventure. Daleks, Callisto, Puzz, Pontoon. . .
AG.27 Star Trek (USA); Space strategy game. Captain the USS Enterprise and repel Klingon attacks! (2D-MB-2 disks)
AG.28 Quattro; Tetris style. China Challenge; Mah Jong based puzzle game Breaker; Breakout style with screen designer. Plus Asteroids version. . .
AG.29 Chess; Superb Multi Featured version with variable level of play. Tiles; unusual Shanghai version. Battleships; great implementation of the classic pencil and paper game. Tetriz Two; 2 player game.

AH. HELP

AH.01 Adventure Game Solutions; More than 100 including: Dungeon Master, Future Wars, Ultima 1 to 5, Sierra, Infocom, Bards Tale, Zak MacKracken, Maniac Mansion, Rainbird. . . Every Adventure players Dream! (2 disks)

AU. UTILITIES

AU.01 Jazzbench; Workbench upgrade with many indispensible features! Includes; Show hidden files, Show as Text, Show devices, Alphabetise. . .
AU.02 UEdit; Excellent file editor, a vast improvement on Ed!
AU.03 QL Emulator; plus 2 data disks packed with files. Superb! (3 disks)
AU.04 Amiga Spell; Spelling checker, compatible with most Word Processors.
AU.08 Various; Starchart: 600 stars & galaxies. TXED: editor/word processor Persmait: personal file manager. . .
AU.09 Midi Tools: Midi Keyboard; Five octave, mouse operated keyboard. . . Progchange; change Midi channels etc.
AU.10 Graphic utilities; Fontfixer, IFF Converter, Palette Converter. . . Boot utilities: Bootext, Bootup. Plus: Memcheck, Disksalv, Dragpack.
AU.11 Starchart; Astronomy program giving positions and movements of all major constellations!
AU.13 Visicalc; Superb full featured Spreadsheet with manual on disk.
AU.14 Various; Amcat; cataloguing system, Icontype; change Icon type, Recoverable RAMdisk, Spell Checker, Black Book; memo pad. DX Synth voice library. Classic Cave Adventure.
AU.15 Dope Intro maker; Create Demos with this user friendly package.
AU.17 D Copy; Excellent disk copier, similar to the full priced X Copy, very effective in Nibble mode!
AU.18 North C; Complete C Environment for the Amiga! Amazing value!
AU.19 SID; Workbench replacement with easy file handling, improved DMouse window control and many more features.
AU.20 K.O. The Virus Virus detectors and killers! Includes; Virus X 4.1, Berserker, BBChampion, Red Alert. . .
AU.21 Avoiding CLI; lots of useful utilities otherwise only obtainable through CLI; FixDisk, QuickCopy, PopDir, DiskOpti. . .

AC. CLIP ART

AC.01 Deluxe Paint; lots of quality pictures in low, medium & high rez.
AC.02 Pagesetter Art; Animals, Food, Computers, Fantasy, Holidays, Music, People, Patterns. . . 100s of pictures.
AC.04 IFF Alphabets; 30+ screens of professional quality character sets plus marble and wood surfaces. Ideal for Headings, Logos, Titling. . .
AC.05 Animals; Anatomy, Buildings, Christmas, Construction. . .
AC.06 Cartoons; Comic pictures of People, Animals, Funny objects. . .
AC.07 Holidays; Home Flags, Flowers, Miscellaneous. . .
AC.08 Music; People, Places, School, Religion, Symbols, Weddings. . .
AC.09 Signs; Titles, Logos, Headings, Sports; Athletics, Bowling, Boxing, Cricket, Racing, Football, Fishing, Horses, Skiing.
AC.10 Teddy Bears; Cute pictures - ideal for Present Labels, Greetings Cards or just for fun. . . Silhouettes; Lots of Shadow pictures.
AC.11 Nightclub; Clowns, Dancing, Vintage Cars, Bikes, Boats, Office, Computers, Industrial. . .
AC.12 Colour; Occasions, Transport, Signs, Electrical, Architecture. . .

SND. SOUNDTRACKER etc

SND.01 Soundtracker; Four versions of this favourite Music creation program.
SND.02 Soundtracker 4; alternative version + instruments disk. (2 disks)
SND.03 Sound Monitor; 20 Demo scores + instructions in this superb sound package! Extra RAM and Drive useful. Plus: Soundtracker file converter! Plus: Instruments disk. (2 disks)
SND.04 MED Music Editor; Soundtracker style music creator! Easy to use!
STI.01 to STI.08 Instrument samples for Soundtracker or compatibles, 8 Disks packed with 100's of digitised samples! Buy any one disk or all 8 for only £9.99.
STS.01 Sampled Sound effects to use instead of instuments!
STS.02 Longer samples, many from films, Star Wars, 2001, Raiders. . .

AE. EDUCATIONAL

AE.01 Blackboard Maths; Concentration Colourpad, Cat & Mouse, Galactic Worm Animated Pointers, Shark. . . (Age 5+)
AE.02 Spellquiz; Wheel of fortune, Tug'o'Word, Flower Garden, Stepping Stones, Maths test, Puppypix (Age 5+)
AE.03 Fractals; Desktop Calculator, Function plotter, Evolution (Age 11+)
AE.04 Gravitywell; Weatherman, Gravsim, Airfoil. . . (Age 11+)
AE.05 World data Bank; CIA world map with political boundaries, view from anywhere, any height! Plus: 3D Plot, Calender Factory, Sherlock (Age 11+)
AE.06 Talking Spelling Tutor; Speech Toy, German Language test, Study File Card System, Globe, Elements, Geotime, Text utilities (2 disks) (Age 11+)
AE.07 Educational graphics; Technical illustrations; Art, Biology, Geology, Astronomy. . . some animated like a pumping heart in Biology section. Includes viewing programs. Or load into Deluxe Paint etc. (Age 9+)

AP. FONTS

AF.01 Cosmopolitan; Rangers, Peignot, Avant Garde, Aldus, Celtic etc. . .
AF.02 Fancy; Hollywood, Park Avenue, Broadway, Camelot, Courier, Ham. . .
AF.03 Publishers; Helvetica, Akashi, Andover, Bookman, Boxie, Times. . .
AF.04 Various; Unusual, Videofonts, Large and Small fonts. . . Plus: Various fonts Utilities etc. . .

AW. WORKBENCH

AW.03 Icons; Music, Ram, Naughty, Jet Icons. Plus: Utilities, Colourbench.
AW.04 Icon Development; Design your own Icons with Deluxe Paint! Example Icons included. Showpic; Slideshow.

AS. SLIDESHOWS

AS.01 Boris Vallejo 1; Professional quality graphics in interlaced HAM!
AS.03 Forgotten Realms; 13 digitised pictures with a fantasy theme.
AS.05 Exodus Real 3D show; 9 very impressive Ray traced pictures.
AS.06 Swimsuits; Great pictures from the U.S. Sports Illustrated mag.
AS.12 M.C.Escher Animated slideshow of Eschers paradoxical artwork. . .
AS.17 Agatron 4; 16 Ray Traced pics including one of the USS Enterprise that took 38 hours to render!

AD. DEMOS

AD.01 Walker 1; Digitised Animation of Star Wars Imperial Walker (MB)
AD.02 Walker 2; Digitised animation of Walker and helicopter! (MB)
AD.04 Probe Sequence; Incoming video pictures from an interstellar probe landing on an alien planet! Amazing!
AD.12 Boing Machine; it's Ray Traced, it's incredible, it's impossible. . .
AD.13 Walking Cat; Amazing Revolving digitised animation of walking cat!
AD.16 Ghost Pool; Stunning animation of a playerless Pool game. . .
AD.18 Puggs in Space; extremely funny cartoon involving an alien creature landing on Earth and exploring!
AD.21 Busy Bee; Amazing Sculpt 3D animation of a large flying Bee! (MB)
AD.22 Democreators; Create your own demo's with; Bootwriter, Bootmaker, Bootboy, Boot generator etc. . .
AD.23 Ship and Sphere; Super smooth Ray Traced film of space ship flying round a glass ball. Masterpiece! (MB)
AD.24 NewTek Demo Reel 3; Incredible demo of NewTek range featuring some of the best sampled sounds, digitised pictures and animations you will see anywhere! Stunning!!! (MB-2 disks)
AD.25 The Run; Outrun style 3D film of a Lotus weaving through motorway traffic with police car chasing (MB)
AD.26 Starline Mega; Smooth Hi-res full screen scrolling pics, Crystal Clear Hi-Fi sound samples, Enormous scrolling text - Highly Recommended!
AD.28 Stamp Collector; Amusing film involving a ghostly magnifying glass examining some naughty stamps!
AD.29 Predators Megademo; Brilliant demos including some truly amazing animation and 2 games! (2 disks)
AD.32 Vision Megademo IV; Superb Digitised music and sound effects plus large graphics. Brilliant!
AD.35 Robert the Mercenary; Amusing animation sequence including a game where you can shoot some aliens!
AD.36 Kefrens Megademo VIII; 10 demos including; Kill the Beast (Shadow of the Beast meets Xenon 2), Walkman, Kill Victor, Vectormania. . . (2 disks)
AD.37 Gymnast demo; Ray traced animation of a Gymnast performing a high bar routine. Recommended!
AD.39 Agatron animations; 3D film of the USS Enterprise attacking USS Reliant. Plus walking Robot.
AD.40 Luxor Teenager; Variation on this classic involving 2 anglepoise lamps and a large red ball!
AD.41 RGB; Badgekiller competition winner! Produced with Director! (MB)
AD.42 Comic on a Disk; Whole graphic novel, page by page, on screen!
AD.44 Laurel and Hardy; Digitised clips from various films! (2 disks)
AD.45 Star Trek, Dry Dock demo; The highly praised Ray Trace masterpiece!
AD.46 Stealthy Manoevre II; Cartoon style Stealth Fighter animation.
AD.47 Walker Demo; The incredibe 2 Megabyte animation. (2MB-2 disks)

To order any of the above disks simply quote the required disk numbers.
For a complete list of our PD software ask for a FREE catalogue!

All prices include VAT and FIRST CLASS POST!
GUARANTEED RETURNS OF POST DELIVERY ON ALL STOCK ITEMS!

BYTEBACK
DEPT AUI, 6 MUNDY CLOSE, NEWARK, NOTTS NG24 1JE

Cheque, postal orders or credit card facilities are available

Access VISA

NEWS

Graphical Goodies

HAM E

Two new and interesting developments have appeared on the Amiga graphic scene: Black Belt Systems' HAM E and Impulse's Firecracker 24.

Balck Belt's HAM E is a frame buffer that lets you colour cycle 256 colours out of a palette of a mere 16 million or so or have on screen 262,000 without the benefit of colour cycling. It outputs RGB and takes files in an IFF-24 format which it then renders in its own HAM E mode. For such a sophisticated and professional level device the price seems very modest indeed, just $300 - about £180.

STOP PRESS

The UK sole distributor

Firecracker

Impulse. creators of the widely-admired Turbo Silver and its more recent successor, the 3D program Imagine, have brought out Fircracker 24. It is a board that fits into the expansion slot of an A2000 or 3000, displaying 24 bits of colour. It outputs in RGB and can share an RGB monitor with the output from the computer to view the 24 bit files. It will take files in IFF24 - the fashionable standard today - or in Impulse's own creation, RGBN format.

Contact: Impulse Inc. 6870 Shingle Creek Parkway, 112, Minneapolis, MN54430 Tel:612/566 0221

CLANS UK OK

Cordless lans, or clans as the DTI calls them, have been approved and used in North America for the last three years, but disagreement by European public telephone operators (PTOs) over allocation of frequency bandwidths has delayed the technology in the UK.

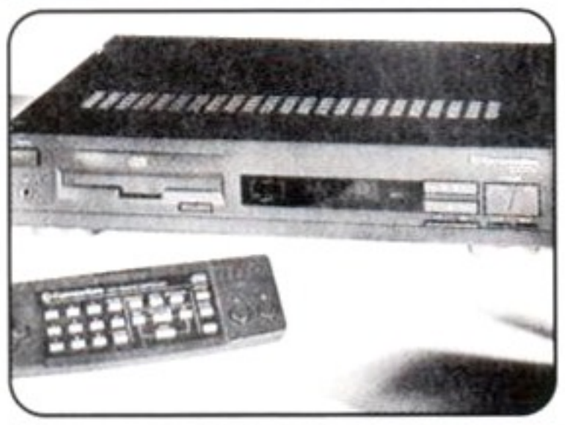
The issue became public when NCR was barred from installing its Wavelan clan in the UK because the frequencies it used were almost identical to those allocated to the Vodafone cellphone operation.

Now the government has given a provisional go-ahead for the development of radio-based local area networks that could form the basis of a European standard.

According to a Department of Trade and Industry spokesman, companies are now free to develop and test wireless lans based on spread spectrum technology (SST) using frequencies between 2.412 and 2.438 GHz.

"I must stress that these lans are still not legal to use" says the DTI spokesman, adding that there is sufficient demand from supliers and users, however, to look at promoting a standard.

Among the other specifications put forward by the DTI are that the maximum power output should be no greater than 250 milliwatts and that the eventual legal radio lans will not require licences.



Rent a computer with CD - but don't mention the name "Amiga"

CD ROM Growing

A sign of the times in the growth of CD Rom is the announcement of the first European Conference and Exhibition on Multimedia and CD ROM to be held in Weisbaden in Germany on September 9-11. Nearer home there is a half day tutorial for newcomers to CD Rom and related technologies called "Beginners Guide to CD ROM" which is to be held at the CD ROM Europe Show '91 at the Novotel Hotel in Hammersmith, London on 21-23 May. The organisers say the U.K. Show and Conference will be a highlight in the filling calendar of the European CD ROM scene and the burgeoning multimedia industry. The event will focus on developments in the business, education and consumer markets. Speakers will include representatives from Intel, Phillips, Sun Systems and Commodore with emphasis on the CDTV.

In the U.S.A. at a Conference sponsored by Microsoft there has been an attempt to create a single standard for Multimedia on the PCs, basedly not surprisingly on Microsoft's Windows GUI products. Also announced was a CD drive from Tandy at $399 - a little less than £200, which is the cheapest so far anywhere.

Commodore's plans for the launching of the CDTV - the Amiga packaged with a CD to look like a videorecorder - seem now to centre on the idea of the major High Street chains of TV rentals taking it on and offering it for hire at about £20 per month. CBM have expressed the view that when the first videorecorders came in, it was the chance of renting them that created the market where people later went out and bought them in large numbers. Commodore hopes the same process can be built into the market for the CDTV, which to avoid "technofear" will never be promoted as anything like a computer and even the word "Amiga" will be forbidden. But as someone said "You can fool some of the people some of the time..."

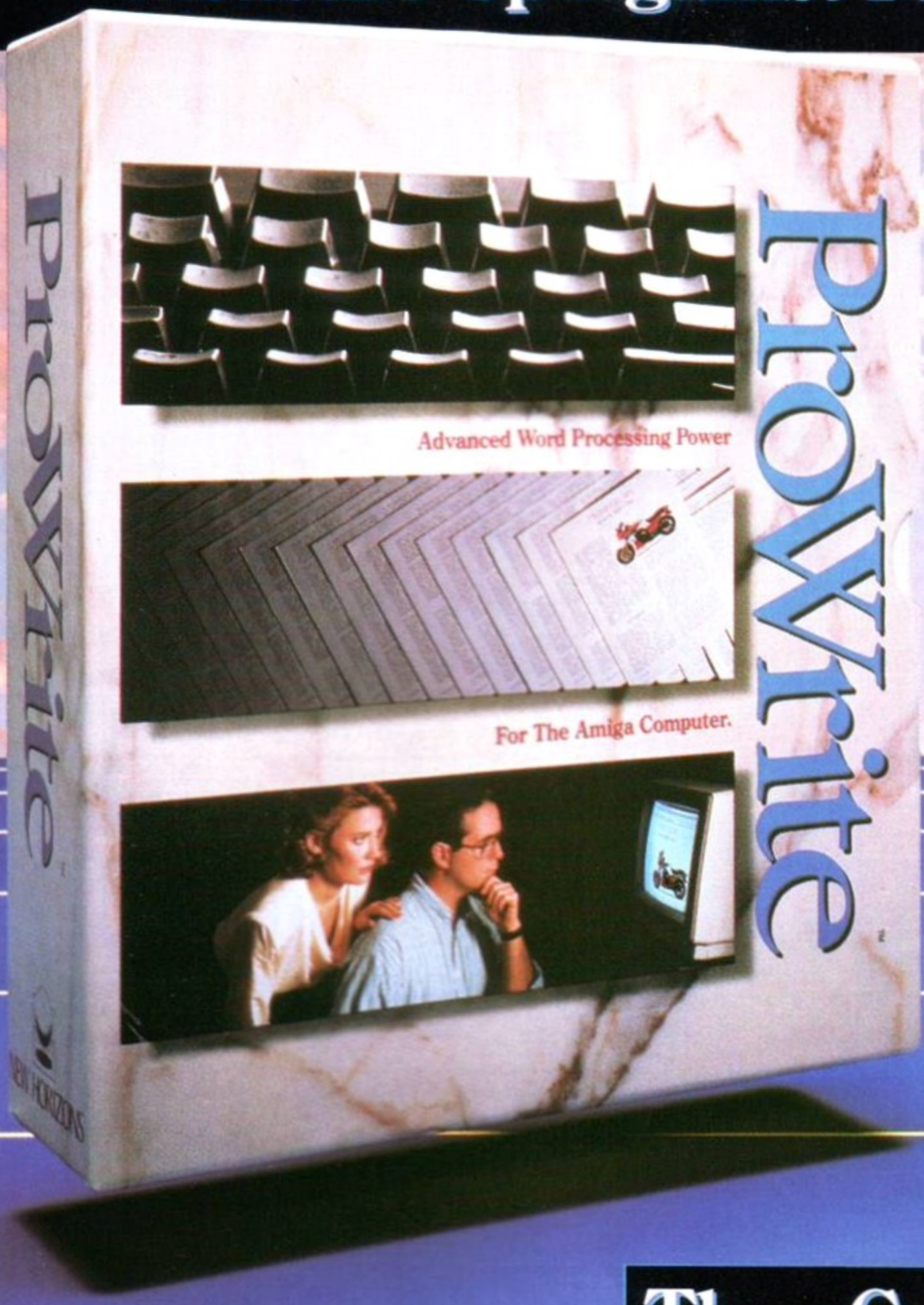
Another interesting sidelight on Commodore's technological viewpoint, this time a more open one, is a recent agreement it signed with the high quality Japanese electronic company, Pioneer (sophisticated car radio thieves will take nothing less). Commodore has come to an agreement for Pioneer to supply masters and copies of videodisks for use with Amigas. This is to enable developers who use Commodore's Amigavision authoring system to reduce the time needed to produce mastercopies of videodisks.It will also lessen the cost of bringing the Amiga closer to the increasingly-useddisk technology in multimedia - and hedges CBM's bets on simple CD.Pioneer also conveniently manufactures videodisk drives and doubtless CBM can find a use for them too.

The sales of CD Rom drives are rising with vertiginous speed. From 6,500 in 1986, sales are predicted to reach more than 6 million a year by 1992. And CD ROM titles available will rise from a mere 50 or so in 1986 to over 10,000 by next year. The sales of CD ROMs will have increased from just 9000 in 1986 to 8 million in 1992.

According to John Metcalf, Market Development Manager for Nimbus Information Systems' CD ROM Division,"The market for CD ROM technology is exploding!" (Which does sound dangerous, doesn't it?) "CD ROM is becoming the dÑeÑ ÑfÑaÑcÑtÑoÑ standard for electronic publishing and CD ROM drives are going to become just as much a part of computers as floppy disks are now." He ought to know as Nimbus are the U.K.'s biggest manufacturers of CDs.

By the way, the CD of Commodore's CDTV does not mean compact disc.It stands for Commodore Dynamic - and the TV does not mean what anyone might think but Total Vision. Then, of course, you already knew that, didn't you?

How Does The Competition Measure Up Against ProWrite?



They Come Up Short.

ProWrite®. Performance That Stands Out In A Crowd.

In this highly competitive world, there is always a leader. An innovator. The one that the competition looks up to. In the world of Amiga word processors, ProWrite is that leader.

ProWrite has the high performance features you need. A 100,000 word spelling checker that can check as you type. A thesaurus with over 300,000 cross references. Multiple columns with both snaking and parallel text flow. Multiple fonts and graphics. Powerful macros. Exceptional speed.

With all this and more, ProWrite stands head and shoulders above the competition. Which is why ProWrite is the best selling Amiga word processor. And the best choice for every Amiga owner.

Because it is always better to lead than to follow.

Look To The Leader In Amiga Word Processing.

Like all of our products, ProWrite combines high performance, an intuitive environment, and easy to use commands. When it comes to powerful yet practical word processing, ProWrite is the target the competition shoots for.

So whatever your word processing needs, from A/V scripts, to novels, business reports, storyboards, or letters to Aunt Agnus, go straight to the top. Discover the power of ProWrite from New Horizons.

NEW HORIZONS

First In Personal Productivity And Creativity

New Horizons Software, Inc.
206 Wild Basin Road, Suite 109
Austin, Texas 78746 (512) 328-6650

ProWrite is a registered trademark of New Horizons Software, Inc.
Amiga is a registered trademark of Commodore-Amiga, Inc.

YOU'RE ALWAYS BETTER OFF BUYING DIRECT FROM

TRILOGIC AMIGA Supermarket

ORDER HOTLINE

0274·691115

HOW TO ORDER

ALL PRICES INCLUDE VAT*– NO HIDDEN EXTRAS
(*at 17½% excluding books)

CARRIAGE

Minimum order £10.00 Carrier free on all orders. Optional 1-2 day Express Delivery £3.50 per order or £7.00 for guaranteed next working day.
(UK mainland, exc. Scottish Highlands).

FREE NEXT DAY DELIVERY ON ORDERS OVER £500

EXPORTS a speciality – add £1.99 for surface mail or £3.99 for airmail.
(Computers, monitors & printers – Please phone for carriage charges).

TO ORDER BY MAIL, PHONE OR FAX
– Prompt Despatch

Simply quote your c/card details, name & address & your order & leave the rest to us. You are not charged until the goods are despatched. Or send cheque or PO (payable to TRILOGIC), or cash (send cash by registered post).

SALES ▶0274 691115
ENQUIRIES ▶0274 678062
FAX LINE ▶0274 600150

TRILOGIC
Dept. A.U.I. Unit 1
253 New Works Road
Bradford, BD12 0QP

BARCLAYCARD VISA

Established 1984

Many prices even lower if you collect.
Open 8am-6pm Mon-Fri.
8am-4pm Sat.

ALL PRICES INCLUDE VAT – NO HIDDEN EXTRAS

THE DATAFLYERS UNBEATABLE VALUE FOR MONEY THE DATAFLYER 500 RANGE

Our low cost high performance SCSI controller & hard drive units give your Amiga 500 real power. Similar styling to the A590, plugging directly into the Amiga's expansion slot, they are available with or without a SCSI drive installed. Optional mains power supply available but rarely necessary in our experience. The built-in SCSI interface offers fast, autobooting performance (autoboot defeatable by holding down mouse button) at a low cost & is compatible with any SCSI drive. Installation instructions & utility disk included. **12 months warranty. Ready formatted – just plug in & switch on.**

SCSI INTERFACE & HARD DRIVE HOUSING ONLY £129.99
OPTIONAL MAINS POWER SUPPLY £54.99
WITH 49meg 28ms SCSI drive fitted ... ONLY £369.99
WITH 60meg 28ms SCSI drive fitted ... ONLY £419.99
WITH 83meg 24ms SCSI drive fitted ... ONLY £459.99
WITH 111meg 15ms SCSI drive & psu ... ONLY £599.99

Drives up to 177meg available. P.O.A. Please ask for separate Dataflyer leaflet. Managing your hard drive is easy with **DISKMASTER** only £34.99 when purchased with any Dataflyer.

THE DATAFLYER 2000 RANGE

Uses the same SCSI interface card as used in Dataflyer 500, but fits internally. Mounting holes drilled for most 3.5" SCSI drives. Available with SCSI hard drives fitted as listed below. All are Autobooting, have fast access times, & are self parking. An installation & utility disk for formatting & partitioning them is included. Upto 6 SCSI drives may be connected to one Dataflyer controller card. **Ready formatted – just plug in & switch on.**

SCSI Interface card for Amiga 1500 & 2000 ..... ONLY £79.99
SCSI card with 49meg 28ms SCSI drive ONLY £324.99
SCSI card with 60meg 28ms SCSI drive ONLY £375.99
SCSI card with 83meg 24ms SCSI drive ONLY £415.99
SCSI card with 111meg 15ms SCSI drive ONLY £499.99

Drives up to 177meg available. P.O.A.
Managing your hard drive is easy with **DISKMASTER** only £34.99 when purchased with any Dataflyer.
Please ask for separate Dataflyer leaflet.

BASEBOARD A500 MEMORY UPGRADE

The BASEBOARD is a very successful high quality memory upgrade card for your Amiga 500. It is compatible with 1.2 & 1.3 roms, & fat & fatter Agnus chips. It accepts any 256*4 Cmos Drams in 1/2 meg steps from 0 to 4 megs & auto configures to give you the full 1 meg chip ram. It has proved to be extremely compatible & reliable, though a disable switch can be fitted if required. An optional add-on board gives another 2 megs. No soldering is required, though some technical skill helps; filling the gary adaptor invalidates the computers warranty. Comprehensive instructions supplied. 12 months warranty.

BASEBOARD unpopulated £89.99
XRAM 2 MEG ADDON CARD £79.99
BASEBOARD 1/2MEG £109.99
BASEBOARD 1MEG £129.99
BASEBOARD 2MEG £164.99
BASEBOARD 3MEG £199.99
BASEBOARD 4MEG £229.99

KSC POWER PC CARD

This fits in the 1/2 meg slot & boosts the Amiga's ram to 1 meg, with battery backed clock. Runs most PC software faster than on many XTs (runs over 120 titles including most well known PC programs). No soldering required, & does not invalidate the computers warranty. Supplied with MsDos 4.01 & Gw Basic. Latest version supports A590 & other hard drives. Comprehensive instructions supplied. 12 months warranty.

LOWER PRICE – NOW ONLY £229.99

OTHER HITECH UPGRADES

KICKSTART 1.3 ROM £29.99
FATTER AGNUS 8372A £69.99
8520A 1/0 CHIP £15.99
UPRATED A500 POWER PACK £44.99
A520 MODULATOR £24.99
FLICKER FIXER FOR 1500/2000 ..... £299.99
FLICKER FIXER FOR A500 ..... £299.99
SUPRA 8 MEG MEMORY CARD FOR AMIGA 1500/2000 ..... £109.99
Unpopulated – Uses 256*4 Drams, in 2,4,6 or 8 meg stages.
CMOS 256*4 DRAMS – from £33.00 per meg
23W PLUG & COVER £2.99
23W SOCKET & COVER £2.99

DRIVE SWITCHES & ADAPTORS

DRIVE SWITCH 1 for disabling external drive DF1. Fits between the drive port & drive connector £10.99
BOOT SELECTOR SWITCH. Fits internally, & enables boot drive to be the external drive. Disables the internal one completely – i.e. the internal one cannot be 'swapped' for the external one £16.99
CYCLONE COPIER ADAPTOR fits between drive & Amiga drive port, needs Cyclone software to work (included free with Xcopy III) £10.99

QUALITY DISK STORAGE BOXES · LOCKABLE TINTED LID. ANTISTATIC

3.5" DISK LIBRARY CASE for 10 Disks £1.49
40 SIZE £6.99
80 SIZE £7.99
100 SIZE £8.99
150 SIZE Posso Stackable Drawer Type £18.99
250 SIZE £24.99
Special Offers
50 SIZE BOX + 10 Sony Disks – Only £11.99
100 SIZE BOX + 25 Sony Disks – Only £19.99
150 SIZE BOX + 50 Sony Disks – Only £43.99

SONY BULK 3.5" DS/DD DISKS + FREE LABELS

PACK OF 10 ..... £6.99
PACK OF 25 ..... £14.99
PACK OF 50 ..... £24.99
PACK OF 100 ..... £44.99
BOX OF 500 ..... £209.99
Sony branded disks – add 50%

PRESENTATION, PAINTING & ANIMATION

MOVIESETTER £59.99
COMIC SETTER **Special Offer** £14.99
VIDEOSCAPE 3D £99.99
DISNEY ANIMATION STUDIO £89.99
DIGIPAINT 3 ..... £49.99
DELUXE PAINT III £59.99
FANTAVISION £14.99

DESKTOP VIDEO PERIPHERALS

DIGIVIEW GOLD V4 ..... £99.99
VIDI + VIDICHROME – SPECIAL PRICE £99.99
RGB SPLITTER FOR VIDI £69.99
HITACHI MONOCHROME CAMERA £209.99
MINIGEN £104.99
RENDALE 8802 ..... £174.99
RENDALE SUPER 8802 ..... P.O.A.
G2 VIDEO CENTRE £759.99
COLOURPIC £389.99
SUPERPIC £489.99
DIGIVIEW 4 + DIGIPOINT 3 only £139.99

VIDEO TITLING

VIDEO TITLER 3 (2 drives & 1meg required) £105.99
DELUXE VIDEO £79.99
PIXMATE £39.99
BROADCAST TITLER 2 2Meg req'd £189.99

CAD & DRAWING – 2D/3D

X CAD DESIGNER £79.99
PROFESSIONAL DRAW 2.0 ..... £94.99
SCULPT 3DXL 1meg minimum £89.99
SCULPT ANIMATE 4D JUNIOR £79.99

VIDEOS (VHS FORMAT ONLY)

TRILOGIC'S INTRODUCTION TO THE COMMODORE AMIGA 500 Part 1 Covers all the first time Amiga A500 user needs to know. Including unpacking it, connecting the modulator & mouse, copying workbench, connecting external disk drives, peripherals & memory expansions well worth £14.99 or free with any Amiga purchased from us. Also serves to show just what can be done with an Amiga. G2 genlock, some software & home video equipment. 1 Running time: approx 30 min £10.99
PROFESSIONAL TECHNIQUES FOR DPAINT III A 60 minute video showing, you step by step, how to use DPaint III's more advanced & spectacular features £19.95

MONITOR PLINTHS & STANDS

MONITOR PLINTH 1 *Simple but effective.* This is a steel plinth which fits over the Amiga upon which most monitors & small tvs sit. £24.99
MONITOR PLINTH 2 *With Shelf for External Disk Drive etc.* This is similar to the Amiga Control Centre – it fits over the Amiga with a slot for the disk drive, & a shelf under the monitor for external drives. Open backed. £34.99
MONITOR PLINTH MOUSE JOYSTICK EXTENSION LEAD KIT PER PAIR £7.99
MONITOR SWIVEL/TILT BASE for 12 to 14" tvs & monitors £17.99

AMIGA TV & MONITOR LEADS

If your tv has an RGB input, you will get a much clearer picture connecting the Amiga to this using one of our leads, rather than via the modulator. All our monitor leads give the full range of colours, & include the audio leads unless otherwise stated.

AL1 AMIGA to scart – works with most scart equipped tvs & monitors, including Sony, Philips, Normende, Ferguson, Toshiba Mitsubishi, ITT etc. £12.99
AL2 AMIGA to Ferguson with 7 or 8 pin Din socket eg MC01 ..... £12.99
AL4 AMIGA to Hitachi/Granada with 7 pin Din socket £12.99

AL6 AMIGA to Amstrad CPC colour monitor with 6 pin din plug, no audio £11.99
AL7 AMIGA to 1084s monitor with 6 pin din socket & two phono sockets (audio) £14.99
AL7P AMIGA TO PHILLIPS 8833 MK2 ..... £14.99
AL7D AMIGA to 1084s D monitor with 9 pin D socket & two phonos £14.99
AL8 AMIGA to CGA monitor – 16 colours, no sound. 9 pin D plug £11.99
AL11 AMIGA to Multisync monitor with 9 pin D socket, no audio £11.99
AL12 AMIGA to Multisync monitor with 15w 3 row D socket, no audio £13.99
AL13 Amiga to Multisync monitor with 15 pin 3 row D plug, no audio £13.99
AL15 AMIGA to Taxan with 8 pin EIA connector, no audio £15.99
AL16 AMIGA to Tatsung TM01 colour monitor, no audio £11.99
MODULATOR EXTENSION LEAD. Enables the modulator to be moved – reduces its overhang & makes for a more secure connection £10.99
MODULATOR SPLITTER. Enables the modulator & monitor lead to be connected at the same time – the modulator is required if you wish to tape the Amiga on a VCR £16.99
GENLOCK SPLITTER. Enables a genlock & monitor lead to be connected at the same time £19.99
Longer Leads can be made to order – add £1.50 per metre to the list price.

SCART SWITCHES TV – MONITOR SHARERS

TVMONITOR SHARER A *for Scart Tvs & monitors* Converts one scart socket into two – switch selects input one or input two. Wired for RGB & composite + stereo sound – suitable for home computers, vcrs & satellite receivers. £19.99
● Plugs into the scart socket of your tv or monitor ● Dual scart sockets for two computers or ● Computer + VCR or ... ● Computer + satellite receiver etc ● Push button switch selects input 1 or input 2 ● No additional leads required – your existing scart leads just plug into the sharer.

PRINTER ACCESSORIES

2 WAY PRINTER SWITCH (25w D sockets) *now with free computer lead* £24.99
3 WAY PRINTER SWITCH (25w D sockets) *now with free computer lead* £27.99
4 WAY PRINTER SWITCH (25w D sockets) *now with free computer lead* £33.99
2 WAY CROSSOVER (25w D sockets) *& 2 free computer leads* £34.99
2 WAY PRINTER SWITCH (36w sockets) *with free computer lead* £26.99
3 WAY PRINTER SWITCH (36w sockets) *with free computer lead* £29.99
4 WAY PRINTER SWITCH (36w sockets) *with free computer lead* £34.99
CONTINUOUS 60gm PAPER 11 *9.5" Box of 2000 Microperf Margins* £21.99
CONTINUOUS 80gm PAPER 11 *9.5" Box of 1750 Microperf Margins* £31.99
PACKS OF 500 SINGLE SHEETS. *A4 60gms white* £5.99
PACKS OF 500 SINGLE SHEETS. *A4 60gms blue, green, yellow, or red* £9.99
Prices are up to £4.00 box cheaper to callers because of savings in postage.
CONTINUOUS LABELS 89 *39mm, 1 across, pack of 1000* £8.99
COPY HOLDER *Free standing type* £17.99
COPY HOLDER *Table top edge clamping type* £17.99
PRINTER STAND standard width £13.99
PRINTER STAND for wide carriage printers £15.99

AMIGA PRINTER & MODEM LEADS FOR A500/2000/3000

AMP1 AMIGA to parallel printer approx 1.5m long £9.99
AMP2 AMIGA to parallel printer approx 3m long £12.99
AMP5 AMIGA to parallel printer approx 5m long £16.99
MF1 25way male to female lead, approx 1.5m £11.99
MF2 36way male to female lead, approx 1.5m £12.99
MM1 25way male to male lead, approx 1.5m £11.99
MM2 36way male to male lead, approx 1.5m £12.99
NML1 Null modem lead for linking 2 Amiga £8.99
ML1 25way female to male modem lead, approx 1.0m £11.99
ML2 25way female to din plug modem lead – state modem £10.99
ML3 Designer modem lead £11.99
BEL1 BBC Emulator lead. 25way to 5 pin domino plug £8.99
ASP1 AMIGA serial printer lead. 25way male/female £11.99

PRINTER RIBBONS (COMPATIBLE TYPES)

STAR LC24-10 ..... £6.99
STAR LC10 ..... £4.49
STAR LC10 COLOUR £6.99
CITIZEN 120D/120D+/180E £4.49
CITIZEN 120D/120D+/180E CITIZEN BRAND RIBBON £6.99
COMMODORE MPS801 ..... £5.99
COMMODORE MPS803 ..... £3.99
PANASONIC KXP1081 ..... £4.49
PANASONIC KXP1180/1124 ..... £4.49
AMSTRAD DMP2000/3000/3160/3250 ..... £3.49
Buy 3 get 1 free.

SAMPLING

AUDIOMASTER III £54.99
PERFECT SOUND inc budget Stereo sampler £52.99
MASTERSOUND INC budget mono sampler £41.99
Special Offer
AUDIOMASTER III + TRILOGIC STEREO SAMPLER *2 save £19.00* £84.99

SEQUENCING COMPOSING * = MIDI COMPATIBLE

QUARTET* £44.99
SONIX* £39.99
DELUXE MUSIC* £54.99
SEQUENCER ONE £84.99
MUSIC X v 1.1* £99.99
MUSIC X JUNIOR* £59.99
DR Ts TIGER CUB 12 track seq * 1 meg req'd £49.99
DR Ts Voice Editors for KORG M1, ROLAND D50, D110, KAWAI K1, K5 etc £79.99
Special Offers
SEQUENCER ONE + Midi Interface 2 ..... £109.99
MUSIC X v 1.1* + Midi Interface 2 ..... £109.99
MUSIC X JUNIOR + Midi Interface 2 ..... £79.99
DR Ts TIGER CUB 12 track seq + MIDI INTERFACE 2 ..... £69.99

WRITE OR PHONE FOR **FREE** AMIGA SUPERMARKET **PRICE LIST** includes books, more software, dust covers, ribbons, monitor & printer leads etc., etc. . . !

MINIAMP 4 STEREO SPEAKER SYSTEM £39.99
● Superb low distortion stereo sound ● New improved 'bridge' design stereo amplifier ● More power – now approx 5 watts per channel ● 2 pin din speaker sockets (suitable for most hifi speakers) ● Compact, quality twin cone speaker units with 6' leads ● Mains power pack – doesn't use any computer power ● Simple to connect – just plug in & switch on ● Please state computer when ordering ● Free mains power unit worth £5.99
Miniamp 4 complete
Miniamp 4 less speakers
Our mini hifi systems are ideal for your Amiga Atari Ste, Archimedes & personal stereos etc.

STEREO SAMPLER MK II £39.99
It's fast & it makes all other samplers obsolete! Which others have a printer through port?
Our Superb Mono Sampler is still available.
● Uses latest state of the art A/D Chip ● Very short conversion time < 1uSEC ● Very high sample rates > 500KHz (Amiga & software dependent) ● Superb quality especially with CD audio ● Easily adjusted input level control (no screwdriver required) ● Printer through port – a major innovation ● Connects to parallel port only ● Compatible with most sampler software inc Audiomaster I & II, Perfect Sound, Future Sound, Prosound, Quasar Sound, etc. etc. ● New Free Stereo Sampling Software.*
This major innovation means that the sampler can be left connected at all times even when not in use. Your existing printer lead is connected to the sampler via our low cost Automatic Printer Adaptor, then whenever you want to print just switch the printer on-line. Switch it off-line to use the sampler – what could be simpler ..... £14.99 extra

MIDI INTERFACE 2 ..... £29.99
The most versatile midi interface available as supplied to Commodore for the class of 90s pack.
● 1 midi in socket ● 1 midi through socket ● 1 midi out socket ● 2 switchable out/thru sockets for additional instruments, giving effectively, 3 thrus or 2 of each ● Fully opto isolated ● Very low power consumption ● Compatible with Amiga 2000, A1000 version available at extra cost ● Compatible with music X Dr T's, Deluxe music, sonix, etc.

MICE, TRACKERBALLS & ACCESSORIES

BUDGET REPLACEMENT AMIGA MOUSE £17.99
NAKSHA MOUSE WITH HOLDER FOR AMIGA/ST/PCs £27.99
Dtec MOUSE £24.99
OPTICAL MOUSE No moving parts £39.99
MARCONI TRACKERBALL *Save £5.00* £49.99
● Precise control ● Ergonomically designed ● Professional 'feel' ● Marconi precision engineering ● Solid 2" ball ● Positive action buttons.
MOUSE JOYSTICK SWITCH £14.99
● Connects in place of mouse (or joystick) ● Features two sockets with push button selection of mouse or joystick ● Switch can be operated at any time ● Suitable for use with most dongles ● Does not use any power ● Reduces wear & tear on computers ports ● Makes access easier ● Suitable for Amiga, st etc. No more unplugging the mouse.
MOUSE MAT Thick felt backed foam, A4 size £3.99
JOYSTICK EXTENSION LEAD 1 Metre long per pair £7.99
MOUSE HOLDER £1.99
PODSCAT GRAPHICS Tablet & Drivers £219.99
C2000 Concept Keyboard £219.99
EASYL TOUCH SENSITIVE Drawing Tablet £269.99

JOYSTICKS

QUICKJOY SUPERCHARGER, MICROSWITCHES & AUTOFIRE £8.99
QUICKJOY JETFIGHTER, MICROSWITCHES & 2 SPEED AUTOFIRE £12.99
COMPETITION PRO 5000, CLEAR MICROSWITCHES & AUTOFIRE £13.99
COMPETITION PRO 5000, EXTRA MICROSWITCHES & AUTOFIRE £14.99
ZIPSTICK AUTOFIRE £12.99
QUICKSHOT MAVERICK £14.99
QUICKJOY TOP STAR £21.95
DELTA 3A ANALOGUE JOYSTICK £14.49
CONTRIVER CHALLENGER £24.99
EUROMAX ZOOMER £29.99
Special Offer
Buy our Mouse Joystick Switch for only £12.99 with any joystick or trackerball listed above.

ANTISTATIC, SEMI-TRANSPARENT DUST COVERS

AMIGA A500 ..... £4.99
AMIGA 2000 Separate keyboard cover £12.99
1084/1084S PHILIPS 8833 ..... £5.99
STAR LC24-10, LC200, LC24-200 ..... £6.99
STAR LC10/LC10 COLOUR, LC20 ..... £5.99
CITIZEN 120D/120D+/180E £5.99
CITIZEN SWIFT 9, SWIFT 24 ..... £5.99
3.5" EXTERNAL DISK DRIVE Please state type £3.99

EDUCATIONAL SOFTWARE

This is part of an ever increasing range of entertaining & professionally written programs especially for UK students starting from the age of 2.

Most educational programs conform to the requirements of the National Curriculum

FUN SCHOOL 3 3-6 yrs £19.99
FUN SCHOOL 3 6-8 yrs £19.99
FUN SCHOOL 3 over 8 yrs £19.99
LETS SPELL AT HOME for 4-6 yrs with speech £19.99
PLAY & READ for 4 to 9 yrs with a story on audio cassette £22.99
KIDS TYPE (A simple wordprocessor for 4 to 8 year olds) £22.99
MICRO MATHS – GCSE O LEVEL £22.99
MICRO MATHS – GCSE A LEVEL £22.99
MICRO ENGLISH – GCSE O LEVEL £22.99
MICRO FRENCH – GCSE O LEVEL £22.99
OTHER EDUCATIONAL & INTRODUCTORY & EDUCATIONAL PROGRAMS FRENCH, GERMAN, SPANISH, RUSSIAN, ITALIAN ..... EACH £22.99
AMIGA APPETISER Simple wordprocessor, Music teaching & composing program & painting program + a word game £34.99
MASTERING CLI £19.99
AMIGA GRAPHICS STARTER KIT £19.99

WORDPROCESSORS & DTP

KINDWORDS 2 ..... £39.99
TRANSWRITE £34.99
PENPAL 1meg req'd £89.99
SCRIBBLE PLATINUM £41.99
PROTEXT V5 1meg req'd £119.00
PROFESSIONAL PAGE 1meg req'd £129.99
PAGESETTER 2 – 1meg req'd £49.99
ETYPE – Typewriter Emulator £34.99

INTEGRATED SOFTWARE PACKAGES

GOLD DISK OFFICE £99.99
THE WORKS – Platinum £64.99

DATABASES

SUPERBASE PERSONAL £39.99
SUPERBASE PERSONAL 2 ..... £59.99
SUPERBASE PROFESSIONAL 1 ..... £199.99

PROGRAMMING

DEVPAC 2 (HISOFT) £44.99
AMOS THE CREATOR – New Version £39.99
CANDO (inp 129.95) £79.99
ELAN PERFORMER v2 ..... £79.99
HISOFT BASIC PRO £74.99

UTILITIES & COMMS

XCOPY PROFESSIONAL + Cyclone £35.99
QUARTERBACK v4.0 ..... £39.99
AMI DRIVE ALIGNMENT £34.99
DOCTOR AMI £29.99
DISKMASTER v1.4 ..... £39.99
ON LINE PLATINUM (Comms) £34.99
DELUXE PRINT 2 ..... £39.99
DOS TO DOS £29.99

SPREADSHEETS & ACCOUNTS

DG CALC £34.99
SUPERPLAN £59.99
HOME ACCOUNTS £24.99
CASHBOOK CONTROLLER + Final Accounts £59.99
MAILSHOT PLUS £39.99

ABACUS AMIGA BOOKS

AMIGA FOR BEGINNERS by Abacus Price £12.45
This book is essential reading for all Amiga owners – it covers all the topics of most help & interest to beginners in a very readable & easy to understand way. Brand new edition just updated.
We stock a wide range of books covering all aspects of the Amiga & its applications & peripherals. See our catalogue for details.

AMIGA For beginners £12.45
AMIGA Tricks & Tips £14.45
MORE AMIGA Tricks & Tips £16.45
AMIGA BASIC Inside & Out £16.45
AMIGA 3D Graphic Programming in Basic £17.95
AMIGA GRAPHICS Inside & Out £21.95
AMIGA Machine Language £14.45
AMIGA Systems Programmers Guide £32.45
AMIGA Advanced Systems Programmers Guide £21.95
AMIGA C For beginners £17.95
AMIGA C For Advanced Programmers £21.95
AMIGA DISK DRIVERS Inside & Out £26.95
AMIGA DOS Inside & Out £17.95
AMIGA DOS Quick Reference Guide £8.45
AMIGA DESKTOP VIDEO **New** £17.95
AMIGA PRINTERS Inside & Out **New** £21.95
DISKS for Abacus Books Please state which when ordering £11.95
Special Offer
Free Amiga DOS quick reference guide worth £8.95 when you order any two books

OTHER POPULAR BOOKS

USING DELUXE PAINT £19.95
AMIGA Programmers Handbook Vol 1 (Sybex) £24.95
AMIGA Programmers Handbook Vol 2 (Sybex) £23.95
AMIGA Hardware Reference Guide £21.95
AMIGA Rom Kernal Includes & Autodocs £28.95
AMIGA Rom Kernal Intuition, Libraries & Devices £29.95

TRILOGIC

SCREEN GEMS

AMIGA A500

CALLERS WELCOME
Callers are welcome – but please phone to check availability
FREE JOYSTICK
With every Amiga collected
FREE PAPER
free pack of paper with every printer collected

OTHER PACKS AVAILABLE PLEASE PHONE FOR DETAILS

PACK 1
- A500 WITH 1.3 WORKBENCH
- 512K RAM • TV MODULATOR
- BUILT-IN 3.5" DISK DRIVE
- ALL MANUALS & CABLES
- MOUSE

PLUS - unique to TRILOGIC
- FREE TUTORIAL VIDEO

Shows you how to connect & use your Amiga WORTH £14.99

PLUS
- SHADOW OF THE BEAST II
- BACK TO THE FUTURE II
- DAYS OF THUNDER • DELUXE PAINT II

PACK 1 ▶▶▶▶ £369.99

FREE VIDEO

This highly acclaimed video, produced by us, especially for first time Amiga buyers, takes you through everything from connecting up your Amiga backing up Workbench, formatting disks, installing 1/2meg expansions & other peripherals + demos of other Trilogic products.
Free with any Amiga pack, or available seperately for £14.99 + 75p postage

PACK 2

PACK 1 PLUS PHILIPS CM8833 mk 2 COLOUR MONITOR
- CONNECTING LEAD • RGB & VIDEO INPUTS
- MED RESOLUTION • OVER 4096 COLOURS
- TWIN STEREO SPEAKERS • 14" SCREEN
- STEREO HEADPHONE SOCKET
- GREEN SCREEN SWITCH

PACK 2 ▶▶▶▶ £599.99

10 STAR PACK
ONLY £30 when purchased with an Amiga
- 5 SONY DISKS + LABELS
- QUALITY MOUSE MAT
- MICROSWITCH JOYSTICK
- 10 GREAT GAMES WORTH OVER £399.00

★ DATASTORM
★ DUNGEON QUEST
★ E MOTION
★ GRAND MONSTER SLAM
★ KID GLOVES
★ POWERPLAY
★ RVF HONDA
★ SHUFFLEPUCK CAFE
★ SOCCER
★ TOWER OF BABEL

MONITORS

FREE LEADS!

PHILIPS CM8833 Mk2 £239.99
- 14" SCREEN • HIRES, 41mm DOT PITCH
- STEREO HEADPHONE SOCKET
- COMPATIBLE WITH AMIGA, ATARI ST, C64, PC (CGA) VCRs ETC. • TWIN STEREO SPEAKERS
- PHILIPS GREEN SCREEN 12 MONO MONITOR £89.99

COMMODORE 1084S £269.99
Similar spec & picture quality to the 8833

HI-RES MONITORS

INTERQUAD MS1480 £349.99
AOC CM326 £369.99
- VERY SHARP & EASY TO READ
- MULTISYNC/MULTISCAN
- BUILT IN TILT/SWIVEL BASE
- COMPATIBLE WITH AMIGA, ST, PC/AT/MAC II
- LEAD INCLUDED (STATE COMPUTER)
- 14" NON GLARE SCREEN
- 028MM DOT PITCH • 1024 x 768 PIXELS
- (NO SPEAKERS FITTED USE ONE OF OUR MINIAMP STEREO SYSTEMS OR YOUR HIFI)
- FLICKER FIXER COMPATIBLE

½ MEG UPGRADE

(WITHOUT CLOCK & BATTERY) ~~£33.99~~ **£26.99**

- CLOCK & BATTERY
- ON/OFF SWITCH
- EASY TO FIT
- ALL CHIPS SOCKETED
- DOES NOT INVALIDATE THE A500 WARRANTY

(WITH CLOCK & BATTERY) ~~£37.99~~ **£29.99**

A590 HARD DRIVE

Available with up to 2meg of ram installed £289.99
WITH 1 MEG RAM £319.99
WITH 2 MEG RAM £349.99

The A590 offers 20 megabytes of disk storage + up to 2 megs of fast ram. It is autobooting – so you won't need to use the workbench disk again. Complete with power supply. Post free.

PRINTERS

FREE LEADS!

STAR LC10 £159.99
9 pin head, 4 fonts, 144 cps draft, 36 cps NLQ, condensed, double & quadruple sizes, 240dpi graphics, single or continuous sheets

STAR LC200 £219.99
New 9 pin colour printer replaces LC10 colour

STAR LC24-200 £264.99
New 24 pin printer which replaces the LC24-10 printer

STAR LC24-200 colour £319.99
Completely new 24 pin colour

STARSCRIPT LASER 4 £1299.99
4ppm Postscript Laser Printer. With 2mb ram, 300x300 dpi, Epson a HP Laserjet 2 Compatible. 12 months on-site warranty.

CITIZEN 120D+ £149.99
Good budget 9 pin printer.

EXTERNAL 3.5" DISK DRIVE £54.99

- 880K FORMATTED 1 MEG UNFORMATTED
- SLIMLINE CASE
- ON/OFF SWITCH
- LOW POWER CONSUMPTION
- THROUGH PORT FOR CONNECTION OF ADDITIONAL DRIVES
- EXTREMELY QUIET OPERATION
- VERY RELIABLE MECHANISM

ALSO AVAILABLE
QTEC AMIGA 3.5" DRIVE £64.99
QTEC AMIGA 5 1/4" DRIVE £99.99
INTERNAL REPLACEMENT DRIVE (Chinon type only) £79.99
CUMANA CA x 354 £69.99

LOW COST A590 DRIVE UPGRADES

Why not upgrade your A590 with a larger, faster AUTOBOOTING & SELFPARKING SCSI drive
Our direct replacement hard drives simply fit in place of the original unit, and are easy to format and partition with the original A590 installation disk. Instructions supplied.

49 MEG 28ms £249.99
60 MEG 28ms £299.99
83 MEG 24ms £339.99
111 MEG 15ms £399.99

Add £10.00 to above prices if you wish us to install and format a drive for you. Managing your hard drive is easy with DISKMASTER only £34.99 when purchased with any hard drive.

For alternative larger ready built Amiga 500 hard drive units, see our DATAFLYER range on opposite page.

ORDER HOTLINE 0274 691115

SEE OPPOSITE FOR HOW TO ORDER

BEST SELLING AMIGA BOOKS

SEE US AT THE COMPUTER SHOPPER SHOW STAND B18

AMIGA DOS INSIDE & OUT £16.95

An in-depth guide to AmigaDOS and the CLI. Covers the insides of AmigaDOS from internal design up to practical applications. Versions 1.2 and 1.3 are covered and this revised edition also includes AmigaDOS 2.0

AMIGA C FOR BEGINNERS £16.95

An introductory guide for the Amiga user that wishes to learn this popular language without a lot of technical jargon. Describes the C library routines and use of the most popular C compilers. Lots of programming examples.

AMIGA DESKTOP VIDEO GUIDE £16.95

This is a book for everyone who wants to use the Amiga for video. You'll find information on video basics, video-tape equipment, video/Amiga interfaces, artwork and more.

AMIGA FOR BEGINNERS £12.95

The ideal book for the first time user. A clear introduction to essential Amiga features including the Workbench diskette, AmigaBASIC and AmigaDOS. Recently revised to include Workbench 2.0 info.

AMIGA PRINTERS INSIDE & OUT *new* £29.95

A comprehensive guide with easy to follow examples and simple explanations to help you use your printer more effectively. Learn AmigaDOS commands for printer control and printing tips and tricks from the experts. Includes a companion diskette with essential printer utilities.

MAKING MUSIC ON THE AMIGA *new* £29.95

The Amiga has wonderful music talents. This book shows you how to take advantage of those capabilities. It starts with the fundamentals of music and progresses to the details of using software such as Music Construction Set, Aegis/Oxxi and AudioMaster and how to construct your own MIDI interface. Includes companion diskette containing lots of music examples.

THE BEST OF TRICKS AND TIPS *new* £24.95

The best selling book 'Tricks & Tips' and its follow up book 'More Tricks & Tips' have been replaced by this single volume. The companion diskette is included. A great collection of programming hints and techniques for all Amiga users.

OTHER BOOKS

Amiga DOS Quick Reference Guide	8.95	Amiga Basic Inside & Out	18.95
Amiga 3D Graphics Prog. in BASIC	16.95	Amiga Machine Language	14.95
Amiga System Programmers Guide	29.95	Advanced System Programmers Guide	29.95
Amiga Disk Drives Inside & Out	24.95	Amiga C for Advanced Programmers	29.95
Amiga Graphics Inside & Out	29.95	More Amiga Tricks & Tips	14.95
Amiga ROM Kernal Ref: Libs. & Divs.	29.95	Amiga ROM Kernal Ref: Includes & Autodoc	28.95
Amiga Hardware Ref. Manual	21.95	Kids and the Amiga	13.95
Elementary Amiga BASIC	12.95	Advanced Amiga BASIC	16.95
Amiga Applications	16.95	Using Delux Paint 2nd Ed	19.95
Inside Amiga Graphics	15.95	First Book of Amiga	14.95
Amiga DOS Reference Guide (3rd ed)	18.95	Second Book of Amiga	14.95
Mapping the Amiga	19.95	Amiga Programmer's Guide (Compute!)	16.95
Amiga Desktop Video (Compute!)	16.95	Amiga DOS Reference Guide (2nd Ed)	6.95
AMIGADOS: A Dabhand Guide	14.95	Amiga Companion 2nd Ed	16.95
Inside the Amiga with C	19.95	Becoming an Amiga Artist	16.95
Amiga Programmer's Handbook Vol. 2	22.95	Amiga Assembly Language Programming	12.95
Desktop Video Production, Amiga & Mac II	14.95	Amiga Desktop Video Workbook (inc disk)	29.95

All prices include postage within UK
Add 10% postage for European orders and worldwide surface mail
Add 30% for airmail outside Europe. Dealer enquiries welcome

DTBS (Dept AUI) Tel/Fax 0706 524304
18 Norwich Avenue, Rochdale, Lancs OL11 5JZ
Access/Visa Orders Accepted

Access VISA

10 MARKET PLACE
ST. ALBANS
HERTS AL1 3DG
TEL (0727) 56005/41396

Hobbyte COMPUTING
ESTABLISHED 7 YEARS

THE GALLERY
ARNDALE CENTRE
LUTON, BEDS LU1 2PG
TEL (0582) 457195/411281

1MB AMIGA

STARTER PACK

Full Amiga 500 pack, WITHOUT Batman/Flight/Screen Gems software: BUT WITH:

15 disc Hobbyte PD Greats pack, including Virus Killers, the Best Star Trek and other top ten games, Arcade Classics, Board Classics, Best of the Utilities, Home pack including Word Processor, Spreadsheet, Database,
Joystick

1MB AMIGA **£329**

1MB AMIGA

GAMES PACKS

BATPACK, SCREEN GEMS FULL AMIGA 500 PACK, PLUS: Batman Pack Software: Batman, F18 Interceptor, New Zealand Story, DeluxePaint II
OR Flight of Fanatsy software: F29 Retaliator, Rainbow Island, Escape from the Planet of the Robot Monsters, Deluxe Paint II
OR Screen Gems software: Shadow of the Beast II, Back to the Future II, Days of Thunder, Nightbreed, Deluxe Paint II

any 1, 1MB Amiga **£369** any 2, 1MB Amiga **£399**
any 1, 512K Amiga **£349** any 2, 512K Amiga **£379**

ANY SOFTWARE UPGRADE PACK for existing Amiga owners ---------- **£39**

1MB AMIGA

THE LOT!!

EVERYTHING YOU COULD EVER NEED!!
BATMAN OR SCREEN GEMS GAMES PACK AS LEFT, PLUS:
10 INDIVIDUALLY PACKAGED GAMES - previous RRPs £19.99-£39.99 each, phone to choose from current list of 15, or leave it to us! Children's games available.
15 DISC HOBBYTE PD GREATS PACK, including Virus Killers, the BEST Star Trek Computer Conflict, Breakout and construction Kit, Blizzard and other games, Arcade Classics, Board Classics, Shoot-em-Up Classics, Best of the Utilities, Home pack including Word Processor/Spell Check, Spreadsheet, Database
Dust Cover, 10 Blank Discs, Disc Box, Mouse Mat, Microswitch Turbo Joystick
1MB Amiga £389
512K Amiga £369

4-9 YRS

1MB AMIGA

ABSOLUTE BEGINNERS PACK

FULL AMIGA 500 PACK, PLUS: POSTMAN PAT, SNAP, SNAKES AND LADDERS, LUDO
FUN SCHOOL 2 (specify under 6 years, 6 to 8 years, or 8+ years) AND **FUN SCHOOL 3** (specify under 5 years, 5 to 7 years, or 7+ years)
12 stunning UK educational games with beautiful pictures, exciting animation and music that help to develop number, word and other skills.
Up to 6 skill levels. Conform to National Curriculum requirements.
HOBBYTE EDUCATIONAL PACK, featuring up to 12 'Learn while you play' games (varies according to age group)
HOBBYTE 30 EASY CHILDREN'S GAMES, 10 disc pack inc; Train Set Game, Flashbier.
JOYSTICK ------ 1MB Amiga £379
ABSOLUTE BEGINNERS SOFTWARE PACK for existing Amiga users **£55**

HOBBYTE EXCLUSIVE

FIRST STEPS

EXPANDED EDUCATIONAL/APPLICATIONS PACK
FULL AMIGA 500 PACK, PLUS:
A501 512K RAM expansion
Lets Spell at Home, Music Mouse, Prowrite WP, InfoFile spreadsheet, Deluxe Paint II, Deluxe Print, Music Mouse, LOGO, Talking Turtle, BBC Emulator, 5 BBC programmes, 10 discs, DOs and DON'Ts poster, Resource File, In Pack Video, NAPE Booklet.
HOBBYTE EDUCATIONAL PACK, featuring up to 12 'Learn while you play' games (varies according to age group)
HOBBYTE 30 EASY CHILDREN'S GAMES, 10 disc pack inc; Train Set Game, Flashbier.
JOYSTICK **£529**
SOFTWARE UPGRADE PACK for existing Amiga owners **£199**

CLASS OF THE 90S

EDUCATIONAL/APPLICATIONS PACK
FULL AMIGA 500 PACK, PLUS:
A501 512K RAM expansion, MIDI Interface, Deluxe Paint II, Superbase Personal, Maxiplan 500, Publisher's Choice, Dr T's MIDI Recording Studio, LOGO, BBC Emulator, 5 BBC programmes, 10 blank discs, mouse mat, disc wallet.
HOBBYTE EDUCATIONAL PACK, featuring up to 12 'Learn while you play' games (varies according to age group)
HOBBYTE 30 EASY CHILDREN'S GAMES, 10 disc pack inc; Train Set Game, Flashbier.
JOYSTICK **£519**
CLASS OF THE 90S SOFTWARE UPGRADE PACK for existing Amiga owners **£199**

COMMODORE CDTV

VERY LIMITED STOCKS EXPECTED SOON, RESERVE YOURS NOW **£ - phone**

AMIGA 1500

Twin Floppy 1MB RAM, Mouse, expansion as B2000, 1084SDI Monitor with: The Works Platinum database, WP, Spreadsheet, Deluxe Paint III, Sim City, Populous, Their Finest Hour, Battlechess, A-Z of Computer Jargon, Get the most out of your Amiga, manuals and operating discs
15 DISC HOBBYTE PD GREATS PACK, including Virus Killers, the BEST Star Trek, Computer Conflict, Breakout and construction Kit, Blizzard and other games, Arcade Classics, Board Classics, Shoot-em-Up Classics, Best of the Utilities, Home pack including Word Processor/Spell Check, Spreadsheet, Database .
£889
WITH T.V. MODULATOR NO MONITOR **£699**

A500 TO 1500 TRADE IN

With monitor, with 20MB Autoboot Hard drive ---------- **£999**
Without monitor, with 20MB Autoboot hard drive ---------- **£799**

EDUCATIONAL PACK

Available only to educational users – see note below
Full Amiga 500 pack, plus **A501 512K RAM expansion plus any ONE of the following** (please state first and second choice) Prowrite WP, InfoFile spreadsheet, Deluxe Paint II, Deluxe Print, Music Mouse, LOGO, Talking Turtle, BBC Emulator + 5 BBC programmes, MIDI Interface, Superbase Personal, Maxiplan 500, Dr. T's MIDI Recording Studio
£299 plus VAT

Important Note: This offer is strictly only available to LEAs, schools, students, educationalists and teachers – please provide official order, or identification such as a letter confirming student status from school or college, or copy of DES card, or similar. Delivery on this package may be up to 14/21 days from date of order.

A500 to B2000 or 3000 TRADE IN

(All prices ex VAT)

- **20 blank discs and 80 capacity lockable disc box**
- **15 disc Hobbyte PD Greats pack**, inc Virus Killers, The Ultimate Star Trek, and other great games, Arcade Classics, Board Classics, Best of the Utilities, Home Pack inc. Word Processor, Spell Check, Database, Spreadsheet

B2000 with 2090A/20MB HD	Alone	2MB RAM on HD contriler	2058 board pop to 2MB	8UP board pop to 8MB
HD only	699	N/A	889	999
XT Bridge Board	849	N/A	1039	1149
AT Bridge Board	1199	N/A	1389	1499
2300 Int. Genlock	779	N/A	969	1079
B2000 with 2091/40MB HD				
HD only	849	919	1039	1149
XT Bridge Board	999	1069	1189	1299
AT Bridge Board	1349	1419	1539	1649
2300 Int. Genlock	929	999	1119	1229

A3000

A3000 16/40 16 MHz, 40 MB HD, 2MB RAM, 1 x 3.5" 880K floppy, keyboard	£1695
A3000 25/40 25 MHz, 40 MB HD, 2MB RAM, 1 x 3.5" 880K floppy, keyboard	£2059
A3000 25/100 25 MHz, 100 MB HD, 2MB RAM, 1 x 3.5" 880K floppy, keyboard	£2379
1950 Monitor SVGA 800 x 600 resolution Multisync	£ 399

Please see under "Extras" for additional expansion

EXTRAS inc VAT

Star LC200 colour printer with leads	£195
Star LC24-200 colour printer with leads	£299
Citizen Swift 9 pin colour printer with leads	£189
Citizen Swift 24 pin colour printer with leads	£299
CBM 1270 ink jet printer	£189
Commodore 1084SDI or Philips 8833 MkII Stereo colour Monitor, with leads	£227
Second external 3.5" drive with daisychain through port and disable switch	£59
A501 the Official CBM 512K RAM Expansion	£29
A590 Hard drive	£269
Amiga 590 Hard drive + extra 2MB	£329
10 blank discs 100% guaranteed with PIN no in box	£6.99
50 blank discs 100% guaranteed with PIN no	£16.99
KCS 500 Power board inc 512K exp, MS DOS, Shell, 640K	£219
Rendale 8802 Genlock	£179
G2 Genlock for 2000/1500	£649
A2300 internal genlock for 2000/1500	£99
A2088 XT Bridge Board, 640K, MS DOS 3.3 + 5.25" drive for 2000/1500	£199
A2286 AT Bridge Board, 1MB, MS DOS 4.01 + 5.25" drive for 2000/1500	£569
A2058 8MB RAM exp board, populated to 2MB, for 2000/1500	£199
BUP 8MB RAM exp board, pop to 8MB for 2000/1500	£349
A2630 68030 card, populated to 2MB for 2000/1500	£999
A2630 68030 card, populated to 4MB for 2000/1500	£1299
A2090A/2092 20MB Autoboot Hard Drive for 2000/1500	£299
A2091/2094 40MB SCSI Autoboot Hard Drive for 2000/1500	£499
IVS Trumpcard + 40MB hard drive for 2000/1500	£389
A2320 Display Enhancer card (Flicker fixer) for 2000/1500	£249
A1950 high res colour monitor for 2000/1500 with A2320 and 3000	£459
1MB static RAM for A3000	£199
A500/1500 modulator	£23

ORDERING:

TELESALES NO: (0727) 56005
Next day delivery for credit card orders placed before 4.00pm subject to availabilty. Alternatively send cheque, postal order, bankers draft or official order (PLCs, Education and Government bodies only) to; **Dept. AF, Hobbyte Computer Centre, 10 Market Place, St. Albans, Herts AL3 5DG.** Please allow 7 working days for cheque clearance. Subject to availability, despatch is normally within 24 hours of receipt of cleared payment.

DELIVERY CHARGES: UK Mainland (not Highlands)

Small consumables & software items	Despatched by post, please check charges when ordering
Other items, except lasers	Next day courier service, £10 per box
Laser printers	Next day courier service, £17.50
Offshore and Highlands	Normal rate plus £20 + VAT per box

In addition we offer the following express services:

Saturday deliveries	Normal rate plus £10 + VAT surcharge per box
7am to 9am next day	Normal rate plus £10 + VAT surcharge per box
Am next day	Normal rate plus £5 + VAT surcharge per box

NO DEPOSIT CREDIT FACILITIES (UK mainland)

Credit terms at 34.8% APR (variable) can be arranged for puchases over £150, subject to status. Competitive leasing schemes are also available for businesses, including sole traders and partnerships. Just tel for written details and application form.

COMMODORE 1084S OR PHILLIPS 8833 COLOUR MONITOR, LEADS £220 WITH ANY PACK
STAR LC24-200 COLOUR PRINTER AND LEADS £285 WITH ANY PACK

COMMODORE PREMIER DEALER

Hobbyte proudly announce this highest CBM accolade, awarded to only the top few dozen CBM dealers offering the best in expertise and support.

CALLERS WELCOME AT OUR BRANCHES
open 9-5.30, Monday to Saturday
Amiga prices, except where stated are inc. VAT. Prices are subject to change without notice. E.&O.E.

Star

TELE-ORDER (0727) 56005

NEWS

TRUE TO LIFE PROGRAM ?

With the coming of Neural networks, expert systems, evolver software that mutates according to Darwinian principles and even computer viruses that attempt to mimic living things, shouldcomputer programs really be considered 'alive'?

Programs are being created to make artificial life which aims to replicate lifelike behaviour on computer screens in the hope of predicting human behaviour or uncovering what motivates us and other living things.

Recently some scientists have begun to ask if computer viruses, self-replicating organisms, are themselves not a form of artificial life. But others deny that computer viruses evolve at all.

Artificial life suppporters want their creations to mutate or adapt - and more. Evolver software, for example, generates solutions to a problem and then selects the best, based on a survival-of-the-fittest theory.

A company called 'Thinking Machines' has taken the idea one step further with a number-sorting program which becomes progressively better at solving problems. Scientists at IBM's Thomas J Watson Research Center in Yorktown Heights, New York, were astonished to discover last year that a computer simulation of human brain waves began giving off waves of its own. We are not surpised at that sort of thing. At least one of our Amiga's doesn't like to work too early in the morning. *(What does that mean, 10 o'clock? Ed.)*

Sintar Software, a Seattle Washington software publisher is now selling a cellular automata program called Cellmaster, which allows you to set the rules that govern the lives of paramecium-like creatures and jellyfish. You don't want a program to control jellyfish? Well, it's a beginning, isn't it?

NEW HORIZONS' DESIGNWORKS

New Horizons creators of Prowrite and Quickwrite and one of the longest established and most respected software companies involved with the Amiga have come up with another program that will fill a gap in the computer's armoury. Designworks is high performance structured drawing program which is intended to provide a fast yet easy-to-use tool for all types of drawing and design requirements.

Designworks contains three "tool" windows : The Toolbox, The Pen Palette and The Fill Palette. The Toolbox offers a whole range of utilities that are controlled with a simple click on. They vary from selecting, moving, resizing or reshaping objects; entering text and creating text objects - which can have fill patterns to tools for immediately creating rectangles, ovals, horizontals, verticals or polygons.

The Pen Palette is used to change the pen colour for selected or new objects. It too is executed through a simple click on a colour in the palette.

The Fill Palette - surprise, surprise - works the same way. You mouse click on whichever fill you require from the fill palette provided.

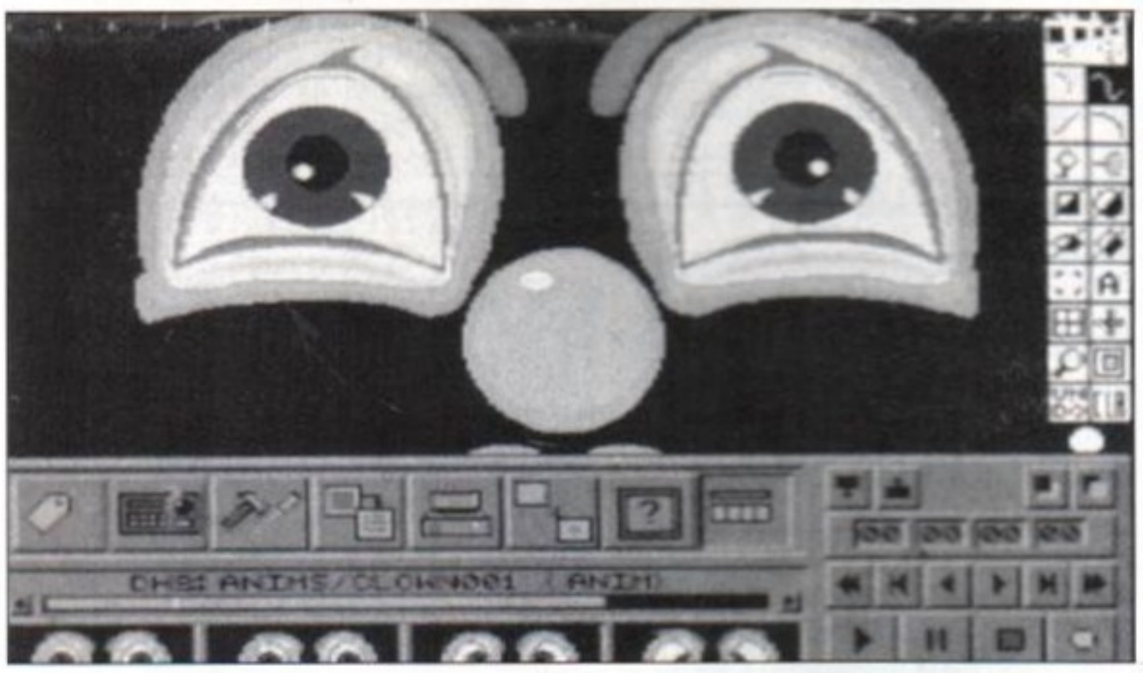
Designworks will allow the importation of IFF pictures into documents or the saving of objects as IFF files.

However, New Horizons tell us that this feature is a tough one to develop fully and will probably be the last to be included in the program.

There is a comprehensive Edit menu including such tools as the ability to rotate objects or scale them both horizontally and vertically in 1% increments. And you can take a line, an oval or a rectangle and convert, with a single click, into a polygon which can then be reshaped or smoothed.

Designworks has an AREXX port and can implement several AREXX macro commands. It also tracks all colours and patterns as full 12 bit RGB values. When objects are displayed, a translation is made to the closest available screen colour.

Designworks should reach the U.S. market in early Summer and Europe shotly after.



SIMPATICA INTO 24 BITS

Simpatica, the single frame editing and rendering system for the Amiga, now supports the Amiga Centre Scotland's "Harlequin" and G2 Systems' "Masterboard VD2001" 24 Bit Frame Buffers.

Simpatica users will now be able to load 24 bit files with 16 million colours and compile lengthy animation sequences using cut, paste, variable frame dwells, and preview the sequence before downloading to professional video automatically. This new release of software will be supplied free of charge to existing users.

Artbeat's future plans include further support for popular 24 Bit Frame Buffers. They believe that the Amiga is now attacking the top end market in professional computer graphics systems at a significantly reduced cost and that Simpatica will aid this process.

Simpatica costs £1750 + VAT.

Contact: Artbeat Computer Graphics. Tel: (0268) 289384.

QUOTE OF THE MONTH

from Douglas Engelbart - inventor of the computer mouse:

"How do you ever think of anything different? When it comes to picking something off the screen, a keyboard is a very clumsy way. How many characters, with the best scheme you can think of, do you have to type in order to designate what it is on the screen you'd like to pick or steer with the cursor? We just thought we'd try all the different ideas we could think of."

Seven years later, in 1970, Engelbart received a patent for the mouse and assigned the rights to the Stanford Research Institute.

When you think just how different a mouse is from a keyboard, you realise how much lateral thinking they did.

Evesham Micros

PRICES INCLUDE DELIVERY AND VAT @ 17.5%

Express Courier **Delivery £5.00 Extra**

BUY WITH CONFIDENCE from one of the longest established companies in their field, with a reputation for good service and prices. We have invested heavily in a computer system to enable our Telesales staff to provide up-to-the-minute stock information, coupled with highly efficient order processing. Our fully equipped Workshop enables us to carry out almost any repair on our premises. We feel sure that you won't be disappointed if you choose Evesham Micros.

HOW TO ORDER....

Call us now on

0386 765500

Lines open Monday - Saturday, 9.00am - 5.30pm

Send Cheque, Postal Order or ACCESS/VISA card details to :

Evesham Micros Ltd
Unit 9, St Richards Rd.
Evesham, Worcs
WR11 6XJ

ACCESS / VISA Cards Welcome

Government, Education & PLC orders welcome

Same day despatch whenever possible
Express Courier delivery £5.00 extra

Please note that 5 working days must be allowed for *personal cheque* clearance.

Mail Order Fax: 0386-765354

RETAIL SHOWROOMS

All our Showroom outlets hold large stocks of most items and also supply from a far wider product range than advertised. Please do not hesitate to ring any of our showrooms and discuss your requirements with a member of our highly trained staff.

Unit 9 St Richards Road, Evesham
Worcestershire WR11 6XJ
☎ 0386 765180
fax : 0386 765354
Open Mon-Sat., 9.00 - 5.30
Corporate Sales Dept.

5 Glisson Rd, Cambridge CB1 2HA
☎ 0223 323898
fax : 0223 322883
Open Mon-Fri, 9.30 - 6.00
and Sat., 9.00 - 5.30
Corporate Sales Dept. ● *IBM dealer*

1762 Pershore Road, Cotteridge
Birmingham B30 3BH
☎ 021 458 4564
fax : 021 433 3825
Open Mon-Sat., 9.00 - 5.30

▼ TECHNICAL SUPPORT ▼

☎ 0386-40303
Monday to Friday, 9.30 - 5.30

12 MONTHS WARRANTY ON ALL PRODUCTS

All details correct at time of press
All goods subject to availability, E. & O.E.

Please note: Prices that include On-Site Maintenance (On-Site Warranty) are UK Mainland Only.

3½" EXTERNAL FLOPPY DRIVES

AMAZING LOW PRICE !

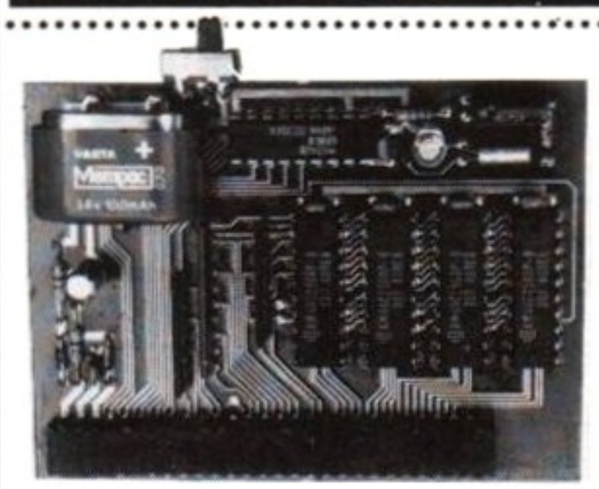
£54.95

including VAT & delivery

- Very quiet
- Slimline design
- Suits any Amiga
- Cooling Vents
- Sleek, high quality metal casing
- Quality Citizen Drive Mechanism
- On / Off switch on rear of drive
- Full 880K Formatted Capacity
- Long reach connection cable

Also available:
5.25" External Drive
40/80 Track Switchable
Only £99.00 inc. VAT/delivery

AMIGA A500 SOLDERLESS RAM UPGRADES



512K RAM/CLOCK UPGRADE

ONLY £32.95

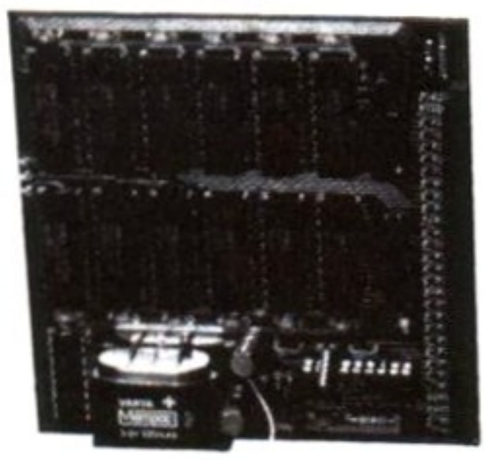
including VAT and delivery

512K RAM/CLOCK EXPANSION FEATURES :

- ☆ Direct replacement for the A501 expansion
- ☆ Convenient On / Off Memory Switch
- ☆ Auto-recharging battery backed Real-Time Clock
- ☆ Compact Unit Size : Ultra-neat design
- ☆ Only 4 low power consumption FASTRAMs

512K RAM Expansion also available without clock for only £27.95

1.5MB RAM BOARD



- ☆ Fully populated board increases total RAM in A500 to 2MB !
- ☆ Plugs into the trapdoor expansion, and connects to GARY chip
- ☆ Includes Auto-recharging battery-backed Real-Time Clock
- ☆ Socketed FASTRAM ICs for accommodating up to 1.5MB RAM

Unpopulated RAM board with clock	£ 39.95
RAM Board as above, with 512K FASTRAM installed	£ 59.95
RAM Board as above, with 1MB FASTRAM installed	£ 74.95
RAM Board as above, with 1.5Mb FASTRAM installed	£ 89.95

N.B. : The expansion board requires Kickstart 1.3 to operate - Kickstart 1.3 upgrade available from us for £29.95

COMMODORE A590 HARD DISK

Good quality Commodore Hard Disk unit, including its own PSU and built-in cooling fan. Features sockets for up to 2Mb of on-board FASTRAM expansion (see below). 80ms Access time, with up to 2.4Mb/sec. transfer rate. Autoboots when used with Kickstart 1.3.

Commodore A590 Hard Drive (20Mb Hard Disk) ..... £ 279.00

A590 RAM UPGRADES — A590 RAM Upgrades are fitted free of charge when bought with an A590.

512K Upgrade	£ 31.95
1MB Upgrade	£ 59.95
2Mb Upgrade	£ 99.95

We currently support specially upgraded versions of the A590 incorporating NEC high capacity, fully autoparking SCSI drives (25ms access time). **SCSI interfaced hard drives offer a substantial performance increase over conventional units.**

We are also offering the NEC mechanisms separately, either cased for those who wish to 'chain on' an additional hard disk to their A590, or on their own for internally replacing their existing A590 20Mb mechanism.

A590 upgraded with fast 40Mb NEC SCSI Disk	£ 479.00
A590 upgraded with fast 100Mb NEC SCSI Disk	£ 669.00
A590 with 40Mb NEC SCSI Disk, *PLUS* 2MB RAM FASTRAM fitted	£ 559.00
NEC 40Mb SCSI Drive cased with PSU to directly add-on to the Commodore A590	£ 349.00
NEC Drive cased with PSU as above, 100Mb version	£ 549.00
NEC 40Mb SCSI Drive mechanism on its own	£ 249.00
NEC 100Mb SCSI Drive mechanism on its own	£ 449.00

AMIGA 1500/2000 UPGRADES

HARD DRIVE / RAM UPGRADE BOARD KIT

Kits comprise of full size hard disk controller cards incorporating unpopulated SIMMS RAM expansion sockets for accommodating up to 8Mb RAM; PLUS high speed, fast access NEC SCSI hard disks.

40MB HARD DRIVE
& INTERFACE / RAM CARD ... £ 399.00
100MB HARD DRIVE
& INTERFACE / RAM CARD .... £ 599.00

PLEASE NOTE: These are unpopulated RAM sockets - Add £ 119.00 per 2Mb of RAM required.

8MB RAM EXPANSION CARD WITH 2MB FITTED

Offering maximum flexibility on RAM upgrade, this card is supplied with 2Mb factory-installed, upgradeable in steps to 4Mb, 6Mb and 8Mb - quickly and easily using 1Mbit D-RAM chips.

ONLY £149.95

ACCESSORIES

NEW! ZY-FI amplified stereo speakers

REALISE THE TRUE SOUND POTENTIAL OF YOUR AMIGA WITH THIS PAIR OF FULL RANGE SPEAKERS !

Your Amiga produces fine quality hi-fi stereo sound. Enjoy quality stereo sound reproduction *to the full* with this specially designed, great new twin speaker system! Features reflex ported speaker design with 3 separate drivers in each unit, and incorporates a built-in amplifier with adjustable volume control. Runs from PSU (supplied) or from batteries (not included).

Dimensions 248x93x125mm (HxWxD)

ONLY £39.95 INCLUDING VAT AND DELIVERY

VIDI-AMIGA

VIDI-AMIGA

Widely regarded as the best in its category, VIDI-Amiga video digitiser enables you to -

- Have perfect freeze frame from any video, in up to 16 shades
- Grab real time 3-D images
- Store & replay action sequences
- Generate digitised colour images
- plus much, much more ...

VIDI-Amiga is compatible with all video standards, eg colour, B/W, VHS, Beta, PAL, NTSC etc

VIDI-CHROME AMIGA

Colour frame grabbing upgrade enabling production of Red, Green and Blue elements when using a black/white camera, by use of filters. (Colour camera/video recorder users - see below)

VIDI-RGB

Automatically separates Red, Green and Blue colour signal from video recorder or camera, enabling easy production of colour pictures.

VIDI Amiga including VIDI-chrome ..... £ 110.00	**VIDI Chrome** ..... £ 16.95 **VIDI RGB** ..... £ 64.95
MINIGEN Genlock Adapter ..... £ 95.00	

TRUEMOUSE

WE GUARANTEE that this is the smoothest, most responsive and accurate replacement mouse you can buy for the Amiga. Excellent performance, amazing low price !

£17.95 *SATISFACTION GUARANTEED*

GOLDEN IMAGE OPTICAL MOUSE Amiga/ST compatible - excellent travel & accuracy assured ..... £ 37.95

GOLDEN IMAGE HANDY SCANNER & TOUCH-UP

Outstanding quality, excellent value for money - this package includes a 100-400dpi scanner with dither options, plus the amazingly powerful TOUCH-UP software package which drives the scanner directly. Scanner includes viewing window & backlight for accurate scans every time. Scan either line-art or grey images up to 400dpi. Many image enhancement & special effects available from within Touch-Up. A sensible investment for Desktop Publishing work.

£179.00 INCLUDING VAT AND DELIVERY

PHILIPS 15" TV/MONITOR

With its dedicated monitor input, this model combines the advantages of a high quality medium resolution colour monitor with the convenience of remote control Teletext TV - at an excellent low price !

£269.00 Including VAT, delivery & cable

Philips CM8833 Mk.II including cable ..... £ 249.00

AMIGA SPECIAL DEALS

AMIGA 500 SCREEN GEMS PACK

Top-selling package includes Amiga 500 **now includes 1Mb RAM**, plus 1Mb Drive and TV modulator, *also* 'Night Breed', 'The Beast 2', 'Back to the Future 2', 'Days of Thunder', 'Deluxe Paint II'.

A500 1MB SCREEN GEMS PACKAGE ..... £ 369.99

A500 Screen Gems Package
PLUS Evesham Micros 3½" External Drive .. £ 419.99

LOOK WHAT ELSE YOU GET WHEN YOU BUY AN AMIGA FEATURE PACK FROM Evesham Micros

THESE *FABULOUS* GAMES:

Tracksuit Manager 90	Jaws	Treasure Trap
Block Alanche	Lost'N Maze	Discman
Battle Squadron	Diet Riot	Tank Battle
Nigel Mansell	Subbuteo	

PLUS ! A wordprocessor and spreadsheet

AMIGA 500 CLASS OF THE 90'S PACK

Pack features A500 computer plus A501 512K RAM Upgrade, TV Modulator, 8 software titles, 10 Disks, mouse mat & more ....

CLASS OF THE 90's Package ..... £ 549.00
Class of the 90's Pack *plus* 3½" Drive .. £ 600.00

AMIGA 1500 STARTER PACK

Includes A1500 computer (1Mb RAM, 2 x 3½" Drives, 8 expansion slots), Commodore Hi-Resolution Colour Monitor, plus Software including: 'Deluxe Paint III', 'Battle Chess', 'Sim City' and 'The Works' (business software).

A1500 STARTER PACKAGE ..... £ 949.00

AMIGA 500 COMPUTER BASE PACK

Features a Genuine UK version 512K Commodore Amiga 500 computer with 1Mb Internal Drive, TV Modulator, Mouse, Power Supply, Kickstart 1.3, etc.

(Note: Does not include extra software package as with other packages above)

Amiga 500 Base package	£ 307.49
A500 Pack as above, with 512K RAM/Clock fitted	£ 337.49
A500 Pack with External 3½" Drive	£ 349.99
A500 Pack with External 3½" Drive *and* 512K RAM / Clock Upgrade fitted	£ 379.99

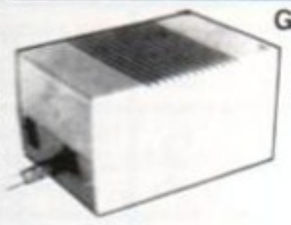
NEW! VIRUS PROTECTOR

BANISH VIRUS PROBLEMS!

Our compact Virus Protector fits easily to the Port of the last disk drive in your Amiga system, protecting all internal and external drives from boot block viruses. Incorporates a switch to enable or disable the protection facility. *Top value !*

ONLY £9.95

REPLACEMENT A500 PSU



Genuine Commodore Amiga A500 type replacement Power Supply Unit. Good quality 'switch mode' type. Super low price!

ONLY £39.95

MIDI INTERFACE

GET CONNECTED !

Our fully compatible, high quality MIDI interface connects directly with the Amiga serial port and provides IN, OUT & THRU ports for good flexibility. Features LED indicators on each port for diagnostic purposes. Superb compact design.

ONLY £19.95

STEREO SOUND SAMPLER

S-S-S-SAMPLE THIS !

Offering full compatibility with almost any Amiga audio digitiser package, our Sound Sampler features excellent circuitry, yielding professional results. The main A/D converter gives a digitising resolution of up to 50KHz, with a fast slew rate. Two phono sockets are provided for stereo line input, plus an option for microphone. Adjustable gain is achieved with built-in control knob. Complete with public domain disk containing sound sampling applications / utilities.

ONLY £29.95

NEW! TRACKBALL

Excellent new high performance trackball, directly compatible to any Amiga or Atari ST. Operates from the mouse or joystick port. Super-smooth, accurate and versatile - you probably won't want to use a mouse again after using this Trackball ! Total one-handed control. Top quality construction and opto-mechanical design, delivering high speed and accuracy every time. No driver software needed !

ONLY £29.95

AT-Once Hardware PC Emulator featuring CGA and Hercules emulation, support for hard disks and extended memory. No soldering needed for installation.	£ 179.00
KCS Powerboard Hardware PC Emulator with its own 1Mb of RAM on-board, 512K useable in Amiga mode	£ 229.99
Kickstart 1.3 Upgrade	£ 29.95
Amiga 500 Dust Cover	£ 4.95

SOFTWARE

Kind Words 2	£ 37.50	Music-X 1.1	£ 110.00
Protext V5	£ 119.95	AMOS	£ 37.50
Digita Home Accounts	£ 23.95	HiSoft Lattice C	£ 179.00
Deluxe Paint 3	£ 59.95	GFA BASIC V3	£ 39.95
Deluxe Video 3	£ 59.95	GFA BASIC Compiler	£ 34.95
		Devpac 2.15	£ 44.95
		Disney Animation Studio	£ 69.95
		Roger Rabbit	£ 9.95

NEW! olivetti DM124C Outstanding 24 Pin COLOUR Printer

PROFESSIONAL QUALITY 24-PIN COLOUR PRINTING NOW AVAILABLE – AT AN AFFORDABLE PRICE !

Combining the advantages of advanced COLOUR output with the *superior* quality of Olivetti Professional 24-pin printing, the *new* DM124C represents excellent value for money! Consistent high quality is assured every time, with no ink excesses or pale lines at any speed. Peace Of Mind for trouble-free use is *Guaranteed*, with Olivetti's 12 Months On-Site Warranty cover !

- Fast 200 cps output in draft, 50 cps in Letter Quality mode
- 7 Colour output; Graphics resolution up to 360 x 180dpi
- Parallel Interface, Tractor & Single Sheet Feed as standard
- **Complete with cable & 12 MONTHS ON-SITE WARRANTY**

Olivetti DM124C Normal RRP: £ 389.95 inc.VAT

Evesham Micros Special Offer Price **ONLY £269.00** inc.VAT, Delivery & cable

- Automatic Cut Sheet Feeder available for only £ 79.95 -

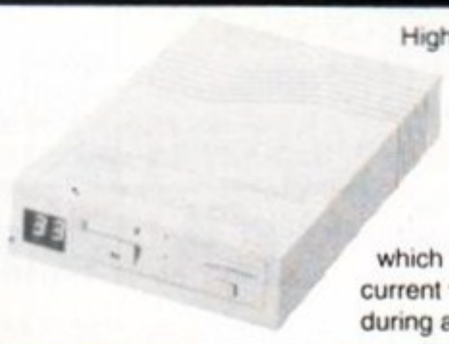
PRINTERS

Prices include VAT, delivery and cable

EVESHAM MICROS SPECIAL OFFER !
All STAR Printers include 12 months On-Site Maintenance

Star LC 10 Best-selling 9-pin printer, 144/36cps	£ 159.00
Star LC 200 9-Pin Colour, 4 fonts, 180/45cps	£ 209.00
Star LC 24-10 24-Pin, 4 fonts, 180/60cps	£ 215.00
Star LC 24-200 24-Pin, 5 fonts, 200/67cps	£ 249.00
Star LC 24-200C 7 colour version of above	£ 289.00
Star FR-10 9-pin **including Colour Upgrade**	£ 309.00
Star XB24-10 24-pin **including Colr. Upgrade**	£ 459.00
Citizen Swift-24 24-Pin COLOUR Printer	£ 279.00
HP Deskjet 500 3 pages/minute, 300 DPI inkjet printer	£ 399.00
Olivetti DM100S 200/30 cps 9-pin, inc.12 months O/S/M	£ 115.00
Panasonic KXP1123 excellent value 24-pin printer	£ 199.00

NEW! 3½" DRIVE with LED Track Display



High quality double-sided 3.5" floppy drive offering the full 880K formatted capacity per 3.5" disk. Features a special LED display which accurately shows the current track being accessed during any disk drive activity.

ONLY £74.95

NEWS

386? It's a steal!

We have reported before on the battle between Intel, the creators of the 86 range of chips and AMD who, licensed by Intel to build the succesful 286, then went on to develop their own version of the powerful and now ever increasingly the industry standard 386. Intel were by no means delighted at this turn of events and tried all legal means to keep AMD out of the 386 field. They even went to the length of badmouthing their own 286 chips as out of date - AMD were still producing them - and launching, probably before it was needed, a 486 chip, and speading tales of a 586 to come.

As Intel dominate the MSDOS PC market, supplying virtually all of the manufacturers from IBM down, the major PC companies are not unhappy to see a chip manufacturer like AMD come in and break Intel's monopoly position.

IBM were so worried at the situation that at one time they even bought shares in Intel.

Intel found out about AMD's plans in the 386 field by a very fortunate accident in which one of their employees called Mike Wallace by pure coincidence, of course, checked into a hotel in which another Mike Wallace, a senior employee of AMD was also staying. The fortunate, for Intel, accident took place when secret papers, intended for AMD's Mike Wallace were delivered to Intel's Mike Wallace and naturally enough he opened them - and read all about AMD's project. Now wasn't that an amazing coincidence?

After a protracted legal case. AMD recently won the right to manufacture the 386 chip - though Intel have rushed out a cheaper cut down version which bears an odd resemblance to their 486.

Now another unfortunate occurence, for AMD, has taken place. According to AMD, a lone gunman held up a truck travelling through Malaysia, where samples of the new AMD386 were being produced, and stole a quamtity of the new chips. As there were other electronic goods on board which the robber completely ignored, he clearly knew what he was doing. The heist man even left a quanitity of 386 chips with slower clock speeds in favour of the latest developed. AMD stoically used to such unfortunate acidents have refused to suggest their rival, Intel, was in any way involved. But they have reiterated their determination to bring their latest and fastest 386 chips onto the market ASAP.

286..386..486..586.. This James Bondian chip saga could run and run.

SEIKOSHA LAUNCHES PORTABLE PRINTER

Seikosha are targetting the portable market by introducing what they claim is a revolutionary new concept to portable printing printing - the LT20 - "the world's first laptop dot matrix printer". Supporting a 24 pin printhead, the LT20 laptop printer is, say Seikosha, the only portable printer currently availabe to offer a true multicopy printing facility through its impact technology.

The LT20 is designed to fit neatly underneath any notebook, laptop or portable computer. Weighing just 5.9lbs, the printer can be transported between meetings or between customer visits. The retail cost of the printer is £369 ex VAT.

Printing at speeds of 180 cps in draft mode and 60cps in LQ, the LT20 can output documents, reports or letters. Multipart statioery, standard A4 sheets or letterheads can be handled through the printers flat bed paper path, which is intended to eliminate paper jamming.

The LT20 also conserves space with a built-in cut sheet feeder, enabling 50 sheets to be stacked ready for printing.

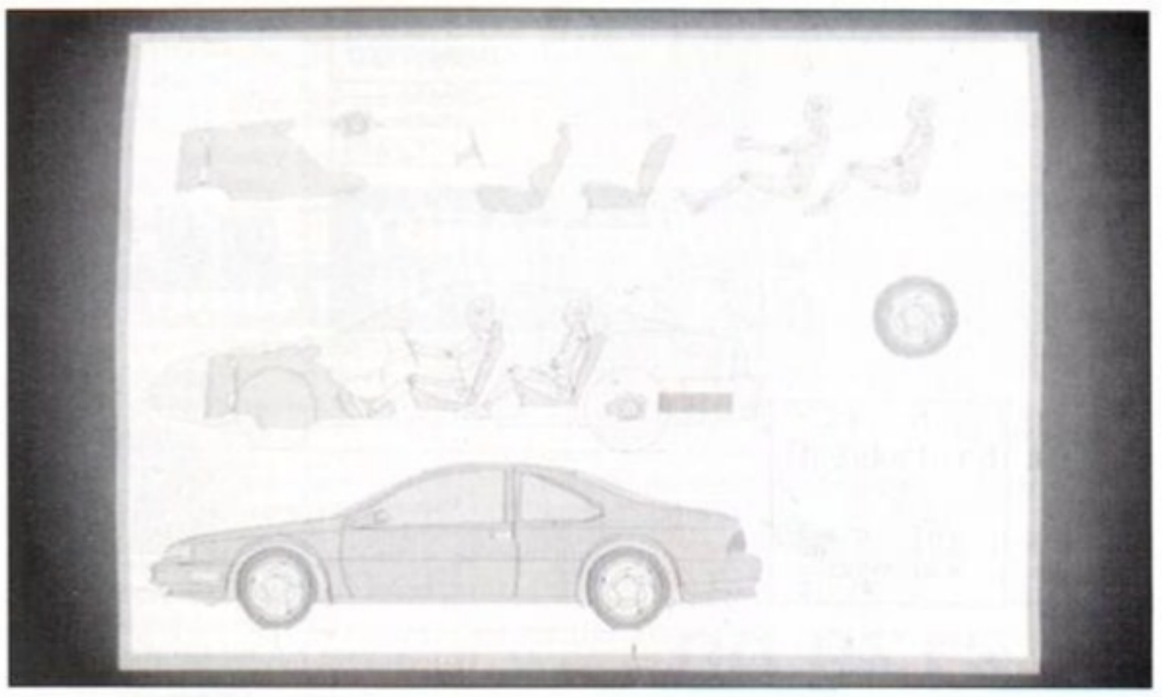
Seikosha Tel: 0753 685873

MADRIGAL'S CAR CLIPS

Madrigal Designs have released the Madrigal Automotive Construction Set (General Collection). This is the first in a series of automobile clip art collections that Madrigal intends as a bridge between productivity and game aspects of computing, providing auto enthusiasts, artists, animators and graphics designers with an interactive clip art design system for use with paint, desk top publishing and video animation programs.

The General Collection contains four disks of scaled IFF screens, as well as related statistical and historical information files. This collection consists of automobiles from the United States, Europe and Asia. The types of automobiles represented in the collection are : saloons, sports cars, coupes, estate cars, hatch backs, pick up trucks, long haul trucks, and vans; Antique and collector cars are also included. All are shown in side view and cross section displaying engines, transmissions, seats, driver passenger arrangements, and tyres. Many of the screens also contain front and rear views.

The system is designed to give the user the power and flexibility easily to examine design options and manipulate readymade automotive design components on screen, modifying existing car designs or creating new ones.



The suggested retail price for the General Collection is $49.95. ***Contact: Madrigal Designs, P.O. Box 2292, Santa Rosa, California 95405. Tel: 1-707-539-5675.***

Ladbroke Computing International

Please Read: Terms of Sale.

We are the longest established Atari dealer in the U.K. We have developed an extensive customer service policy which means that we test all Hardware/Software prior to despatch to ensure that goods arrive in working order. Although our prices are not always the cheapest we do endeavour to offer consistently good service and backup. This isn't just our opinion, we were voted "Best Dealer 1989" by the readers of ST World magazine, not for "the number of boxes shifted", but for quality service.

On Site Warranty: We have recently extended our backup programme by offering on site warranty as an option on all ST's. We already offer this service on, All Star printers and Philips monitors listed.

All prices are correct at copy date 05/04/91, and are subject to change without prior notice. All prices are accurate while stocks last. Phone for up to date prices. All prices include VAT, there are no hidden extras (WYSIWYG). Delivery (in Mainland U.K) is free, on orders over £100 (add £10 for next day courier delivery. All prices available on Mail Order, Shop prices may differ.

Star Printers

Star LC-200	Star LC24-200	Star LC24-200 Colour
£219.99	£249.99	£319.99
7 Colour printer	24 Pin printer	24 Pin printer
Colour + mono ribbon supplied	222 cps	222 cps
225 cps	5 Resident LQ fonts	5 Resident LQ fonts
5 Resident NLQ fonts	Accepts font cartridges	Accepts font cartridges
Bottom feed	Bottom feed	Bottom feed
Push or pull tractor feed	Push or pull tractor feed	Push or pull tractor feed
Paper parking	Paper parking	Paper parking

Star LC24/10	£209.99	All Star Printers carry 12 months on site warranty@Mainland UK). All printers include IBM Centronics cable. Phone for ribbons, paper and printer stands.	
Star LC-10	£169.99		
Citizen Swift 24 pin	£319.99		
Citizen 120D+	£139.99	64K buffer 3 input switch	£29.99
Atari SLM605 Laser printer	£1099.99	256K buffer 3 input switch	£49.99

Phone for details of Star FR and XB ranges.

Quality Disks

Quantity	Bulk Sony or Kao Loose	Bulk Sony or Kao Boxed	TDK Brand Boxed in 10's
10	£ 5.99	£ 6.99 Includes x10 Ryford black plastic box	£ 9.49
40	£ 20.99	£ 26.99 Includes x40 Lockable, disc box	£ 34.99
100	£ 48.99	£ 57.99 Includes x100 Lockable, disc box	£ 84.99
150	£ 66.99	£ 83.99 Includes x150 Posso Stackable disc box	£ 125.99

All disks carry an unconditional lifetime guarantee. Please add 80p P&P for each 10 disks or £3.00 for 100 and above.

FAX/Modem

Use your ST or Amiga to send faxes. Fully featured modem accesses bulletin boards/commercial systems.

- Fully Hayes compatible.
- Auto dial/answer
- 300/1200/2400 Baud
- For ST or Amiga
- Cannot receive faxes. Not BT approved.

£224.99

Amiga Packs

A500 computer £299.99

A500 Screen Gems Pack £354.99

1Mb A500 Screen Gems Pack £369.99

Any of above packs + Tenstar games, joystick, mouse mat add £30

Monitors & TV's

Philips 8833 MK II Colour, Stereo monitor	£ 249.99
Cmdr 1084S Colour monitor * limited offer *	£ 269.99
Philips 15" FST TV	£ 269.99

The philips 15" FST Tv includes: remote control, Scart input, 60 tuner presets, sleep timer and Fastext. All displays include Scart cable. Deduct £10 from Monitors only, if bought with computer. The Philips 8833 comes with full 12 months on site warranty.

Phone for other cables and Switch boxes etc.

RAM Upgrades

- *Memory enable/disable switch*
- *Compact, low power design*
- *Optional battery backed clock*

512K Board £26.99

With clock £29.99

CAX 354

- *Data enable/disable switch*
- *Daisy chain "through" connector*
- *Low power consumption*

Only £59.99

Please add £3 P&P

A4 Scanner

- *200 DPI scanner, thermal printer, and photocopier.*
- *Upto 16 grey scales or B/W mode.*
- *Compatible with Amiga and ST.*

Only £449.99

GVP II A500 Hard Drives

Includes injection moulded styling, Internal RAM expansion to 8Mb via SIMM boards, Capacities from 52Mb, 3.5" Quantum mechanism, Internal Fan, Game switch and mini slot for future expansion.

52Mb 11ms £599.99 105Mb 11ms £879.99

Phone for latest prices

Goldstar PC's

All systems include 12 Mnths on site maintenance and DOS 4.01.

286 -12MHz
1Mb RAM supplied, upgradeable to 4Mb, 80287 Co-Processor socket, 40Mb 24ms Hard drive, 2x AT and 1x XT free expansion slots, Mouse, GEM 3, 1st Word, choice of 1x 5.25" floppy or 1x 3.5" floppy.

Mono VGA £734.99
Colour VGA £839.99
Colour S-VGA £839.99

386sx -16MHz
2Mb RAM supplied, upgradeable to 8Mb, 80387sx Co-Processor socket, 40Mb 24ms Hard drive, 4x AT and 1x XT free expansion slots, Mouse, choice of 1x 5.25" floppy or 1x 3.5" floppy.

Mono VGA £1049.99
Colour VGA £1159.99
Colour S-VGA £1259.99

386sx -20MHz
2Mb RAM supplied, upgradeable to 10Mb, 80387 Co-Processor socket, 40Mb 24ms Hard drive, 4x AT and 1x XT free expansion slots, Mouse, 1x 5.25" floppy and 1x 3.5" floppy.

Mono VGA £1259.99
Colour VGA £1369.99
Colour S-VGA £1469.99

386sx -25MHz
4Mb RAM supplied, upgradeable to 16Mb, 32K Fast cache RAM, 80387 Co-Processor socket, 40Mb 24ms Hard drive, 4x AT and 1x XT free expansion slots, Mouse, 1x 5.25" floppy and 1x 3.5" floppy.

Mono VGA £1789.99
Colour VGA £1889.99
Colour S-VGA £1999.99

How to Pay

You can phone your Access or Visa card details or send a cheque/postal orders made payable to Ladbroke Computing International. Please allow sufficient clearance time for cheques.

(0772) 203166 Fax 561071

Shop & Mail order premises: 33 Ormskirk Road, Preston, Lancashire, PR1 2QP Open Monday to Saturday 9:30am to 5:00pm. Phones answered from 9.00am. Dealer enquiries welcome. Ladbroke Computing International is a trading name of Walton Marketing Limited. *All trade marks recognised.*

62 Tenter Road,
Moulton Park Business Centre,
Northampton, NN3 1AX,
England
Tel: (0604) 790466
or 081-941 6117
Fax: (0604) 647403

THE GENLOCK PEOPLE

FRAMEGRABBER

A new, fast, real time video image digitiser for the Amiga. "Marcam's Framegrabber currently represents the state of the art in Amiga video digitising technology. . . the quality of grabbed images is just amazing"

Amiga Format magazine review, February 1990.

PRICE £575.00

GENLOCKS

RENDALE 8802
£199.99

RENDALE 8806
£862.50

MODE SWITCHBOX FOR THE RENDALE 8802

This handy little box plugs simply into your system, to give you a hardware solution to the problem of switching between modes. You don't need software, so you save valuable memory.

Only £34.99

FRAMEGRABBER

Framegrabber 2.0 has hundreds of new software features such as: shrink, zoom and magnifies to any size. Prints images directly from FG software, mirror image feature for creating silk-screen applications. Framegrabber supports full 24-bit, true-colour images, and new file formats: DV-21, IFF-24 and config. Files. Several extra image processing features include sharpening & blurring as well as line-art and negatives of images. The new palette lock system matches palettes and facilitates use with genlocks.

Marcam's FrameGrabber is the answer to every Amiga owner's digitising dreams. Marcam's unit currently represents the ultimate in Amiga video digitising.

Amiga Computing – October 1990

SPECIAL OFFER

Buy a Rendale 8802 Genlock and a switchbox and pay only £226.99 for both.

3D PROFESSIONAL

3D Pro represents the state of the art in Amiga rendering packages. The program is initially daunting, but once you've got the hang of it you'll be churning out complex ray trace images in no time.
Highly recommended – *Amiga Computing October 1990*
Powerful polygonal rendering techniques allow you to create stunning 3 dimensional images and animations quickly and easily. 3-D Professional combines power and performance with an intuitive interface that gives the Amiga user complete control of the entire object rendering and animation process. Use the mouse to manipulate every aspect of an object: size, rotation, surface lighting, colour, etc. 3-D Professional then lets you choose between several advanced rendering techniques for displaying your objects in spectacular 3-D form! Also, create impressive backgrounds with fractal landscapes, trees and clouds.
Putting your objects into motion is a breeze with 3-D Professional's animation facility. Arrange individual frames automatically or manually and add them to your animation with a key stroke. If you need to make changes you can cut and paste, edit and manipulate frames with 3-D Professional's stand-alone animation editor. 3-D Professional is available for all Amiga computers with 1 or more Mbytes of memory.

PRICE
£249.99

ULTRADESIGN

A high-end professional CAD system that even a novice can use! UltraDesign features configurable parameters to suit any standard. You can choose between real-world units; Metric or English, and select screen colouring by pen style, group or layer. Other features include true hatching and filling (40 hatching patterns), auto-dimensioning, up to 65,000 layers (limited only by memory), user definable keyboard commands, full parts library support and much more. A separate output program allows multiple drawings to be scaled and plotted on a single sheet of paper, or on several sheets to create a mural sized drawing. UltraDesign also includes a program for converting files to and from other formats: IntroCAD, AutoCAD, HPGL, DMPL. UltraDesign runs on all Amiga computers with one (1) or more Mbytes of memory.

PRICE £199.99

PRICES INCLUDE VAT & DELIVERY
All our products carry a 12 month warranty

AmiExpo 1991

Up pops Mike Nelson with a toast to Newtek's best thing for sliced bread and other U.S. goodies!

Well, that takes care of almost all the corny jokes which can be levied against the undoubted s[illegible]e recent AmiExpo show held in the New York Hilton. Yes, of course it is the Video Toaster, that $1595 bundle of video trickery which is blazing a relentless trail from a quiet town in Kansas called Topeka to every corner of the United States.The undeniable effect of the Toaster as a single product is augmented by the knock-on influence on other parts of industry, not necessarily directly relating to computers. It was particularly significant to see companies such as JVC and NEC both demonstrating their professional video gear in support of the Toaster. Everybody is getting in on the act, and I will be looking more closely at allied products later in this reportNewTek kicked off the show with a series of demonstrations of the Toaster to a select audience. I was invited in to get the details for AUI, and we previewed the RockStar Todd Rundgren's new video, about to be released in America. Apparently, Todd is a Macintosh fan (the computer, that is), but was so taken by the Toaster and its LightWave 3D software at MacWorld (Yes, the Amiga dedicated Mac show), that he bought one to mess around with. Six weeks later he had produced his entire video (some 7200 frames), called "Change myself", having used virtually every effect in the Toaster's considerable repertoire and saved himself around $2,000,000 and 5 months for his trouble. He did need a little help near the deadline with about 10 more Toasters to complete the rendering, but he obviously has no problem with power points at his house.Another surprise from NewTek at the show was a visit from one of their other famous Toaster users. Penn Jillette is one half of an American comedy/magic duo (Penn & Teller, in fact) who have also made a video using the Toaster. Although this act is not so well-known over this side of the Atlantic, Americans are lucky to experience their off-beat approach to magic with a razor-sharp wit. Penn explained how much fun the Toaster was for amateurs, and "was much better than going to see one of those musicals from English wimps!" Anyway the title of this masterpiece is "Video Toaster Etiquette", and is supposed to be a paragon of good taste in not overdoing the special effects side of things, where sadly it teaches by example with very amusing consequences.NewTek were saving the most useful information until after all the frivolities, and announced

"Running at 25 MHz, it should be up to five times quicker than 68030, or to put this into perspective, some 25-30 times quicker than a standard Amiga!"

that they were continuing to upgrade the specifications and that new software and hardware modules were under development. One of these was described as a time buffer, and was demonstrated by NewTek's Kiki Stockhammer, winner of the "Who can wear the shortest skirt" competition for three days on the trot, and who was pictured dancing to the INXS track "Suicide Blonde". The delay effects generated by the Toaster cloned her into multiple images (even nicer than just one Kiki). Another significant announcement from NewTek is that they will be releasing details of the Toaster's internal workings so that other developers can produce add-ons in both the software and hardware. Unfortunately, they also confirmed that it will be at least another year before a PAL version suitable for use in Europe is available. The PAL protocol is more demanding than NTSC, requiring more memory and a considerable re-write of the 350,000 lines of machine code. With all of NewTek's other plans, it is quite conceivable that we will have to wait longer than this, especially since the market in Europe lags behind that in the States by a few years.

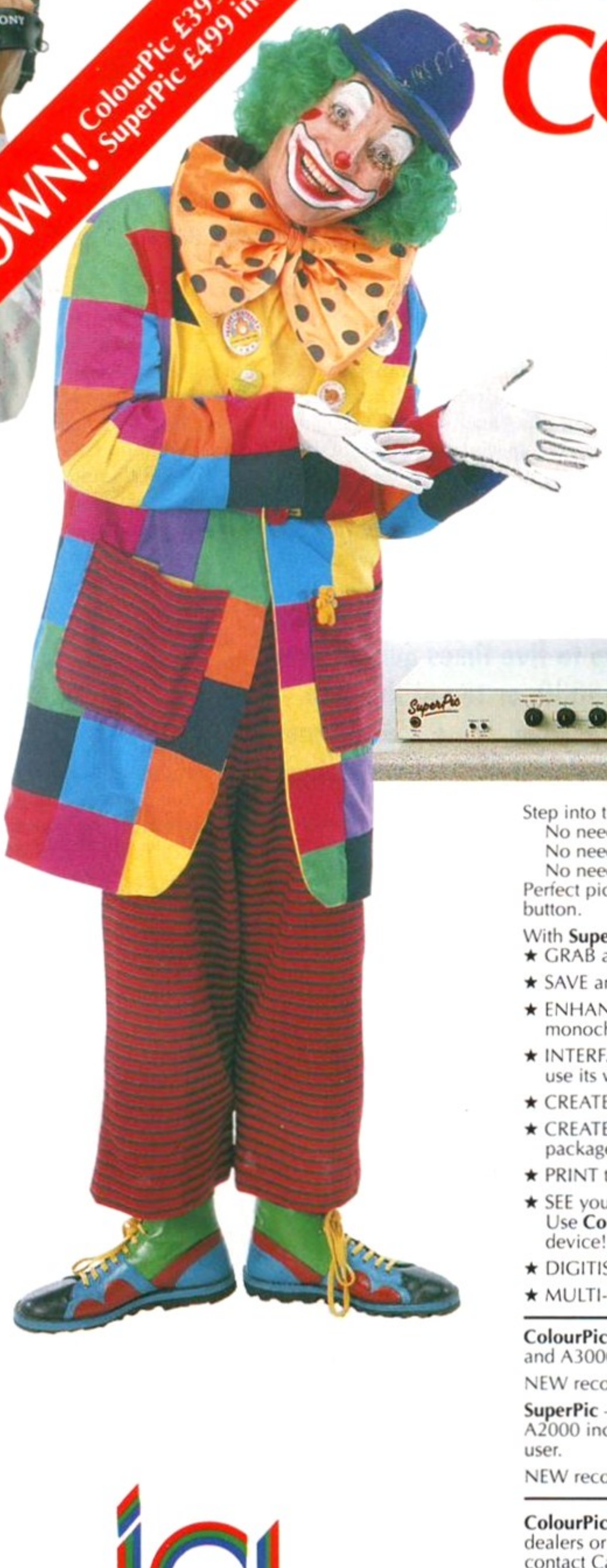
Hardware

You may be getting the idea that there was nothing else at the show other than the Toaster. This is definitely not the ▶

Newtek had the Toaster, Lightware and Kiki 'Miniskirt' Stockhammer.

We do it in real-time . . . and in COLOUR.

PRICES DOWN! ColourPic £399 inc. VAT SuperPic £499 inc. VAT



Our VIDEO DIGITISERS are REAL-TIME and COLOUR. They GRAB a FRAME as fast as a TV camera can provide it, PLUS – they include a live framestore output for connecting to a second picture monitor or even a TV set to simplify focusing and setup.

Step into the real-world of real-time AND colour:
No need for a perfect freeze frame VCR!
No need for a colour splitter!
No need for a colour wheel!
Perfect pictures from a moving colour source at just the touch of a button.

With **SuperPic** and **ColourPic** you can . . .

- ★ GRAB a frame from a moving picture in 64,000 vibrant colours.
- ★ SAVE and display pictures in over 32,000 colours.
- ★ ENHANCE your DTP skills with a wide range of built in monochrome tools.
- ★ INTERFACE directly with the AIM image processing software to use its wide range of powerful image processing tools.
- ★ CREATE pictures for use in image data bases.
- ★ CREATE a picture which can be loaded into your favourite art package . . . DeLuxe Paint, Photon Paint, Digipaint . . .
- ★ PRINT to your colour or monochrome printer.
- ★ SEE your SCULPT images as you have never seen them before! Use **ColourPic** or **SuperPic** as the ultimate SCULPT display device!
- ★ DIGITISE images in HAM, interlace and overscan modes.
- ★ MULTI-TASK safely with your other software.

ColourPic – a real-time colour video digitiser for the A500, A2000 and A3000.

NEW recommended retail price £347 plus VAT (£399 inc. VAT).

SuperPic – a real-time colour video digitiser for the A500 and A2000 including a superb quality genlock for the discerning Amiga user.

NEW recommended retail price £434 plus VAT (£499 inc. VAT).

ColourPic and **SuperPic** can be obtained from selected Amiga dealers or direct from JCL. For your free show disk of pictures contact Carolyn on 0892 75791.

JCL

JCL BUSINESS SYSTEMS LIMITED
Knowle Farm Clock House, Wadhurst Road, Frant, East Sussex TN3 9EJ, England.
Tel: 089275 791 (INT) +44 89275 791. Fax: 089275 440 (INT) +44 89275 440.

VISA Access EUROCARD

AmiExpo 1991

► case, as the Americans are now moving towards upgrading their hardware in almost every department. Hard disks are becoming faster, storing more information in an ever-decreasing space. Technology has reached the point where an internal drive for the A500 is now feasible. The ICD Novia 20i is a 20 Mb drive which plugs into the processor socket of the A500, and a 60 Mb option will soon be available. Up to three times faster than Commodore's A590, the Novia

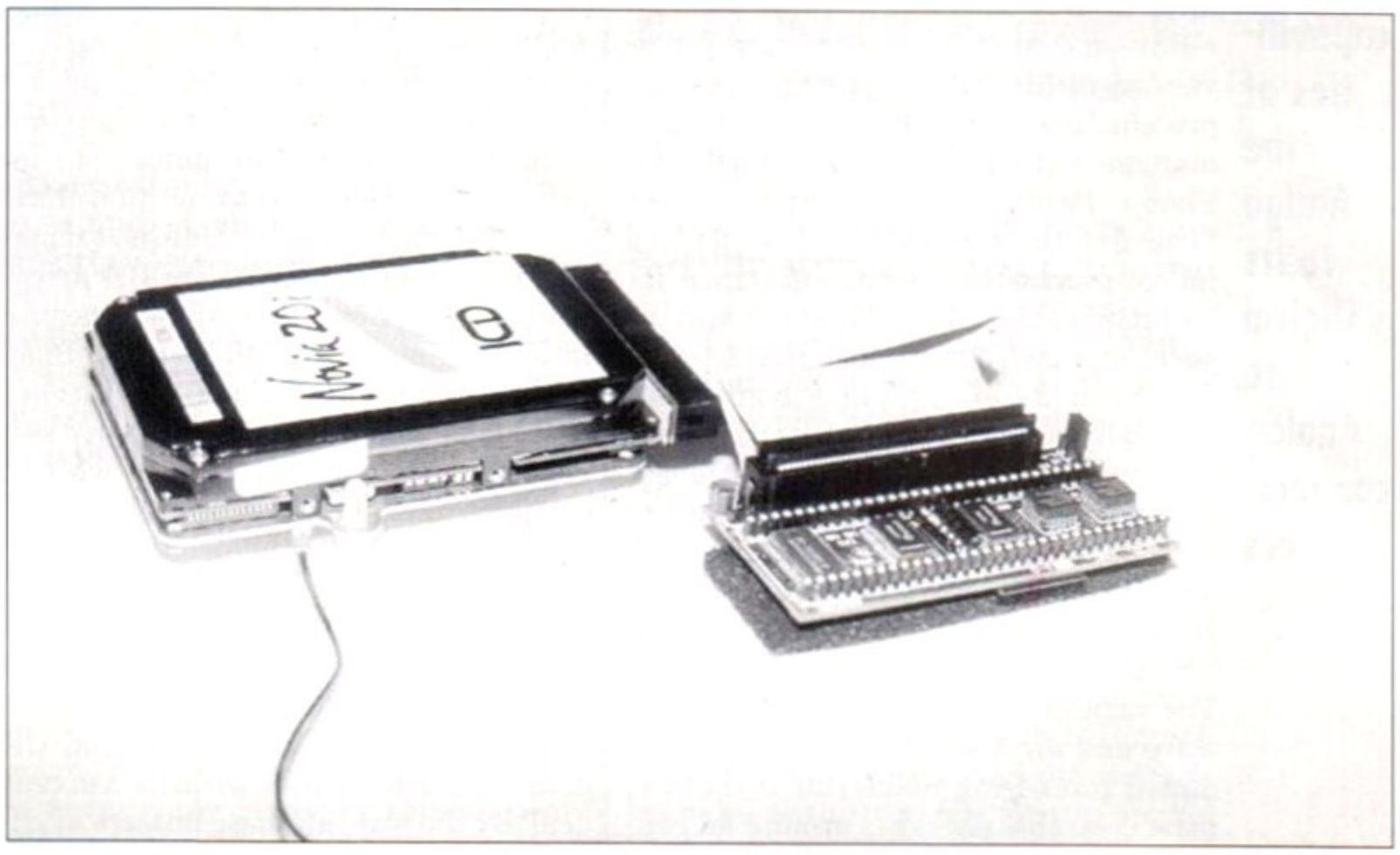
"The user can put together a presentation and the Amiga will do the work of the projectionist, sound guy and all the roadies!"

sells for $659, and this technology paves the way for a truly portable Amiga. Indeed, many at the show felt this possibility will eventually become reality once a few technical hurdles like the high power demands of the custom chips (particularly Angus) are overcome.Memory upgrades are overcome.

Memory upgrades are coming through thick and fast, especially coupled with accelerator boards like the Mega Midget Racer we reviewed in April `91's AUI. Indeed, CSA were proudly showing off the prototype of their latest product, the 40/4 Magnum! Dirty Harry himself would be scared of the power packed by this A2000 add-on, as it contains Motorola's newest processor, the 68040 with a staggering 16 Mb of 32-bit memory on board. Running at 25 MHz, it should be up to five times quicker than 68030, or to put this into perspective, some 25-30 times quicker than a standard Amiga! CSA also claim that this board will be expandable up to a thumping 64 Mb of RAM using bigger chips in the near future! It really makes you think long ago, the Commodore 64 was at the front line of technology, and less than a decade on, we have increased processing potential by a factor of 1000. Pretty soon, we will have to get a monitor six feet wide just so that Workbench can display the amount of free memory! A number of add-ons for the 1750 board were mentioned, including an ultra-fast SCSI, capable of dealing with 5 Mb of data per second. This is much faster than current hard drives can manage, but CSA expect them to catch up in a few years. Shipping is expected to commence sometime in May, and naturally ***AUI*** will take a good look at this little toy which is obviously aimed at the Toaster market, so that the 3D-rendering can be done almost in real time!On the subject of accelerator cards, Great Valley Products took the honours for the fastest board actually working, with their A3050. This zooms along at a speedy 50 MHz and can accept up to 32 Megabytes of RAM for those who want to have a dozen copies of Professional Page in memory at once. Actually this is again designed to complement the Toaster and the awesome requirements of 24-bit graphics, a subject that demands some comment.Yes, there comes a time when five bit planes (32 colours) are not enough and so you resort to HAM to sneak in some extra colours. The problem with HAM is that it was never really meant for displaying anything seriously; it's more of a design experiment which got left in, and as such suffers from a few problems. The ray-traced pictures we are used to seeing are indeed breathtaking, and HAM certainly gives the Amiga unrivalled graphics. PC and Mac users can purchase graphics boards which provide for 24 bit planes, allowing a monstrous 16.8 million colours to choose from. Until recently, this option has been largely unavailable to the average Amiga user, but there is currently a choice in the US of several 24-bit colour cards.The first of these is the DCTV (nothing to do with misspelling CDTV), standing for Digital Composite Television. It only works with NTSC at the moment, and for only $495 (about £300), you can paint, animate and

"In the pipeline is "HotLinks", a fast word processor and bitmap editor (for normal graphics), which will be able to speak directly to PageStream"

digitize in full 24-bit colour, and the results are absolutely stunning. The impact of these displays is remarkable - just like when the first pictures generated by Digiview appeared soon after the Amiga was launched.Are us PAL users going to the dogs? (Or dog foods?) No, ►



ICD's Novia – In Spanish, Amiga is 'girlfriend' but 'Novia' means fiancée.

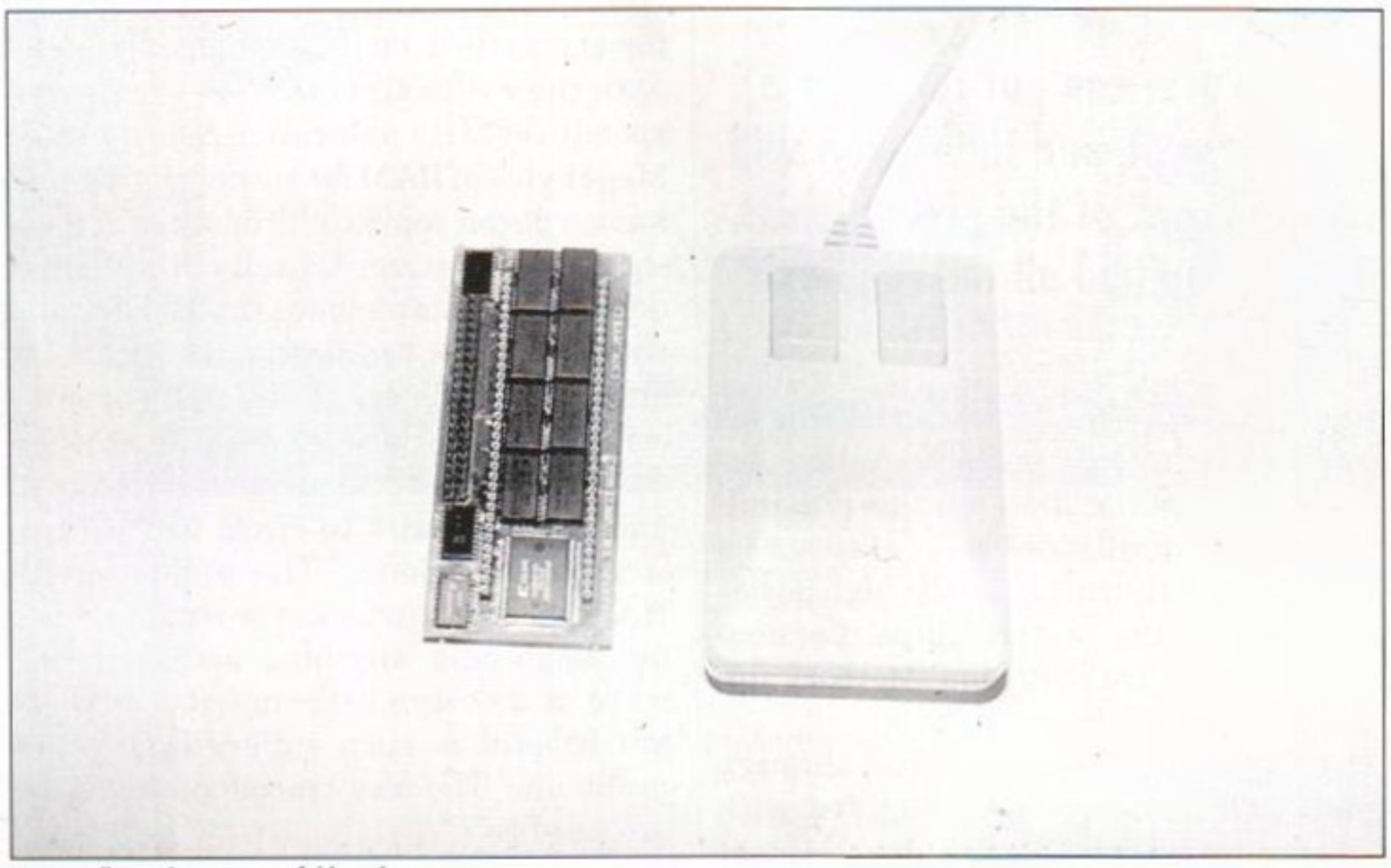
FIELD REPORT

AmiExpo 1991

Memory and Storage Technology, better known as MAST, have released Colour Burst, their own 24-bit colour box, with a paint program to match. Again, the results are pretty spectacular, but how can Amiga users benefit from this high resolution? The answer lies in the IFF-24 format which is generated by most of the popular 3D rendering programs, so instead of a miring your 4096 colour masterpiece, you can load the full 16.8 million version into Colour Burst. Naturally this kind of high resolution is going to take up vastly more memory (and rendering times, so get an '030) and to this end, MAST have incorporated 1.5 Mb of RAM into the Colour Burst box. All you need then is any 1 Mb Amiga (preferably 3, though), and a 1084 monitor (or a multi-sync) to get going. Colour Burst also contains hardware to scroll the new screens and draw sprites, a bit like the blitter and Copper. However, you must realise that this is moving away from the Amiga to such an extent that you will have to program the new hardware directly, and MAST are providing a new version of Blitz Basic to help ease this process.How are 24-bit artists going to manage without the likes of DPaint, Photon Paint and Co.? Enter ASDG's "The Art Department", a fully-fledged image processing package designed for 24-bit graphics files. This software is very impressive, and does not actually require a 24-bit graphics board, but naturally supports several of the American products outlined, and the open-ended programming allows for future developments, hopefully including Colour Burst. ASDG also previewed a scanning module which drives the Epson ES-300C 24-bit colour 600 dpi scanner. The various output formats for the software and an ARexx interface for automated processing make this one of the most desirable packages around for generating high quality images for publication.Aside from the Toaster, the Amiga is still a force to be reckoned with as the amazing demonstration by IVS (makers of the Trump Card hard drives). They were able to show a five minute sequence of Back to the Future III, in full 24-bit colour (using DCTV, in fact) with a superb CD-quality 16-bit stereo sound track. The overall effect was stunning, with no hint at all that you were watching a display generated entirely by a computer. Commodore's own Amigavision package was the only software used to coordinate the various sources, and my calculator disappears into scientific notation even thinking about the amount of graphics data involved in the show, to say nothing of the massive sound samples. How is it done? IVS were using awesome hard disk drives with their all-new, faster than a cheetah late for dinner, Grand Slam multi-function card. This includes a SCSI controller capable of dealing with 1.9 Mb per second, a convenient 8 Mb of RAM with an extra parallel port for a printer (freeing the usual one for samplers or digitizers), all on one nuclear-powered card (only joking, it fits into the A2000, but there is an external A500 version too). Upgrades will be available for existing customers of IVS in the US, but contact the UK distributors and hassle them for a decent deal. By the way, all these bits are available individually, if you don't want them all on one board.SoundThere is nothing more satisfying than that deep, thunderous explosion as an alien starship explodes, or the fizz of a Sidewinder as it signals a depressing end to the day for a Mig-29 and Sampled sounds have been dealt with in several previous issues, and the specification of the Amiga, impressive as it is, does not meet with the demands of modern musicians (or particularly keen alien blasters), as it is 8 bits short of the CD standard of 16. Also the DMA hardware can only manage some 28,000 samples per second, well short of the 44,100 target for CD (and annoyingly, 48,000 for DAT, but who uses it, anyway?). Amiga users are lucky that developers are now designing add-on boards which plug into A2000s that will match, or even surpass, these requirements. SunRize Industries, makers of the famous Perfect Sound (to be reviewed next month with its new software), are first in the queue with a 12-bit board, and also have a full 16-bit option with a number of very powerful features. In the same way that the 24-bit graphics boards require new software to drive them, these sound devices also need custom programs to play and edit the incredible samples. The AD1016 is the top of the range, with four 8-times oversampling anti-aliasing filters, and a DSP-56001, rated at 12.5 MIPS. In English, this means that the data is checked loads of times for accuracy and the DSP is a fast Digital Signal Processor (like in the NeXT thing which again, nobody

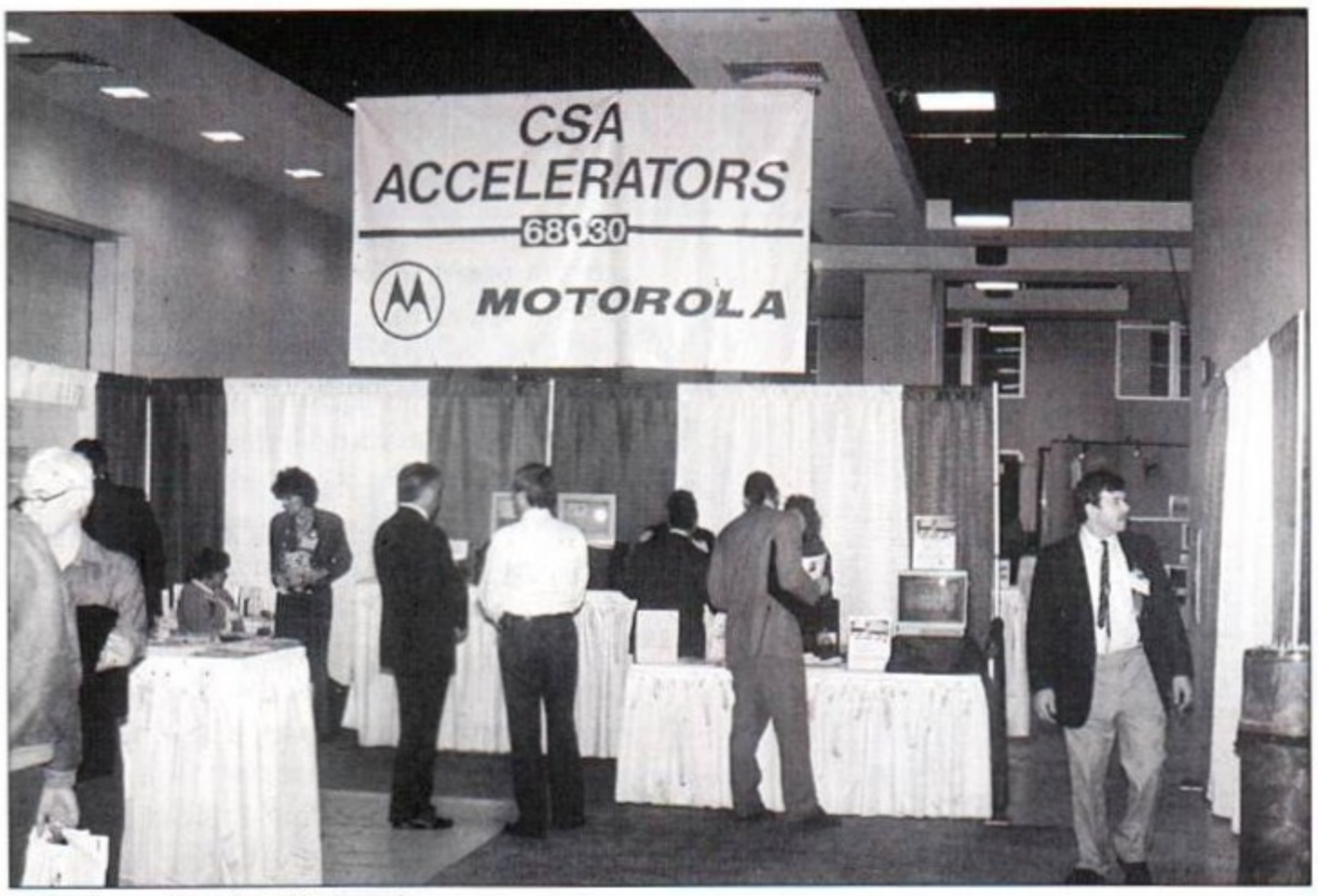
"There is undoubtedly much more left to surprise us in Commodore's big baby"

And we owe the sound effects capabilities of the Amiga to its Digital to Analog converters



Ever smaller and more powerful boards.

"IVS were using awesome hard disk drives with their all-new, faster than a cheetah late for dinner, Grand Slam multi-function card"



CSA working on 68040 boards for Motorola.

uses!). This can be programmed to perform special effects on the samples such as echoes, digital delays, or reverb in

"All we need is for Jeff Minter to write a 24-bit version of Trip-A-Tron, connect up a 16-bit sound system and look out brain cells!"

real time. Also on board is a digital I/O port so digital data can be read in from a suitable source (like a CD player), without actually having to sample it, thereby keeping everything as 1s and 0s. Naturally, both MIDI and SMPTE are fully supported.What about the software? The pre-release version of Studio 16 was on show, and is a bit like Perfect Sound or Audiomaster in function, but is obviously able to get far more out of the board. SunRize are working closely with Dr. T's and Blue Ribbon Sound so that their own sequencing software will be fully compatible with the upgrade, which does not come cheap, weighing in at a projected $2000, but that is not much for professional use, so Pink Floyd may yet be controlling their show with a pile of Amigas. All we need is for Jeff Minter to write a 24-bit version of Trip-A-Tron, connect up a 16-bit sound system and look out brain cells! Going back down to 8-bits, and SunRize also announced a competitor for Audiomaster III called Audition 4! As this product does indeed look very impressive and fast. We shall take a look when it eventually materialises around the end of April.SoftwareThe incredible array of new hardware debuting at the show was not completely matched by new software, although there were some significant releases and announcements. Soft Logik are piling on the pressure for Gold Disk with a worthy adversary for Professional Draw, in the shape of Art Expression, their own structured graphics program. Designed to interface readily with PageStream, this is a fully featured package with all the usual drawing tools specifically tailored for DTP work. Also in the pipeline is "HotLinks", a fast word processor and bitmap editor (for normal graphics), which will be able to speak directly to PageStream, increasing the overall speed of the layout process. A networking version for multiple users is planned, and this is very interesting indeed. A newspaper, or magazine like ***AUI*** could be produced on several Amigas by a number of authors, and the copy downloaded into the Editor's machine for final layout before printing. That way only He is responsible for the mistakes! Gold Disk did not exhibit at the show, but their president, Kailish Ambwani dropped in to deliver a speech and demonstration about their latest project - a journey into the fascinating new world of multi-media, a market predicted by those who think they know to be worth around $5 billion by 1995. This kind of money is not to be sniffed at, so Gold Disk have held their noses and came up with a budget package "Mediashow", and the all-singing and dancing "Showmaker". These are essentially programs used for coordinating events (via SMPTE) from different sources such as computer graphics, laser disks, video tape or whatever. The user can put together a presentation and the Amiga will do the work of the projectionist, sound guy and all the roadies! Somehow, lectures in Oxford University are never going to be the same again! Continuous development on Gold Disk's DTP product, Professional Page, will proceed, with the emphasis on speed for future upgrades.Oxxi products are also being released thick and fast. Already available is the upgrade to Photon Paint called SpectraColor, written by the same Israeli team, Bazbosoft and featuring brush animation (like DPaint), something new in HAM programs.The Amiga is seriously deficient in one particular area, and that is the processing of statistical data with subsequent drawing of high quality graphs. P-Stat is Oxxi's answer to this, with the supplied functions being geared towards business research and market analysis, rather than for scientific use. Graphs can be generated in a number of formats such as PostScript, or AegisDraw for Professional Page importing and P-Stat should be released in the summer.Another low cost colour scanner with image processing software was announced by Oxxi as nearly ready for release and costing under $2000. ScanMaster works at 300 dpi and generates 24-bit colour images which can be saved in several formats. The ImageMaster software will allow you to zoom in on a specific area and convert the image into 256 gray scales for monochrome output. Another nice trick is the ability to remove a given colour from the image, so you can mark up copy in red, for instance, and then the computer will remove all the crop marks automatically. ConclusionThe show was both interesting, but yet slightly disappointing in that a number of important companies were not present, including Commodore themselves. A rival show which they will attend was being held also in New York

If the advertising is to be believed, Amiga users into sound are in for a very healthy time

"For only $495 (about £300), you can paint, animate and digitize in full 24-bit colour, and the results are absolutely stunning"

within three weeks, so there was not a CDTV in sight. However, the current surge in Amiga interest generated by the Toaster means that any Amiga gathering in the States is bound to be dominated by NewTek, and their world-beater. We can only hope that it is not too long before the PAL version wings its way across the Atlantic, but in the meantime, I hope that this report has given you some idea of the ever-expanding Amiga dimension, although I have not mentioned all of the new products on the market. There is undoubtedly much more left to surprise us in Commodore's big baby, so the next few months should be very interesting indeed.

TEST DRIVE

Printer of the Month

"These settings are temporary and are lost if power is switched off unless saved using one of the three macros"

Panasonic KX-P1123

Pat Kelly puts this 80 column version of Panasonic's successful wider carriage parent through its paces...

Until recently you would probably only have considered Panasonic as a black goods manafacturer i.e. video, TV, and stereo etc.. However, like many other Japanese corporations, such as Sony, Fujitsu, and Oki to name but a few, Panasonic are steadily branching out into the area of world domination. This does not only consist of the home user market, but also the business and professional fields and also corporate computing. Lately, Panasonic have been making moves to capture a share in the market, they launched a PC and more recently the KX-P1124 136 column 24-pin printer which has received much acclaim. Now with the debut of this 80-column version and the ever-decreasing entry-price of 24-pin printers they have made a positive step into the mass-market.

After unpacking and connecting the KX-P1123 the first major set-up procedure normally involves setting DIP switches - the instructions for which are normally hidden inside the manual. Panasonic, like many other manufacturers, have done away with the DIP switches and have instead used the front panel to allow the setting of controls and at the same time have also cleverly included a Quick Reference Guide in the form of an A4 card. The guide includes sections on Initial Set-up, Feeding The Paper, and Setting the Control Panel.

The control panel takes the form of a matrix, where the function to be changed is selected, and the required setting can be chosen. The current setting for each function is shown in the matrix by LEDs. These settings are temporary and are lost if power is switched off unless saved using one of the three macros, the first of which is the start-up default. During operation the other macro settings may be accessed, and thus it becomes viable to have the printer set-up for different requirements or even different machines. The default setting allows the printer-driver of the application software to control the output.

"During operation the other macro settings may be accessed, and thus it becomes viable to have the printer set-up for different requirements or even different machines."

There are four letter quality fonts and one draft font supplied, and with the omission of a font cartridge port there are no options for additional typefaces. Of the letter quality fonts there is Courier, Prestige, Bold PS, and Script. The latter is a joined-up font, which is usually not included a standard on many 24-pin printers.

Actual printing speed is relatively slow, but as the KX has a fair sized buffer it stores most of the output freeing the computer. The noise level emitted from the KX is much lower than many of its counterparts, especially while using the quiet mode. The printer is stable and the unit can sustain a few knocks without disturbing its print quality.

The paper can be fed from either below, or behind, in tractor feed, or from above in single-sheet friction mode. Unfortunately the tractor-feed unit is almost inaccessible, as it feeds paper from below and when, and if, a paper jam occurs it may be difficult to clear easily.

Most printers offer automatic load/park, many through the control panel, and the KX-P1123 does too, but this is controlled from the paper bail lever. The paper bail is the small bar with rollers which holds the paper onto the platen (large roller). If it is pulled back it will either load or park the paper depending on its current state. Again, as with some comparable printers, the Panasonic does not automatically switch itself online.

This printer is quite stylish in its design and gives the impression of being a sturdy and heavyweight performer. There are many lightweight printers on the market which do not offer the same robust performance. Certainly, it looks a printer designed to last and give good service.

Price: RRP £295.00
Contact: Panasonic, Panasonic House, Willoughby Road, Bracknell. RG12 4FP
Tel: 0344 853551

HiSoft News

All the latest news and product information.

ProFlight takes off!

ProFlight, the extremely accurate and flyable Tornado flight simulator from HiSoft, is *now* available for all the Amiga computers.

First released on the Atari ST where it has won a high degree of critical acclaim from reviewers and users alike, ProFlight is not only one of the most technically realistic simulators around but it is also tremendous fun to fly.

You can fly peaceful reconnaissance missions or roar into attack after carefully planning your combat mission. ProFlight is supplied with a comprehensive, ring-bound flight manual for an all-inclusive price of £39.95.

SAS C5

SAS Institute (the parent company of Lattice Inc.) has taken over the development and sales of the Lattice C 5 compiler for the Amiga and released a new version, 5.10a.

The improvements and enhancements in this version establish SAS C5 as the ultimate Amiga C compiler. Upgrades cost £34.95 (ver. 5.0x), £79 (ver. 4.xx) or £99 (ver. 3.xx).

Pascal at last!

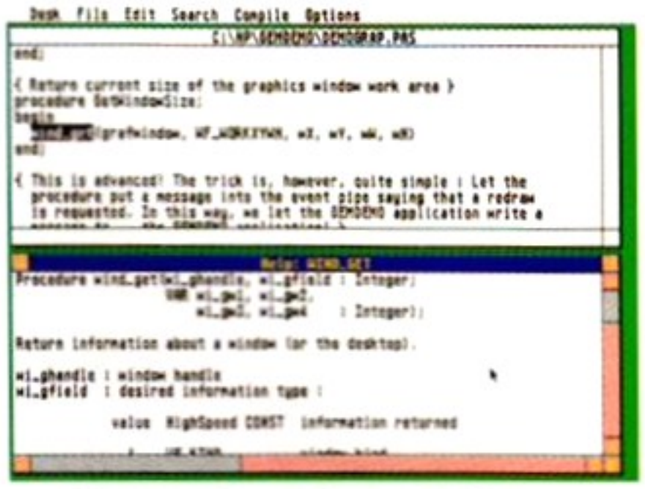
A brand-new version of the popular Pascal language will be available soon for the Amiga (A500 - A3000).

HighSpeed Pascal originally comes from Denmark, (the 'home' of Turbo Pascal), is extremely fast and friendly to use and is very closely compatible to the immensely popular Turbo Pascal on the PC.

Compilation speed is roughly 20,000 lines per minute on an A500 with excellent code generation for all the Amiga computers.

HiSoft is developing the package along with the original authors, D-House. Some of the features of this exciting new compiler are:

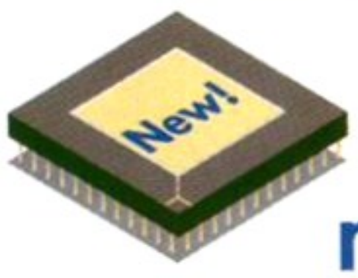
- Compile to memory or disk
- Unit concept as in TP5 allowing modular development and very fast compilation. Many standard Amiga-specific and Turbo Pascal compatible units are supplied
- Stand-alone compiler supplied. Multi-standard linker. Versatile Make facility
- Source include to a depth of 7
- Inline procedures. Source code control using conditional compilation



The HighSpeed Pascal ST Editor

- Integrated, multi-window editor with on-line help and interactive error detection and correction
- Numerous examples and helpful manual

HighSpeed Pascal should be available by the end of June 1991 at an inclusive cost of £99.95.



More and more...

In addition to ProFlight and HighSpeed Pascal HiSoft is set to release a number of other new products for the Amiga in early 1991, showing our increasing commitment to the Amiga range of computers. To whet your appetite:

HiSoft C Interpreter

The ideal way to learn the difficult C language, HiSoft C is an interpreter with a fully integrated editor and debugger. Release is due by the end of June 1991 at a price of £59.95.

HiSoft Inspiration

This exciting new product makes it simple to design and use the Amiga's gadgets, requesters etc. in your favourite programming language. Release date is the end of May 1991.

Devpac and BASIC

HiSoft Devpac version 3 and HiSoft BASIC version 2 are due out in the first half of 1991. Both feature a brand new, multi-window editor, much more speed and a great many new features. Tick the box(es) below for details.

Meanwhile, we have some very special offers on our existing products - use the order form below (you can photocopy it if you wish). Devpac 2 and BASIC 1.05 contain coupons offering you the chance to upgrade to Devpac 3 or BASIC 2 for £35 and £45 respectively.

Use this order form to obtain your HiSoft Software directly from HiSoft and we will send you a Starter Pack consisting of a quality mouse mat (printed with the Amiga ASCII set), an attractive disk wallet and 4 double-sided disks, totally free of charge!

Please send me the following software:

❑ HiSoft ProFlight simulator	£39.95
❑ HiSoft Devpac Amiga ver 2	£39.95
❑ HiSoft BASIC ver 1.05	£49.95
❑ HiSoft Extend Library	£19.95
❑ HiSoft BASIC & Extend	£59.95
❑ SAS / Lattice C 5	£229.00

Please send me information on:

- ❑ HiSoft Inspiration
- ❑ HighSpeed Pascal
- ❑ HiSoft C Interpreter
- ❑ HiSoft BASIC 2
- ❑ HiSoft Devpac 3 / HiSoft Devpac 30

Name: Date:

Address:

I wish to pay by: ❑ Cheque/PO ❑ Access ❑ Visa

Card No:

Expiry Date: Signature:

HiSoft software is available from good computer shops. In case of difficulty, you can order directly from HiSoft, either by using the order form opposite or by telephone. For export terms or further details on any of our products, please call or write to us. Prices are inclusive of VAT and carriage within the UK.

HiSoft
High Quality Software

The Old School, Greenfield,
Bedford MK45 5DE UK.
Tel: +44 525 718181
Fax: +44 525 713716

Fractals and

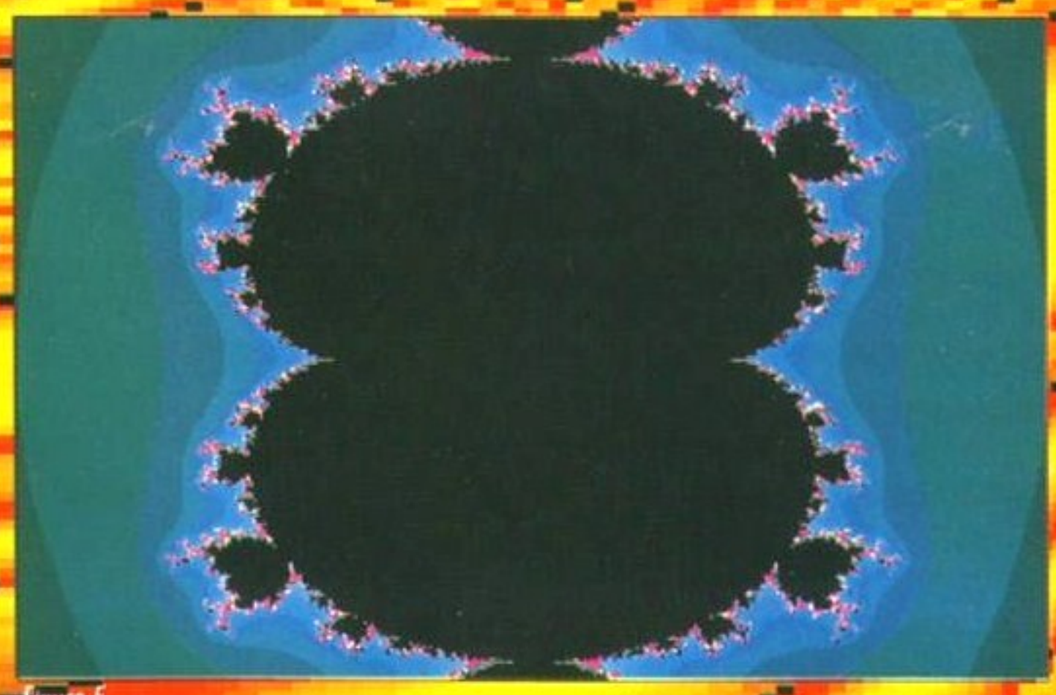


Figure 5.

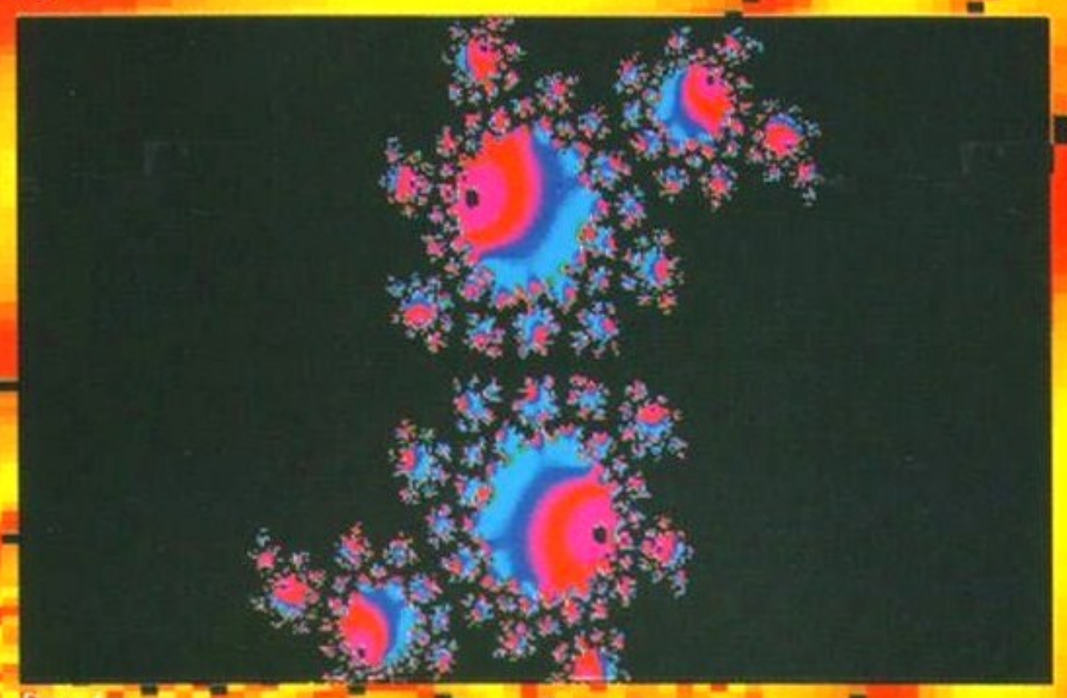


Figure 6.

Figure 4

Last month, in his introduction to this two part series John Kennedy explained the Mandlebrot Set and complex arithmetic. This month he ends the story on a high with other sets and many examples...

The Julia Set

The Julia Set is another well-known 'recipe' and can be obtained from the same equation which is used to generate the Mandelbrot Set. Once you have found an interesting part of the Mandelbrot Set (again, use your own judgement here - it's the best tool you have) note down the value of C (both the real and imaginary parts). C can be thought of as a co-ordinate pointing to a part of the Mandelbrot set, for it turns out that the Mandelbrot Set is a map of all the possible Julia Sets.

To display the Julia Set for the co-ordinates you have selected, we use a similar approach to our Mandelbrot program, but instead of varying the real and imaginary parts of C, we vary the real and imaginary parts of Z to obtain our X,Y co-ordinates. We also vary the colouring procedure, and instead of giving colours to all the points that blow up to infinity, we give colours to the points depending on the magnitude of the equation after it has been repeated a certain number of times. Figures 6,7,8 and 9 are Julia Sets, plotted with a program similar to Listing two.

Other Sets

If you want to obtain different looking graphs from those detailed above, all you have to do is change the drawing rules. Try experimenting with the number of iterations used to create the Julia Set. Try using less colours, or more. Try cycling the colours in a paint program such as Deluxe Paint if you want to see something really psychedelic!

Figure 7.

Figure 8.

Figure 9.

Chaos Part 2

A different approach altogether is to use a different starting equation. For example, instead of squaring Z why not cube it? (as in figure 5) What would happen if you raised it to the fourth power? Or even higher? What would happen if you took the square root instead? Or the cube root? The possibilities are limitless.

One of the most interesting pictures I obtained was the result of a typing error: Instead of X*Y I put X+Y in the Julia Set program. The result is figure 4.

Chaos

Chaos Theory has also recently made it into the public eye, most notably with the 'butterfly and hurricane story'. Its links with fractal geometry are through the fractal curves created by its mathematics.

The tell-tale signs of chaos were first noticed by Edward Lorenz who was working on a weather forecasting system at MIT. His model of the atmosphere used several equations, into which he would feed the various data describing the prevailing weather conditions. After the sums had been worked out, the result would be a forecast for the next day's weather conditions.

One day he was trying to repeat the previous days results by re-entering his input data. To his dismay, the program produced a completely different set of results. Was his program at fault? Surprising as it may seem, the differences in the program's results were a consequence of the Chaos Theory, and not of a subtle coding bug.

The data input for the second run of the program differed from the input data for the first run, in that the first run data had been stored internally in the computer's memory from the very start. The second run data had been entered by hand, to a lesser number of decimal points. It was therefore different by a tiny, almost insignificant, amount.

However, even a tiny change in the data produced vast differences in the predictions. Or to put it another way, if a butterfly beat its wings in the Amazon jungle, the resulting change in conditions - no matter how small - could have ramifications so great that they could lead to something as extreme as a hurricane in America.

Obviously this was a great disappointment for weather forecasters, for it meant that not only would they have to collate data about pressure systems, wind speeds, rainfall etc. etc, but they would also need to keep track of all the butterflies in the amazon. To be blunt, they could never, ever know enough information to make an totally accurate prediction. Even an extraneous electron passing close to a molecule of ice in the South Pole could change everything. A heavy depression settled over the Met Office (computer division).

Eventually the sun did break through the clouds, as more was understood about how Chaos seemed to work. Although any given system was unpredictable, it was found that certain families of systems gave more or less similar results. For example, weather system A might result in a certain predicted forecast. Weather system B might result in another forecast. ►

"To his dismay, the program produced a completely different set of results."

FIRSTCHOICE COMPUTERS LEEDS 0532 637988

WEST YORKSHIRE PREMIER AMIGA AND ATARI COMPUTER STORE

AUTHORISED DEALERS FOR STAR CITIZEN COMMODORE ACORN AND AMSTRAD

ALL PRICES INCLUDE VAT AND DELIVERY.
ALL OUR PRODUCTS ARE GENUINE UK SPECIFICATION.
UNIT 8, ARMLEY PARK COURT, OFF CECIL ST, ARMLEY, LEEDS LS12 2AE

ROCTEC 3.5" 1 MEG
EXTERNAL/DRIVE LOW NOISE HIGH QUALITY CITIZEN DRIVE
£59.99

NAKSHA MOUSE
THE SUPERIOR HI-RES MOUSE INC QUALITY MAT & HOLDER
£19.99
2 yr. GUARANTEE

CUMANA CAX 354 3.5"
1 MEG DRIVE ONLY
£69.99

AMIGA A500 PACK
INC. WORKBENCH 1.3, AMIGA BASIC, MOUSE, MODULATOR, LEADS, EXTRAS DISK, MANUALS AND TUTORIAL
New Low Price £309.99

SCREEN GEMS PACK NEW LOW PRICE
A500 PACK AS STD **PLUS** BACK TO THE FUTURE II, DAYS OF THUNDER, KNIGHTBREED, SHADOW OF THE BEAST II AND DELUXE PAINT II
ONLY £349.00
SCREEN GEMS PACK 1MEG VERSION NOW WITH A501 RAM EXPANSION
ONLY £379.99

FIRST CHOICE PACK
TAKE THE HEADACHE OUT OF BUYING A COMPUTER

NO NEED TO SHOP AROUND. WE'LL MAKE SURE YOU GET EVERYTHING YOU NEED IN ONE SUPERB VALUE PACK.

A TOP QUALITY CRUISER JOYSTICK, MOUSE MAT, 10 DISKS, AMIGA FITTED COVER,

AND 3 EXTRA GAMES!
£30

CLASS OF THE 90'S BUSINESS PACK
NOW WITH 1 MEG OF RAM AS STANDARD!!
A500 PACK PLUS KINDWORDS 2.0 PAGESETTER, ARTISTS CHOICE, HEAD LINE FONTS PACK, AMIGA LOGO, SUPERBASE PERSONAL, BBC EMULATOR, DE LUXE PAINT II, MAXIPLAN SPREAD SHEET, DR T'S MIDI RECORDING STUDIO, MIDI INTERFACE MOUSEMAT, 10 DISKS AND DISKETTE STORAGE WALLET
£539.99
NEW IN STOCK "FIRST STEPS PACK" SIMILAR TO THE CLASS OF THE 90'S PACK BUT AIMED AT A YOUNGER AGE GROUP

AMIGA 1500
NOW FROM ONLY £579.99

1500 + 108450 MONITOR
ONLY £838.99

1500 + 108450 + SOFTWARE PACK INVOLVING:
DELUXE PAINT III, PLATINUM WORKS, BATTLE CHESS, THEIR FINEST HOUR, SIM CITY + TERRAIN EDITOR, POPULOUS + PROMISED LANDS
AMIGA TIPS BOOK
ONLY £929.00

QUANTUM 52MB HARD DRIVE
ONLY £359.99 Fitted

8 MEG BOARD POPULATED TO 2 MEGS
ONLY £169.99 Fitted

STAR PRINTERS INC FREE CABLE

LC 10 MONO 9 PIN 144 /36cps	£159.00
LC10 MKII 9 PIN 180/45 CPS	£174.00
LC 200 COLOUR 9 PIN 255/45cps	£214.99
LC 24-200 MONO 24 PINNN 222/67cps	£254.99
LC 24-200 COLOUR 24 PIN 222/67cps	£304.99

* REGISTERED STAR & CITIZEN DEALERS *

EPSON EPL-7100 LASER
* A4 PAGE LASER PRINTER * MULTIPLE BUILT IN FONTS * 512K MEMORY * EXPANDABLE TO 6MB * 300+300 DPI GRAPHICS * 6 PAGES PER MINUTE * SMALL FOOTPRINT
£899.99

CANON BJ 10e BUBBLE JETPRINTER
* INNOVATIVE PORTABLE BUBBLE JET PRINTING TECHNOLOGY * SMALLER * QUIETER * QUICKER * CHEAPER *
£299.99

CITIZEN PRINTERS INC FREE CABLE

120 D MONO 9 PIN 120/25cps	£139.99
124 D MONO 24 PIN 120/40cps	£199.99
SWIFT 9 MONO PIN 192/40cps	£184.99
SWIFT 24 MONO 24 PIN 192/64cps	£279.99
SWIFT 9 OR 24 PIN COLOUR UPGRADE	£34.99

FREE Free Colour Kit with any Swift Printer FREE
Two year guarantee

A590 20 MEG HARD DRIVE
THE COMMODORE A590 HAS A BUILT IN UNPOPULATED RAM BOARD SO YOU CAN EASILY UPGRADE YOUR AMIGA MEMORY BY UP TO 2 MEGS WITHOUT INVALIDATING YOUR WARRANTY (AUTOBOOTS FROM KICKSTART 1.3 ONLY)
£289.99

AMIGA A590 POPULATED
COMPLETE WITH 2 MEG OF RAM
£359.99

CMOS 256K * 4 DRAMS
LOW POWER CONSUMPTION FAST ACCESS DRAM'S

4+	£5.19 ea.	ideal for populating your A590 or extra ram board
8+	£4.89 ea.	
16+	£4.59 ea.	

3.5 QUALITY BULK DISKS
SONY/MITSUBISHI
100% ERROR FREE, 135 TPI
LIFE TIME GUARANTEE
THE SAME QUALITY AS THE MOST EXPENSIVE BRANDED DISKS

10	£5.99
25	£12.99
50	£22.99
100	£39.99
200	£74.99
300	£109.99
400	£135.99
500	£159.99
1000	£309.99
DISK LABELS 500	£7.99
DISK LABELS 1000	£13.99

DISCOUNT SOFTWARE

PLATINUM WORKS. Integrated w/p, DBase, Spreadsheet Package now only.	£74.99
***PENPAL W/P** and much more ..	£84.99
VISTA landscape generator	£49.99
PAGESETTER VERSION 2	£49.99
AMOS 1.2 GAMES CREATOR	£38.99
Music X version 1.1	£114.99
Digiview Gold Version 4	£149.99
Aegus Video Titler	£89.99
GB Route Journey Planner	£34.99
Superplan Spreadsheet	£39.99
Superbase Personal 2	£39.99
SBA Cash Accounts s/w	£89.99
Scribble w/p platinum edition	£39.99
Pagestream	£159.99

NEW PRODUCTS

Golden Image Optical Mouse	**£42.99**
Rendale Genlock plus video generic master titling software	**£159.99**
Golden Image Hand Scanner 400Dpi	**£194.99**
Amiga Datascan 400 Dpi	**£169.99**

ACCESSORIES

AMIGA SCART LEADS	£9.99
MIDI CABLES 2M	£3.99
MIDI CABLES 3M	£4.99
MIDI CABLES 5M	£5.99
PRINTER CABLES 1.5 METRE	£5.99
PRINTER CABLES 2.0 METRE	£8.99
A500 COVER	£4.99
LC10 COVER	£4.99
LC24/10 COVER	£6.99
LC200 COVERS	£5.99
LC24-200 COVERS	£5.99
SWIFT 24/9 COVER	£6.99
12" MONITOR COVER	£5.99
14" MONITOR COVER	£6.99
14" TILT AND SWIVEL MONITOR STAND	£13.99
UNIVERSAL PRINTER STAND	£9.99
MOUSE MATS 8MM HIGH QUALITY ANTI STATIC	£4.99
100 CAPACITY LOCKABLE 3.5" DISK BOX	£7.99
50 CAPACITY AS ABOVE	£5.99
BANX BOXES	£11.99
POSSO BOXES	£18.99

LARGE RANGE OF PRINTER RIBBONS IN STOCK

PERIPHERALS

MIDI INTERFACE	£21.99
MINIGEN GENLOCK	£99.00
ROMBO RGB SPLITTER	£67.99
ROMBO VIDI AMIGA	£99.99
ROMBO VIDI CHROME	£18.99
AMIGA CONTROL STATION	£43.99

MODEMS

LINNET	£139.99
LINNET 1200	£219.99
LINNET 2400	£289.99

AT ONCE PC EMULATOR TURNS YOU AMIGA INTO A IBM AT COMPATIBLE £199.95

MONITORS (INC LEADS)

COMMODORE 1084 SD
STEREO SOUND
640 * 256 RESOLUTION
ANTI GLARE SCREEN
GREEN SCREEN FACILITY
£259.99

NEW! PHILIPS CM8833 MK II
STEREO SOUND
600 * 200 RESOLUTION
GREEN SCREEN FACILITY
FREE
1 YR ON SITE WARRANTY
£244.99

RAM EXPANSION
ASHCOM 1.8 MEG EXPANSION
TAKE YOUR AMIGA A500 UP TO 2.3 MEGS TOTAL WITH THIS EASY TO FIT BOARD. USES EXISTING EXPANSION SLOT. THIS BOARD CAN BE SUPPLIED PARTLY OR FULLY POPULATED

UNPOPULATED £34.99
512K POPULATED £52.99
1 MEG POPULATED £89.99
1.5 MEG POPULATED £106.99
FULLY (1.8 MEGS) £124.99

* ADDITIONAL 'GARY' BOARD SUPPLIED WITH 1 MEG CONFIGURATIONS OR ABOVE*

1 MEG UPGRADE
TOP QUALITY MEMORY EXPANSIONS INC BATTERY BACKED REAL TIME CLOCK AND CONVENIENT ON/OFF SWITCH 12 MONTH GUARANTEE
£37.99

MAIL ORDER
ORDER BY TELEPHONE QUOTING YOUR CREDIT CARD NUMBER
IF PAYING BY CHEQUE PLEASE MAKE PAYABLE TO **FIRST CHOICE**
TEL 0532 637988
FAX 0532 637689

REMEMBER WE OFFER
* FAST MAIL ORDER SERVICE
*FREE POSTAGE UK MAINLAND
* FREE 2-3 DAY DELIVERY
(NEXT DAY DELIVERY ONLY £3.00)
*GOODS TESTED BEFORE DESPATCH
* CALL INTO OUR SHOWROOM
* SPACIOUS FREE PARKING
* FULL REPAIR SERVICE - FREE ESTIMATES

*** IT COSTS LESS AT FIRST CHOICE ***

- OPEN MON - SAT 9.00AM - 5.30PM
- SUNDAY OPENING 11.00AM - 4.00PM
- THURSDAY NIGHT LATE TIL 8.00PM

ACCESS VISA

Now, making a tiny change to A's initial state resulted in a forecast that was vastly different from its original. But a tiny change in B didn't make that much difference to its forecast.

It could therefore be said that system A was unstable - the slightest change (that darn butterfly popping down to the shops again) could result in an inaccurate forecast. System B however, was slightly more stable - and its forecast could be treated with a little less scepticism.

The idea of Chaos has been applied to almost every dynamic system around, for some things are proving rather more tricky to predict than might be expected. The flow of air around a wing, the movement of gas clouds on Jupiter, and that thorny old problem - why is the Universe the shape it is?

Of course, Chaos won't tell us the answers. But it will tell us how far they might be from the truth.

If you want to try some chaotic programming, your best bet is to fiddle around with population curves and bifurcation diagrams. The big equation in Chaos is

X = rX(1-X)

Playing around with that will keep you busy for weeks!

Appendices

A. Reading List

Title: **Fractal Programming in C**
Author: Roger T Stevens
A fabulous book, and a good introduction to all sorts of Fractals and Chaos equations. It's absolutely crammed with well explained example programs (which could easily be adapted to other languages, so don't let the 'C' bit in the title put you off) and colour pictures. The later chapters discuss (with listings) methods of generating fractal landscapes. Very highly recommended to anyone with an interest in graphics programming.

Title: **Computers, Patterns, Chaos and Beauty**
Author: Clifford A Pickover
This book gets much more technical in places and covers many topics other than Fractal geometry. If you are interested in computer graphics and how they are used in other branches of science, this is a book that will keep you enthralled for months.
Example programs are provided which can easily be implemented in any language. If you want a peek of the current direction of state-of-the-art computer science, ask your library to get it immediately.

Title: **Chaos: Making a New Science**
Author: James Gleick
The 'popular' book on Chaos. If your appetite has been whet, search this paperback out, but don't expect a bedtime read.

Title: **The Fractal Geometry of Nature**
Author: B. Mandelbrot
Where it all started...a collection of beautiful images produced from fractal experiments. Look out for it.

B. Suggested programs

There are many programs which will quickly and easily produce Mandelbrot and Julia sets for you. Among the best is the PD program 'Mandelvroom v2.0' by Kevin Clague. 'MandelMountains v2.01' by Matthias Ortmann is also worth looking at. If you're more of a demo-type person, get the PMC Fractal Demo.

If you want to see how fractals can be used beyond Mandelbrots, a commercial program called 'Scenery Generator' from Natural Graphics is your best bet. It uses fractal geometry to produce wonderfully realistic views of mountains, valleys and lakes. The views are rendered in high resolution with plenty of details such as clouds and water ripples (figure 10). There is a cut-down PD version of the program around too, if you don't want to splash the cash. Highly recommended.

C. Example DIY programs

Writing you own programs to create fractal curves is a relatively easy task. However, because of the large number of calculations needed, you are strongly advised to use a programming language such as C. Using AmigaBASIC to draw an M-set is entirely possible, but would take a very long time indeed. If you really want to use BASIC, use a compiled version such a HiSoft or GFA.
If you are rich, you should also obtain some sort of accelerator card: Preferably one sporting a maths co-processor. Alternatively, buy an Amiga 3000.
Listing one - Mandelbrot Set Pseudo-code
Formula:
Z = Z^2 + C
where the real and imaginary parts of C vary from minus to plus 2, and Z always starts at 0.
Colour:
How a pixel is coloured depends on the rate at which the repeated formula tends to infinity. If at any time the magnitude of Z exceeds 2, it will tend to infinity.
Testing for (Z.real^2 + Z.imag^2 > 4) achieves the same effect.
Variables:
x,y: the co-ordinates of points on the screen.
C: a complex variable, with real and imaginary parts.
Z: the main complex variable.
iterations: the number of times the formula repeats
colour: the colour of the pixel to be plotted max.iterations: maximum number of iterations max.colours: maximum number of colours
Program:

```
y=0;for (C.real=-2 -> 2 step 0.02)
{
x=0;
for (C.imag=-2 -> 2 step 0.02)
{   Z=0;   blowup = FALSE;
for (iterations=0 -> max.iterations)
{
Z.real = 2 * Z.real * Z.imag + C.real;
Z.imag = Z.imag^2 - Z.imag^2 + C.imag;
if (Z.real^2 + Z.imag^2) > 4 {blowup=TRUE;break;}   }
x=x+1;
if (blowup!=TRUE) colour=0;
else colour = (iterations MOD max.colours);
Plot (colour,x,y);
}
y=y+1;}
```

Listing two - Julia Set Pseudo-code
Formula:
The same as for Mandelbrot Set, except Z's real and imaginary components are varied for each pixel on the screen, and C is fixed.
Colour:
If the expression 'blows up' to infinity, the colour is black, else the magnitude of the equation after theset number of iterations is converted to a colour.
Program:

```
C.real=?;
C.imag=?;

y=0;
for (real=-2 -> 2 step 0.02)
{
x=0;  for (imag=-2 ->  step 0.02)
{   blowup = FALSE;
count=0;   Z.real=real;
Z.imag=imag;
for (iterations=0 -> max.iterations)
{
Z.real = 2 * Z.real * Z.imag + C.real;
Z.imag = Z.imag^2 - Z.imag^2 + C.imag;
if(Z.real^2+Z.imag^2)>4 {blowup=TRUE;break;}   count=count+1;
}
x=x+1;
if (blowup==TRUE) colour=0;
else colour = count MOD maxcolours;
Plot (colour,x,y);
}
y=y+1;
}
```

POST EXPRESS

All prices include VAT & Delivery.
All computers are genuine UK specification.
All computers include FREE HOLIDAY PACK

Please make cheques/PO's etc payable to POST EXPRESS
POST EXPRESS (A.U.I.)
Hillcrest House, Suite 3,
49a Vicarage Road,
London E10 5EF
TEL: 081 518 17494 9am – 11pm

☆ FREE @ YEAR WARRANTY WITH ANY COMPUTER BELOW ☆

Amiga A500 Screen Gems Pack
Our price £389.00

Amiga 500	£399.99
Modulator	£24.95
Days of Thunder	£24.95
Shadow of the Beast	£24.95
Back to the Future II	£24.95
Nightbreed	£24.95
D-Paint II	£49.95
Mouse + Books, workbench etc. RRP over £600	Our Price £369.00

Class of the 90's Educational Pack
1024K Ram £549.00

Amiga 500 modulator Maxiplan	£99.95
DRT's midi studio	£149.95
D-Paint II	£59.95
Superbase Personal	£49.95
Amiga Logo	£49.95
BBC Emulator	£69.95
Mouse, Mouse mat, midi interface, 10 blank discs, disk wallet + books, Ed. supp file work bench etc RRP Nearly £1000	Our Price £549

AMIGA 500 STANDARD

Amiga 500 Work bench, Three books Mouse RRP £399.99	Our price £329

MONITORS

Philips CM8833/11	£249
Commodore	£259

Phone or write for your free catalogue. New computer packs available soon.
Monitors, printers, music peripherals available

Magnetic Media

AMIGA PUBLIC DOMAIN
LOOK!!!
HUNDREDS OF TITLES — *STARTER PACKS*
*FAST, RELIABLE SERVICE
NOW ONLY — £1.80 each or £15.60/10 inc VAT

A small selection from our vast range

359/360 Star Trek 3	1Meg
443 Coma Demo	1 Meg
444 Dope Intromaker	0.5 Meg
445 Magnetic Fields Music	0.5 Meg
453 Cryptic UK Demo Comp	0.5 Meg
459 Time Circle Demo	0.5 Meg

SPECIAL OFFER! ALL 4 DISCS - £11.50

AMIGA Screen Gems + 10 blank discs	£379.95
STAR LC-10 Printer & Lead	£174.95
STAR LC-10 Colour & Lead	£224.95
STAR LC24-10 24 Pin & Lead	£254.95
NEC P2 Plus 24 Pin & Lead	£339.95
Epson LX 400 & Lead	£199.95
Epson LX 850 & Lead	£254.95
Epson LQ 400 24 Pin & Lead	£269.95

Courier Delivery, 1 item £15, 2 items or more, £17.50 per item.
Posso Deluxe Storage Box, inc. P&P £19.95
512k memory upgrade including P&P for £54.95
VICTORIA ARCADE, ALDERGATE, TAMWORTH, STAFFS S79 7DL TEL: 0827 59566
Postage inc. except for Hardware, as stated.

SUPER FAST SERVICE — ULTIMATE PD — ONLY 99P EACH

DEMOS
D001 Walker 1 (1 Meg) - Classis
D002 Walker 2 (1 Meg) - Brill!
D003 Walker 3 (1 Meg) Nice Legs
D004 Cool Cougar (1 Meg) - Amazing
D014 Space Ace Demo (1 Meg) - Wicked
D028 Budbrain Mega Demo (2 Disks) - Get It Now!
D045 Arse Wipe ad (XXX) - Very funny
D059 Red Sector Mega Demo (2 Disks) - The Best
D062 Red Sector CEBIT 90 - Amazing
D077 Good Morning Vietnam - Cool Piccy's
D086 Hardcrack Graphics - Impressive Demo
D088 Silents Megademo - Very Good
D134 Garfield Slideshow - Cool Piccy's
D147 Neighbours Slideshow - Hilarious
D148 Viz Calendar - Good
D150 Windsufer Anims (1 Meg, 2 Disks)
D151 Robocop 2 Slideshow - Nick Disk Full
D153 Epic Game Demo (1 Meg) - Get It!
D158 Operation Vark - Funny & Long
D160 Exodus Real 3D - Amazing Slideshow
D168 Horizon Megademo - Cool
D169 Budbrain Megademo 2 - well 'Ard
D184 Dragons Lair 2 (1 Meg) - Mega Cool
D185 Wrath Of The Demon Demo (1 Meg) - Cool
D186 Team Suzuki Demo - Cool Graphics
D187 Batman The Movie (1 Meg) - Mega Cool
D188 Demoniac Demo - Very Funny
D189 Simple Stuff, 5 Latest demos - Cool
D190 Iraqi Demo - Very Funny & Good
D225 Slycath Demo Comp 2 - 6 Cool Demos

MUSIC
M011 DMOB Music 2 - Cool & Funky
M012 DMOB Music 4 (2 Disks) - Very Nice
M022 Amiga Chart Mix 3 - Nice Long Samples
M026 Amiga Chart Mix 5 - Another Cool Disk
M029 DMOB Music 3 - Cool Long Mix
M033 Dereck & Clive (2 Disks) - Very Funny
M034 Total Remix (2 Disks) UZI 9mm
M035 Digital Concert 2 - Get This Now
M036 Digital Concert 3 - And This
M037 Digital Concert 4 - Cool
M038 Digital Concert 5 - One of the Best
M039 Digital Concert 6 - Get It!
M040 RAF Megamix 1 - Amazing
M049 Ben Elton (XXX) - Very Funny
M055 Get Up - Mega Cool Long Sample
M064 Sound Atax 2 - Cool Disk Full
M070 Scoopex Shadow Music - Get It!
M075 100 C64 Tunes - Nice
M093 P.E. Module Comp 24 (1 Meg) - Cool
M094 Vision Music Masters - Well 'Ard
M112 Jarre Revolutions - Check It Out!
M114 Betty Boo! - Just Doing the Do!
M125 RAF Megamix 2 (2 Disks) - Brill
M127 Amiga Chart Mix 6 - Mega Cool
M134 Miami Vice (4 Disks) - Er . . . Long!
M136 Laurel & Hardy (2 Disks) - Very Good
M142 Amazing Tunes 2 (3 Disks, 1 Meg) - Amazing
M171 H.C.C. M Music Disk 2 - Brill Music

UTILITIES
U004 Soundtracker Collection (3 Disks) - Great
U012 Mega Utils - 175 Utils
U023 Warriors Crunchers Disk - Load of Them
U033 Clip Art Fonts - Cool
U039 Amibase 3.76 - Very Good
U047 Jazzbench - Cool & Better Work Bench
U059 Clip Art - Loads of Cool Art
U062 Ulitmate Copy & Virus Killer Disk
U072 Rippers 44 Music Ripper + 1 Demo

GAMES
G001 Star Trek 3 (2 Disks) - The Best!
G008 Board Games - Monopoly etc etc.
G010 Wheel of Fortune - Good
G015 Star Trek (1 Meg, 3 Disks) - Good
G019 Paranoid - Good Breakout game

CRAZY COMPETTIONS — **AMIGA ONLY**

Please add 50p P&P to total. Hundreds of disks in stock, please make all cheques payable to P.A. Cannon. Send all orders to: Ultimate PD, Dept A.U.I., 44 Festiniog Road, Gabalfa, Cardiff CF4 2QS.
Ultimate P.D. Mag Catalogue is available for 75p or free with orders of 2 disks or more.
All orders back in the post, the same morning. Order 10 disks and choose 1 free.

AMIGA VIDEO GRAPHICS

You get more value for your money from a company that specializes in video graphics.

Not only do we provide a full range of Amiga hardware and software, with a telephone help-line on all purchases, but also a wealth of advice on how to get the most out of your Amiga.

Send for full details now.
Existing Amiga owners send only 3 x 22p stamps for our Info Disk

GALAXY GRAPHICS,
FREEPOST,
SWANSEA SA2 9ZZ
Tel: 0792-297660

TUTORIAL MANUALS AND SMALL BUSINESS IDEAS

THE COMPUTER WORKSHOP

THE ULTIMATE HOME BASED COMPUTER SERVICE

DEPT 7, P.O. BOX 111,
ROCHESTER, KENT ME2 2TS
TELEPHONE 0634 710941 FAX 0634 718062

SUCCESS AT YOUR FINGERTIPS WITH YOUR MICRO COMPUTER

The COMPUTER WORKSHOP is offering you the chance to start your own home based business. Your micro is capable of making mega money with the right guidance.
With us guiding you step by step you can enter into the world of high finance. Even the smallest of home computers is capable of doing much more than just playing games. If used to its full potential your computer is capable of running most small, or home based businesses.
Let us help you unlock the full potential of your computer today, and start your very own, home based business tomorrow.

For more information send an S.A.E. to the **COMPUTER WORKSHOP, DEPT 7, P.O. BOX 111, ROCHESTER, KENT. ME2 2TS.**

WE ARE NOT ATTACHED IN ANY WAY TO THE MAIL ORDER INDUSTRY

TEST DRIVE

Supercalc 5

If you have a MSDOS bridgeboard then you may want what Mark Rose believes is the finest spreadsheet package around

In the annals of P.C. software, SuperCalc5 from Computer Associates (CA) can be considered as one of the founding fathers. Since its launch in 1981, Computer Associates claim to have sold over 3 million copies. They also claim to be one of the world's leading software companies with a 1990 turnover of $1.3 billion, employing some 7000 people worldwide. Not what one might call an insignificant organisation ! So it surprised many last November when CA announced that they were reducing the recommended retail price of SuperCalc5 from £396 to £79 .. no its not a typing error £79 was to be the new price. CA gave the reason for the 80% price drop as being in their opinion that was the right price for a spreadsheet product and at £79 it wouuld encourage potential purchasers to buy legitimate product rather than use pirated copies.

So what do you get for your cutprice £79? The product box contains an impressive assortment of goodies. The software is in the customary licencing agreement envelope, opening it indicates your acceptance of the terms, for the 5 1/4 inch disk user there are 10 disks with 5 for the 3 1/2 inch user. Documentation is generous with a loose leaf 700 page Reference Manual complete with hard backed 3 hole binder; a 200 page User Guide; two smaller booklets titled " Up and Running " and " Quick Reference", Registration Card, Invitation to receive details of CA's education and training program, addenda/updates and function key cut outs.

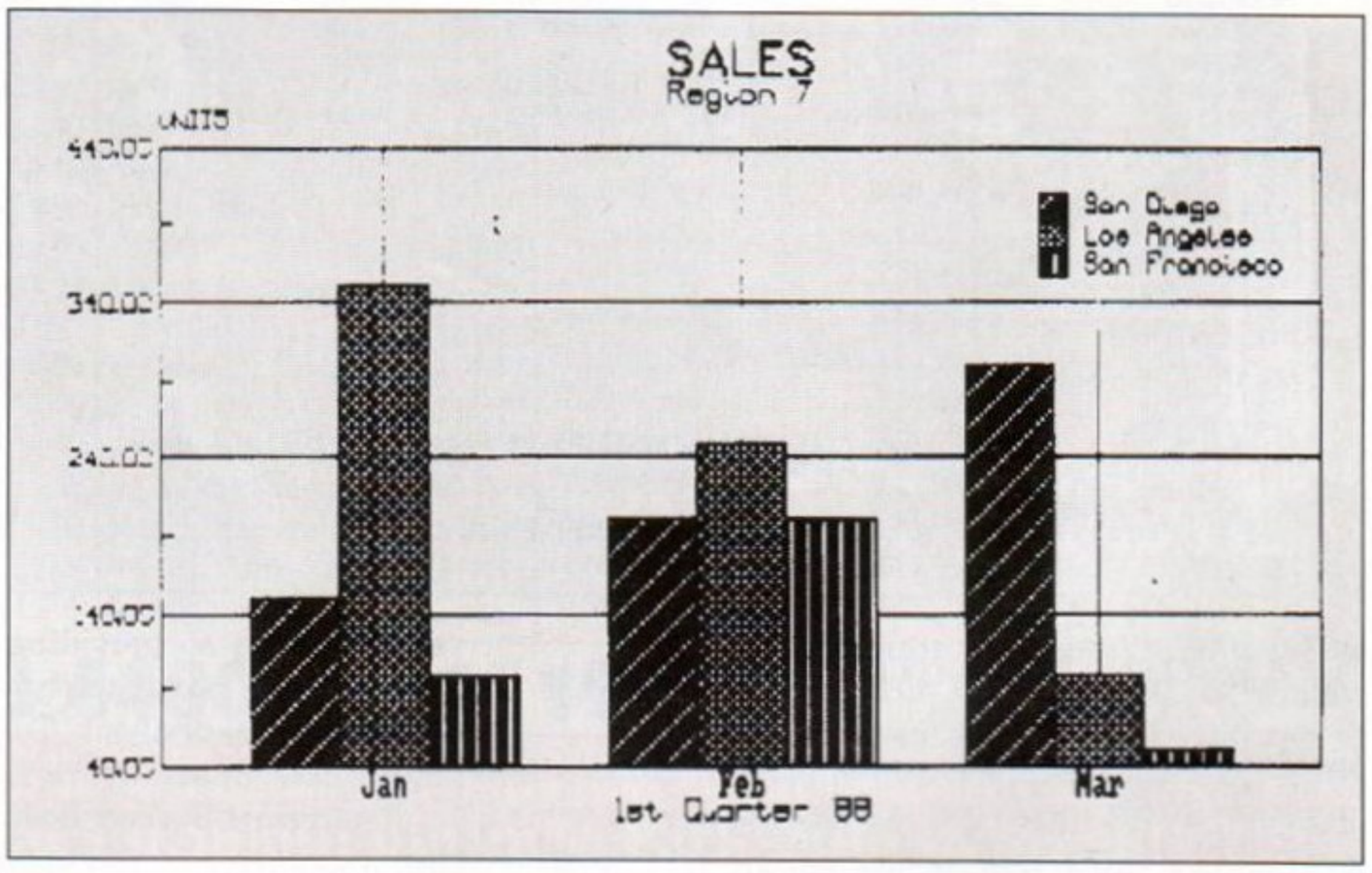
The minimum hardware configaration is an IBM XT, AT, PS/2 and compatibles with 512k of RAM running DOS 3.0 or higher, a hard disk especially as SuperCalc5 occupies some 3.1 meg of disk and a bulk basic mono monitor. Our more prosperous readers will be pleased to know that SuperCalc5 also supports most printers and plotters including colour, colour monitors, expanded memory and networking .

Getting started is no problem. Set up a directory say \CALC and transfer the files from Drive A:. Once loaded it is useful to runthe TUTORIAL program which comprises 9 lessons providing a basic introduction to :- finding your way round the spreadsheet, formatting, output, macros etc. Then move to SuperCalc5 proper by entering SC5.

Essentially SuperCalc5 is a character-based product with the familiar display of columns notated by letters across the top of the screen and rows vertically in numbers. The central spreedsheet displays 20 rows with the bottom 4 rows reserved for the Dialog Panel. Command options are available by entering / , the prompt line of the panel offering a 21 item menu presented in alpabetical order. There are another 11 commands which are not so widely used accessed by entering //.

As SuperCalc5 does not support Microsoft Windows or a mouse, a command is chosen either by using the left and right direction keys to place the cursor over the command or by entering its first letter e.g. O for Output. Once the command is chosen you are then presented with sub menus which in turn may require further choices until the requirement is satisfied. As an example it is possible to go down through 6 menus when defining how the spreadsheet should be printed. It may sound complicated but the commands are easy to follow and very quickly become intuitive. Many of the commands will be familiar to

"Once loaded it is useful to run the TUTORIAL program which comprises 9 lessons providing a basic introduction"



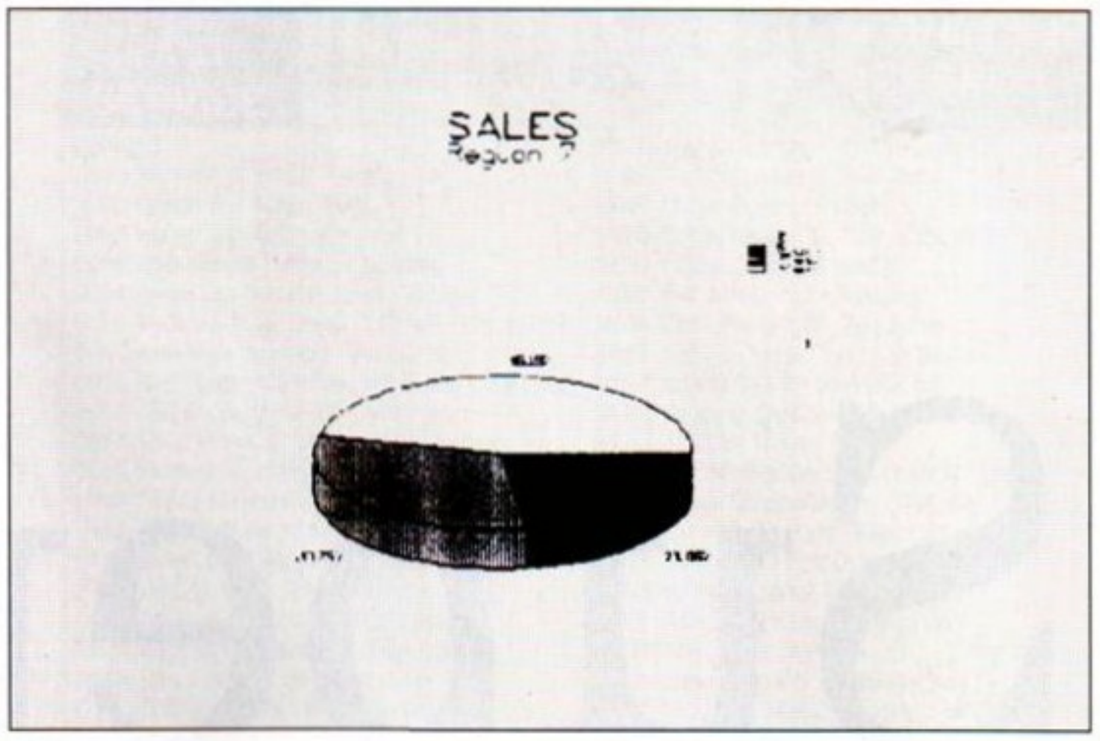
TEST DRIVE

those of you who have used LOTUS before. In fact, SuperCalc5 is fully compatible (there are a few minor differences highlighted in the documentation) with LOTUS with an option to use the LOTUS menu strucure as the default. When used in LOTUS mode you can be forgiven for thinking that you are in LOTUS. I happily experimented swapping between the two modes, using the LOTUS commands for building my spreadsheet and SuperCalc commands to produce the output. This was very useful as my Release 2 of LOTUS had minimal Laser support , whereas SuperCalc5 has an impressive library of supported facilites which I particularly enjoyed experimenting with ; drawing horizontal and vertical lines in either single or double spacing with a choice of 5 thicknesses, defining grids and borders. SuperCalc5 also supports fonts choice and shading at the cell level. Using these facilities it is possible to design very impressive reports.

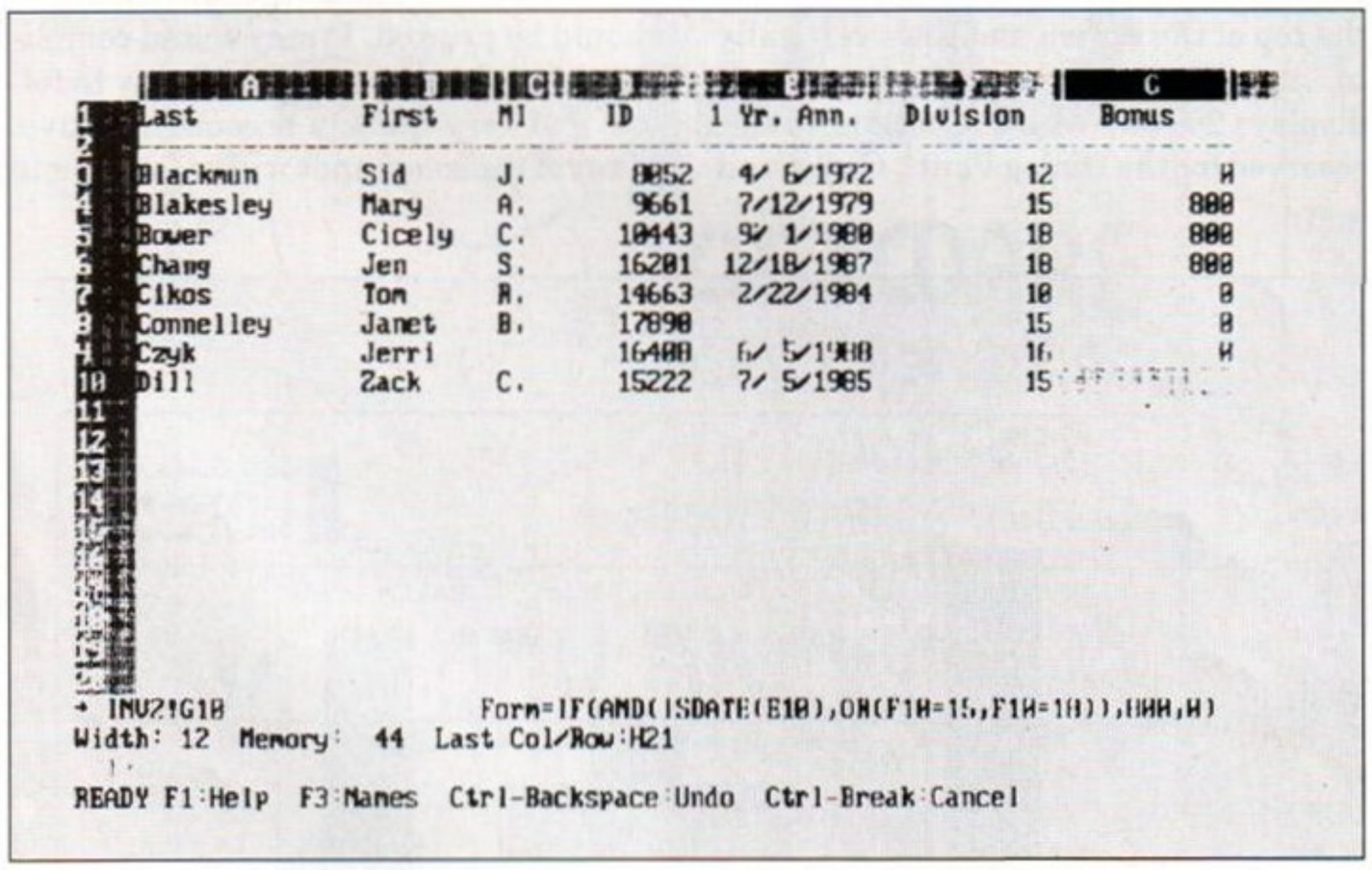
You are not forgotten if you are not using a Laser , the features will, of course, be dependent upon your printer. If you are using a dot matrix then the built-in SIDEWAYS program will useful . This enables output to be printed in landscape instead of the traditional portrait manner.

At this juncture I must mention the free telephone Hotline service provided by Computer Associates which I used when trying to get SuperCalc5 to "talk" to my Laser. I did not encounter any difficulty getting through . Having explained my difficulty(with the Laser) - no, I didn't say I was reviewing the software, I half expected to be politely told to take the problem up with my dealer but that was not so. But, I was talked thorough a number of possible fixes and after some experimentation and two subsequent phone calls, my laser was up and running. Later, during the course of this review, I had occassion to twice more phone the Hotline with queries; both times my problems were sympathetically heard and politely and professionally solved. I was impressed at this level of support for a £79 package. SuperCalc has extensive graphics features; their use being determined by the hardware being used. There are eight basic chart types Bar, Line, Pie, Dual, Area, Hi-Lo, X-Y, Radar and Word. Further choices are available within the basic design i.e there are 5 types of bar chart. There is enough variety to satisfy the most discerning user. Charts can be further customized, for colour , fonts, lines and grids, and legends ; they can also be presented in 3D.

"I happily experimented swapping between the two modes, using the LOTUS commands for building my spreadsheet and SuperCalc commands to produce the output."



As you would expect of a serious spreadsheet, a data management facility is provided. Each row representing a record and each cell within the row representing a field. Data can be found, sorted, selected, extracted, and outputted dependant upon the selection criteria. It can then be analysed to provide frequency or regression information.



	A	B	C	D	E	F	G
	Last	First	MI	ID	1 Yr. Ann.	Division	Bonus
2	Blackmun	Sid	J.	8852	4/ 6/1972	12	H
3	Blakesley	Mary	A.	9661	7/12/1979	15	888
4	Bower	Cicely	C.	10443	9/ 1/1988	18	888
5	Chang	Jen	S.	16201	12/18/1987	18	888
6	Cikos	Tom	R.	14663	2/22/1984	18	8
7	Connelley	Janet	B.	17898		15	8
8	Czyk	Jerri		16488	6/ 5/1988	16	H
9	Dill	Zack	C.	15222	7/ 5/1985	15	

→ INV2!G10 Form=IF(AND(ISDATE(E10),OR(F10=15,F10=18)),HHH,H)
Width: 12 Memory: 44 Last Col/Row:H21

READY F1:Help F3:Names Ctrl-Backspace:Undo Ctrl-Break:Cancel

For the really serious business models, SuperCalc5 offers features whereby data can be "linked" between spreadsheets so providing a consolidation facility, particularly useful in say departmental analysis. To keep track of these links, SuperCalc records the link in a Referenced Spreadsheet Library. The linking concept is also to be found in the Multipage spreadsheet feature. Basically this represents a pile of pages filed as one spreadsheet that can either be consolidated on one of the pages and/or linked with other spreadsheets.

There may be some of you out there saying to yourself "Aha! having all these features is all very nice but what commitment have Computer Associates to the product ? How are they going to safeguard my investment. No, so much in money as in time, if I buy SuperCalc" Well, the answer from Computer Associates is that they are fully committed to the product. Version 5.1 is due for release mid-1991 at a cost of £25 to existing users ; a Windows version later is planned for later in the year. All future upgrades will be at a nominal price. Computer Associates have made these statements in public as a mark of their commitment to the product and its users.

"I was impressed at this level of support for a £79 package."

Earlier in this review I asked " So what do you get for your £79 ?" The answer is quite simply the finest value spreadsheet currently available in today's P.C. software marketplace.

Price: £79.00
Contact: Computer Associates,
Computer Associates House,
183-187 Bath Road,
Slough,
Berkshire.
SL1 4AA.
Tel: (0753) 814848

Superb colour graphics dumps.
Select area you wish to print.
Select size you wish to print.

FLEXIDUMP

Vary density and passes.
Label Printing facility
Colour Catalogue function.
Put picture disc in and Flexidump will print a minature of each picture.
Sideways printing for A4 size or produce banners.

Drives a wide range of COLOUR and MONO printers 9 and 24 pin. Including Star LC200, LC200 24, Citizen Swift, LC10, NEC, OKI 20 and many more.

ONLY £39.95 inc vat.

How to order. Enclose cheques/PO made payable to:
CARE ELECTRONICS or useAccess/Visa.
Phone our 24 hour 7 days a week order line

CARE ELECTRONICS

800 St Albans Road, Garston, Watford, Herts, WD2 6NL
Tel: 0923 672102 Fax: 0923 662304

NEW **HUGE RANGE OF COLOURED PRINTER RIBBONS** NEW

RED, BLUE, GREEN, BROWN
PURPLE, YELLOW, ORANGE
MAGENTA, SILVER, GOLD

Prices from as low as £3.00
phone our order line on 0923 672102

T-SHIRT PRINTING RIBBONS

PRINT ON NORMAL PAPER IRON ON T-SHIRT

4 Colour for Star LC10 Colour	£12.22
4 Colour for Citizen Swift (9 or 24 pin)	£29.61
4 Colour for LC200 9 pin	£29.61
4 Colour for LC200 24 pin	£33.84
Epson FX80/FX100/LX80, Panasonic 1080/81 1180/Star LC10/NL10, Citizen 120D black from	£5.64
Heat Transfer colour pens set of 5 large	£11.28
Heat Transfer colour pens set of 5 small	£9.87

PLEASE STATE TYPE WHEN ORDERING

T-SHIRT RIBBONS NOW AVAILABLE
IN RED, BLUE, GREEN, YELLOW AND BLACK
AND FOR A WIDE RANGE OF PRINTERS
Phone our order line on 0923 672102
Prices include VAT and Carriage

AMIGA PACKS FROM £319.99 (INCL)

ALL PRICES ARE SUBJECT TO 2.5% VAT INCREASE

Alcatraz £14.99	Corporation £14.99	Fists of Fury £14.99	Midwinter £17.99
Atomic Rotokid £14.99	Corvette £14.99	Flash Dragon £11.99	Mig 29 £21.99
Awesome £21.99	Crimewave £14.99	Flight of Intruders £4.99	Monty Python £14.99
Back to the Future 3 £14.99	Days of Thunder £14.99	Flood £14.99	NAM £14.99
Barbarian II (PSYG) £14.99	Defenders of the Earth £5.99	Football Sim £11.99	Nitro £14.99
BAT £17.99	Double Dragon II £11.99	Gods £14.99	Powermonger £17.99
Battle Command £14.99	Dragon Breed £14.99	Gold of the Aztecs £14.99	Prince of Persia £14.99
Battle Master £17.99	Dragon Strike £17.99	Golden Axe £17.99	Rick Dangerous 2 £14.99
Battle of Britain £17.99	Dragons Breath £17.99	Hard Drivin' 2 £14.99	Robocop II £14.99
Betrayal £14.99	Dragons Flight £17.99	Hunter £14.99	Shadow Warriors £14.99
Billy the Kid £14.99	Dragons Lair £26.99	Immortal £14.99	Simulcra £14.99
Blood Money £8.99	Drakker £17.99	Indy 500 £14.99	Sly Spy £14.99
Blue Max £17.99	Duck Tales £14.99	Interceptor £17.99	Speedball II £14.99
Buck Rogers £17.99	Dungeon Master £14.99	Iron Man £17.99	Spin Dizzy Worlds £14.99
Budakhan £14.99	Dungeon Master Ed £5.99	Ivanhoe £14.99	Stud Beast 2 £20.99
Cadaver £14.99	Dynasty Wars £14.99	Judge Dread £17.99	Supremacy £17.99
Captive £14.99	E.F.t.P.O.t.e.m £11.99	Kick Off II £14.99	Swiv £14.99
Champions of Raj £17.99	Eagle Rider £14.99	Killing Game Show £14.99	Team Suzuki £14.99
Chaos Strikes Back £14.99	Ecstacy £11.99	Larry II or III £24.99	Teenage Mutant Turtles £14.99
Chase HQ £14.99	Emlyn Hughes Int £14.99	Lemmings £14.99	Total Recall £14.99
Chess Simulator £11.99	Exterminator £14.99	Lost Patrol £14.99	Turrican £11.99
Combo Racer £14.99	F16 Combat Pilot £14.99	Lotus Turbo £14.99	Turrican II £14.99
Conqueror £14.99	F19 Stealth Fighter £17.99	M1 Tank Platoon £17.99	Ultimate Ride £14.99
	F29 Retaliator £14.99	Magic Fly £14.99	Voodoo Nightmare £14.99
	Falcon £17.99	Maniac Mansion £14.99	Wrath of the Demon £17.99
	Finale £14.99	Midnight Resistance £14.99	

Amiga A500 only **£320.00 incl**

Amiga 1500 **£699.99** inc VAT.

Amiga A500 Screen Gems **£359.99 incl**

Ext Drive **£49.99** + 4 Games **£59.99**

A500 1 Meg Upgrade + free Game **£34.99**

1084S Colour Stereo Monitor **£249.99**

FUTURESOFT

TEL: 0493 440005/441194

HUNDREDS MORE SOFTWARE TITLES AVAILABLE

Some titles may not be released at time of going to press. New store open at below address. The above prices are mail order only. Shop prices may vary Personal caller may claim discount on production of this advertisement. Cheques/Postal Orders made payable to:

Futuresoft, Unit 12, Great Yarmouth Business Park, Suffolk Road, Great Yarmouth NR31 0ER (P&P £1.50)

NEW!

GORDON HARWOOD

'Flight of the Intruder' 1Mb Packs now available!

NEW!

1Mb Amiga POWERPLAY

INTRUDER PACK 1

ALL OUR AMIGAS ARE UK SPEC AND INCLUDE THE FOLLOWING...

- 1Mb. Disk Drive
- TV Modulator
- 4096 Colours
- Multi Tasking
- Speech Synthesis
- Amiga Basic Programming Lang.
- 4 Channel Digital Stereo Sound
- Amiga Mouse
- 3 Operation Manuals
- Workbench 1.3 Disks
- Tutorial Disk
- ALL Cables
- Simple 'Notepad' Word Processor

PLUS... All OUR Amigas are backed by Harwoods Great Service , please see full details in our 'Ordering Made Easy' panel on Page 3)

THAT'S RIGHT HARWOODS HAVE PUT TOGETHER THE ULTIMATE SCREEN GEMS PACKS YET AGAIN, STARTING WITH 'FLIGHT OF THE INTRUDER' PACK 1 AND INCLUDING 15 GREAT GAMES!

Just look at what you get...

- AMIGA A500 COMPUTER WITH 1Mb UPGRADE
- FLIGHT OF THE INTRUDER
- SHADOW OF THE BEAST II
- DAYS OF THUNDER
- BACK TO THE FUTURE II
- NIGHT BREED
- MICROSWITCHED JOYSTICK
- TAILORED DUST COVER
- MOUSE MAT
- PLUS 10 MORE GREAT GAMES...
  - Datastorm
  - Dungeon Quest
  - E-Motion
  - Grand Monster Slam
  - RVF Honda
  - AND...DELUXE PAINT II
  - Drivin Force
  - Pipemania
  - Rock 'N' Roll
  - Skweek
  - Tower of Babel

FLIGHT OF THE INTRUDER

...The pack for any serious Games Enthusiast!

INTRUDER PACK 1 PRICED AT AN INCREDIBLE...

£399*

Amiga MONITORS

THE SUPERB PHILIPS CM 8833/II STEREO COLOUR MONITOR

Stereo High Resolution Colour Monitor

The Philips CM 8833 Mk II is the successor to the ever popular CM 8833. This versatile multipurpose 14-inch monitor offers excellent colour graphics performance with a wide range of home and personal computers.

The CM8833/II can also be used as a TV Monitor when connected to either a VCR, Colour or Mono Video Camera or TV tuner (available separately). Please ask for further details.

- RGB/AI, TTL, Comp. Video & stereo audio inputs
- Can also be used as a TV with VCR or Tuner
- Features retractable foot ❑ Twin Speakers
- FREE lead for YOUR computer ❑ Earphone Jack Socket
- FREE 12 Month on site service warranty.

A MOST VERSATILE STEREO COLOUR MONITOR AVAILABLE FOR ONLY... **£249.95***

CBM 1084S STEREO COLOUR MONITOR

Commodore's Own Stereo High Resolution Colour Monitor

- RGB/AI/TTL, Comp. Video/Audio Inputs
- Can be used as TV with VCR or tuner
- Twin Speakers for stereo output
- Supplied with cables for A500, CGA PC, C16-64-128

£269.95*

SAVE £20 over individually priced items

Amiga 1Mb. POWERPLAY

INTRUDER PACK 2

HARWOOD'S BRILLIANT AMIGA 1Mb FLIGHT OF THE INTRUDER PACK 2

The fantastic Amiga and ALL THE EXTRA'S detailed in Harwoods Intruder Pack 1 above, AND then you also get...

THE SUPERB PHILIPS CM8833/II STEREO COLOUR MONITOR

Twin Stereo Speakers, Green Screen Switch, Lead to Amiga, Free Tailored Dust Cover and 12 Months on-site warranty (See monitor panel for details)

A SPECIAL PACK FROM HARWOOD'S TO LET YOU SEE THOSE GAMES WITH SUPERB CLARITY AND IN FANTASTIC STEREO FOR ONLY...

£629.95

INTRUDER

SAVE up to £50 over individually priced items

Amiga 1Mb. POWERPLAY

INTRUDER PACK 3

HARWOOD'S BRILLIANT AMIGA 1Mb FLIGHT OF THE INTRUDER PACK 3

The fantastic Amiga and ALL THE EXTRA'S detailed in HARWOODS Intruder Pack 1 above, and then you also get...

THE SUPERB PHILIPS CM 8833/II STEREO COLOUR MONITOR

With FREE Dust Cover and Cable to your Amiga and including a 12 Months on-site warranty (See monitor panel for details)

AND

THE BRILLIANT STAR LC200 COLOUR PRINTER...

185/40 cps, Full Colour 9 Pin NLQ Dot Matrix Printer with FREE Dust Cover and cable to your Amiga (See printers on page 3 for further details)

(Or choose an alternative from our range & adjust by the difference in price from the listed LC 200 price on page 3)

NOW AVAILABLE WITH THE CITIZEN SWIFT 9 COLOUR PRINTER AT NO EXTRA COST!!!
(IN PLACE OF STARS LC 200 COLOUR)

A SPECIAL MONITOR AND PRINTER PACKAGE FROM HARWOODS TO SET YOU UP COMPLETELY AND ALL AT A PRICE YOU'LL FIND HARD TO BEAT!

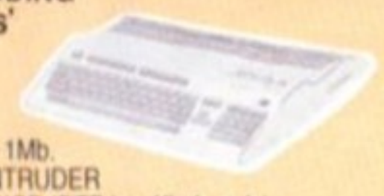
£834.95

INTRUDER

Amiga 1Mb. POWERPLAY

INTRUDER PACK 4

A MORE SERIOUS PACKAGE ASSEMBLED BY HARWOOD'S INCLUDING 'CLASS OF THE 90's' AND ALL OF THE FOLLOWING...



- AMIGA A500 COMPUTER WITH 1Mb.
- FLIGHT OF THE INTRUDER
- PUBLISHERS CHOICE (DTP inc. Kindwords)
- MIDI-MASTER INTERFACE
- MR T's MIDI RECORDING STUDIO
- BBC BASIC EMULATOR
- MAXIPLAN 500 SPREADSHEET
- SUPERBASE PERSONAL DATABASE
- AMIGA LOGO
- FULLY MICROSWITCHED JOYSTICK
- TEN BLANK 3.5" DISKS & DISK WALLET
- DELUXE PAINT II, PLUS...TEN GREAT GAMES

Datastorm, Dungeon Quest, E-Motion, Grand Monster Slam, RVF Honda, Drivin Force, Pipemania, Rock 'N' Roll, Skweek, Towers of Babel,

HARWOOD SPECIAL INTRUDER PACK 4 AT A SPECIAL PRICE OF JUST...

£579.95

Pack 6 NOW AVAILABLE WITH THE CITIZEN SWIFT 9 COLOUR PRINTER AT NO EXTRA COST!!!

(Or choose an alternative from our range & adjust by the difference in price)

INTRUDER

BUILD YOUR OWN PACK...
PACK 5-As above with CM8833 £799
PACK 6-As Pack 5 + LC200 Col. Printer £999

The above pack is also available with First Steps Software as an alternative for Primary School age children
PHONE NOW FOR FULL DETAILS!

Amiga 1Mb. POWERPRO

INTRUDER PACK 7

INTRUDER PACK 7 COMES FROM HARWOODS AND INCLUDES ALL THE FOLLOWING...

A PROFESSIONAL PACKAGE PUT TOGETHER FOR THE BUSINESS MINDED AMIGA USER

AMIGA A500 WITH 1Mb. MEMORY INC. CLOCK
(See Standard Features List)

+

SUPERB PHILIPS CM 8833/II STEREO COLOUR MONITOR

+

STAR LC200 9 PIN NLQ FULL COLOUR PRINTER
(Or choose an alternative from our range, and adjust by the difference in price)

+ **A HOST OF BUSINESS SOFTWARE & ACCESSORIES...**

PEN PAL V1.3 (Word Processor)...1Mb.
(See page 4 for further details)
SUPERBASE II PERSONAL (Database)
SUPERPLAN (Spreadsheet)...1Mb.

- TUTORIAL DISK
- DELUXE PAINT II
- DAYS OF THUNDER
- BACK TO THE FUTURE II
- SHADOW OF THE BEAST II
- NIGHT BREED
- MICROSWITCHED JOYSTICK
- 10 BLANK 3.5" DISKS
- DISK LIBRARY CASE
- MOUSE MAT
- 3 TAILORED AMIGA DUST COVERS

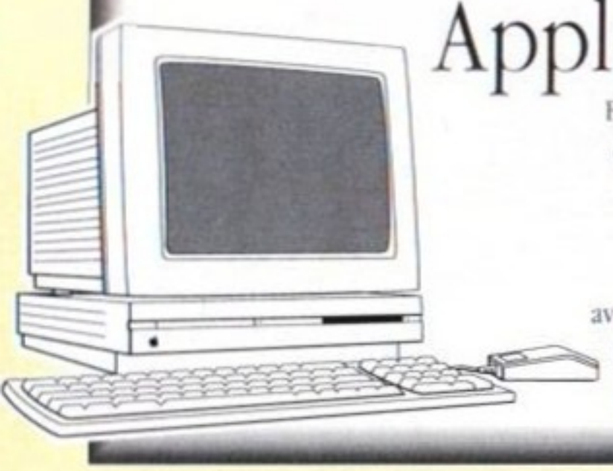
AND...FLIGHT OF THE INTRUDER

INTRUDER

NOW AVAILABLE WITH THE CITIZEN SWIFT 9 COLOUR PRINTER AT NO EXTRA COST!!!
(IN PLACE OF STARS LC 200 COLOUR)

WE MEAN BUSINESS AT THE GREAT LOW PRICE OF JUST...

£899.95



Apple™ in Alfreton...

From June, Gordon Harwood will be supplying the outstanding Apple™ Macintosh range of complete Hardware and Software Solutions.

Now available from just £675 *Inclusive of VAT*

As an Apple Authorised Dealer, systems are available through our showroom only. Please visit us for *your* personal introduction to this exceptional range of friendly to use, but powerful graphical computers.

Gordon Harwood Computers

Authorised Dealer

PAGE 2

REMEMBER AFTER YOU'VE BOUGHT FROM HARWOODS, WE'LL STILL BE HERE...

TECHNICAL SUPPORT: You will be given our Exclusive Technical Support Phone Number to call should you require any help or advice on any aspect of the system you have purchased.

12 MONTH WARRANTY: Items proving faulty within 30 days of purchase are replaced with NEW UNITS unless otherwise stated. For the whole of the guarantee period, warranty service will be completely FREE OF CHARGE and a FAST turnaround is GUARANTEED by our OWN ENGINEERS!

COLLECTION FACILITY: Computers, monitors or printers requiring warranty service can be collected from your home FREE OF CHARGE during the whole guarantee period (UK Mainland only)

Please see page 3 for our easy ordering procedures. Just compare the service we offer!

GORDON HARWOOD
HARWOOD
HARWOOD
Computers

GORDON HARWOOD COMPUTERS
DEPARTMENT AU/D1, NEW STREET
ALFRETON, DERBYSHIRE, DE5 7BP
TEL:0773 836781 FAX:0773 831040

Amiga STORAGE

COMMODORE A590 20Mb HARD DISK DRIVE WITH 0.5 Mb. MEMORY FITTED FREE!
Commodore's own hard drive for the A500

- ❑ Autoboot with Kickstart 1.3
- ❑ Sockets for up to 2Mb RAM expansion
- ❑ DMA access ❑ External SCSI port
- ❑ Complete with 0.5 Mb. Memory FREE!

£299.95

COMMODORE A590 20Mb HARD DRIVE BUT UPGRADED TO A FULL1Mb.
As above but with a total of 1Mb memory!

£319.95

COMMODORE A590 20Mb HARD DRIVE BUT UPGRADED TO A TOTAL OF 2Mb.
As above but with a 2Mb memory!

£349.95

HARWOODS SUPERSLIM 3.5" 2nd DRIVE
❑ With LONG Cable,Disable Switch, Throughport, Access Light, For 500/1000/2000/3000

£59.95

Please note that prices for products containing RAM chips may fluctuate from time to time

FREE... Fully Tailored Dust Cover with all Dot Matrix Printers

PRINTERS

All printers in our range include the following features...
Standard Centronics parallel port unless otherwise stated for direct connection to Amiga, PC's, ST etc. and come with a... FREE CONNECTOR LEAD & TAILORED DUST COVER!

When you are comparing our prices to others make sure that the same essential items are included eg. Printer Lead, Dust Cover, Postage and VAT etc.

All the characters Per Second speeds quoted below are Draft/LQ at 10cpi

NEW STAR LC 200 RANGE OF PRINTERS AVAILABLE NOW!
All the new printers in the LC200 range have the following features...

- ❑ 80 Column Dot Matrix
- ❑ Push and Pull Tractor Feeds
- ❑ Rear and Bottom Feeds
- ❑ Programmable from frontpanel, no dip switches
- ❑ Micro paper feed
- ❑ Reverse paper feed
- ❑ Paper park with Auto Single Sheet Paper Loading
- ❑ 12 Month Warranty

CITIZEN 120D+ - Up to 120/25 cps — £149.95
Very reliable low cost printer (please specify interface on order)

- ❑ Interchangeable interfaces for Centronics RS 232 or Serial type for CBM 64 etc
- ❑ Full 2 Year manufacturers warranty

STAR LC10 - Up to 120/25 cps — £159.95
Our most popular Mono Dot-Matrix printer and at a super low price

- ❑ Multiple font options easily accessible from front panel
- ❑ Excellent paper handling facilities
- ❑ Simultaneous, continuous and single sheet stationery
- ❑ 240 x 240 dpi Graphics

CITIZEN 124D MONO 24 PIN PRINTER — £209.95

- ❑ 360 dpi - 24 Pin MONO
- ❑ 8K Buffer - Expandable
- ❑ 3 Fonts, Superb letter quality
- ❑ Push & Pull Tractor feeds
- ❑ 2yr Warranty
- ❑ Feed for labels & multi-part stationery
- ❑ Low running costs

AMIGA SOFTWARE, GRAPHICS, SOUND AND BOOKS

MUSIC 'X' Latest Vers1.1 with MIDI-INTERFACE & CABLE — £79.95
Latest Version 1.1 - The ultimate professsional midi sequencing package on any computer ...BAR NONE!

MASTERSOUND — £33.95
High quality 'Mono' Sampler. Mono samples are better than stereo when sampling instruments for your own music with soundtracker

MIDI INTERFACE (5 PORT) — £24.95
In, Out, Through + 2 Switchable Through/Out inc Cable

DIGIVIEW GOLD V.4 (Inc Cable & Digipaint I) — 109.95
Digitises static images in b&w or FULL COLOUR (Using filters provided). All resolutions supported (memory permitting). Creates IFF & HAM files. Uses B&W (or col. with B&W Mode) video cameras. Requires 1Mb

VIDI - The Complete Colour Solution — £179.95
Vidi with RGB Splitter, Frame Grabber and Digitiser
Grabs moving colour video into 16 grey scale frames (up to 16 frames on a 1Mb. Amiga) and digitises from still colour video source in up to 4096 colours in less than 1 second!
Requires home VCR or video camera for Grabbing
Requires Video camera or VCR with perfect pause for Digitising

COLORPIC...The best colour grabber by far! — £439.95
Instant colour frame grabbing from moving video. Capture superb digitised video images in a range of resolutions from standard composite video source eg domestic TV video rec. or camera in a 50th of a second.

RENDALE 8802 Genlock Including Cables — £184.95
Home/Semi Professional standard Genlock, allows computer display mixes with composite video signals for titling etc.

MODE SWITCHBOX FOR RENDALE 8802 — £34.95

PODSCAT 12" x 12" Graphics Tablet complete — £219.95
Supplied with driver s/w, it replaces your mouse and thus works with ALL applications s/w. Also available for IBM PC/Compatibles

PROFESSIONAL PAGE Vers 2.0 - Updated release! — £159.95
Requires 1Mb...Total Publishing Power; c/w quality outline fonts

PEN PAL

Pen Pal V.1.3
WORD PROCESSOR/DATABASE
With Pen Pal you can mix text, 4096 colour graphics & data in ways no other w/p can!
"It's handling of graphics is unsurpassed: Pen Pal is the only word processor I tested that will automatically wrap text round graphics..."
Amiga World, July '90

£79.95
Requires minimum of 1Mb Amiga

PEN PAL Vers 1.3 WITH 512K Amiga RAM Expansion ***£99.95!***

BOOKS For beginners and Experts alike!

AMIGA FOR BEGINNERS - VOL. 1 ABACUS BOOKS, From unpacking your Amiga to creating your own icons, includes first use of basic and extras disk. — £12.95
AMIGA BASIC INSIDE AND OUT - VOL 2 ABACUS BOOKS, The definitive step by step guide to programming your Amiga in basic. — £18.95
AMIGA MACHINE LANGUAGE - VOL 4 ABACUS BOOKS, Practical guide to — £18.45

ORDERING MADE EASY

Before you choose from whom to purchase, please give us a call. We are always more than happy to discuss your requirements, and answer any queries you may have...

ORDER BY PHONE: Phone our Order Hotline with your Access, Visa, Mastercard or Lombard/NASCR Credit Charge Card quoting number & expiry date.

ORDER BY POST: Make cheques, bankers building society drafts or postal orders payable to GORDON HARWOOD COMPUTERS. (Personal or business cheques take 7days to clear from day of receipt whereupon your order will be despatched)
Please send Name, Address, and most importantly if possible, a Daytime Telephone Number along with your order requirements.Please check you are ordering from one of our latest advertisements before posting (phone if you require confirmation). Please remember that for example many September publications appear during August, therefore prices you see may have changed (either up or down).

FREE POSTAL DELIVERY: FREE within 14 working days, UK Mainland only.
OR **COURIER SERVICE**...Add £5 per major item for next working day delivery, UK Mainland most regions.
(Goods normally despatched on day of ordering or payment clearance)

EXPORT ORDERS: Most items are available at TAX FREE PRICES to non UK residents when visiting us or for export shipment. Please contact us for ordering information.

REMEMBER AFTER YOU'VE BOUGHT FROM HARWOODS, WE'LL STILL BE HERE...

TECHNICAL SUPPORT: You will be given our Exclusive Technical Support Phone Number to call should you require any help or advice on any aspect of the system you have purchased.

12 MONTH WARRANTY: Items proving faulty within 30 days of purchase are replaced with NEW UNITS unless otherwise stated. For the whole guarantee period, warranty service will be completely FREE OF CHARGE and a FAST turnaround is GUARANTEED by our OWN ENGINEERS!

COLLECTION FACILITY: Any computer, monitor or printer requiring warranty service can be collected from your home FREE OF CHARGE during the guarantee period (UK Mainland only)

FULL TESTING PROCEDURE: All computers are tested prior to despatch, and all items are supplied with mains plug and leads as required - just connect up and use straight away.

REMEMBER WE'RE NOT JUST ANOTHER MAIL ORDER COMPANY...

All listed prices are what YOU PAY, and there are NO HIDDEN EXTRAS. VAT and postage are included, and prices are correct at time of going to press (Pack details may vary from time to time). Offers are subject to availability and to being the latest advertised packs and prices. Our offers are NOT supplied on a trial basis. E&OE

FINANCE FACILITIES

Finance tailored to suit your needs. Written details on request.

Gordon Harwood Computers offer facilities to purchase using our budget account scheme. APR 36.8% (Variable). Available to most adults of eighteen years or over, subject to status. Simply phone or write and we will send you written details along with an application form. Applications, required in advance, available to full time U.K. mainland residents and overseas British forces personnel. Showroom visitors, please ask for details of our in-store "Instant Account". Written quotations on request.

If you are already the holder of a Lombard Credit Charge Card you can use this to purchase from us (subject to your personal card limit)

VISIT OUR NEW SHOWROOM

Please pay us a visit where our full range of advertised products, at the SAME COMPETITIVE PRICES, AND MORE, is on sale. 'ALL UNDER ONE ROOF', in pleasant surroundings at our new purpose fitted showroom. There's plenty of FREE parking close by.

OPENING TIMES: 9.00 til 5.00 Monday to Saturday
9.00 til 1.00 Wednesday

STAR LC 24-10 - Up to 180/60 cps — £214.95

24 Pin version of the Star LC Series with

- Exceptional letter print quality
- 360 x 360 dpi Graphics
- Additional font cartridges available
- 8 resident fonts

STAR LC200 GREAT COLOUR PRINTER - 185/40 cps — £214.95

This is the one in our packs!

- 240 dpi - 9 Pin COLOUR
- Massive 16K Buffer
- 8 Resident Fonts
- Front Panel Pitch Selection
- Max. paper width 11.7"
- Supplied with colour & mono ribbons
- Faster than the old LC10 Colour but still at the same competitive price

CITIZEN SWIFT 9PIN COLOUR - Up to 160/40cps — £229.95

New super high spec 9Pin colour printer

- 8K Buffer 4 Fonts
- Push and pull tractor built-in
- Feed for labels/multi part stationery
- 240 x 240 dpi Colour Graphics
- Best text quality in our 9Pin range
- 2 Year Citizen warranty

STAR LC24-200 24 PIN MONO PRINTER - 220/55 cps — £259.95

New Star 24 pin that means business!

- 360 dpi - 24 Pin MONO
- 7K Buffer expandable to 39K
- 10 Resident Fonts
- Front Panel Pitch Selection
- Max. paper width 11.7"
- Supplied with mono ribbon
- Faster than the old LC24-10
- Extra font cartridges available

STAR LC24-200 NEW COLOUR PRINTER - 220/55 cps — £309.95

Colour version of the new LC24-200 Mono

- 360 dpi - 24 Pin COLOUR
- 30K Buffer expandable to 62K
- 10 Resident Fonts
- Front Panel Pitch Selection
- Max. paper width 11.7"
- Supplied with colour & mono ribbons
- Better quality than LC200 colour
- Extra font cartridges available

CITIZEN SWIFT 24 PIN COLOUR - Up to 160/50 cps — £319.95

24 Pin Colour Printer "EUROPEAN PRINTER OF THE YEAR 1990"

- Push and pull tractor built-in with bottom feed for labels & multi-part stationery
- 360 x 360 dpi Colour Graphics
- 2 Year Citizen warranty

STAR XB PRINTER RANGE Up to 240/80 cps 24-10 COLOUR, OR 24-15 COLOUR

Two very fast LQ 24Pin Colour Printers
(15" Wide Carriage versions 41 exp. to 201K buffer)

£399.95 — 24-10 Colour

£499.95 — 24-15 Colour

- Exceptional print quality
- 4 x 48Pin super letter quality fonts
- 24 x 24Pin near letter quality fonts
- Huge 27K buffer expandable to 187K
- 360 x 360 dpi Colour Graphics
- 12mths on-site warranty (UK Mainland)

HEWLETT PACKARD PAINTJET A4 — £899.95

Our best quality full colour printer at a realistic price

- Parallel/Centronics or Serial RS232 I/F (specify with order, MAC option available)
- For presentation graphics/DTP, CAD and technical/scientific applications
- A full page of colour graphics in 4 minutes (typical)
- Non impact printing, virtually silent, 43dba
- Will print transparencies
- 12 Months on-site warranty (UK Mainland)

STARSCRIPT - 8ppm POSTSCRIPT LASER — £1595.95

Up to the minute Laser Printer for PC, Amiga, ST or MAC

- 300 DPI, 2Mb. Upgradable to 5Mb.
- Emulations inc: HP Series II, Epson
- EX800, IBM Proprinter & Diablo 630
- Serial/Parallel printer interface built-in
- Inc. 12mth on site warranty (UK Mainland)
- Every desktop publishers dream

RIBBONS

Genuine... PRINTER RIBBONS	SINGLE	6 PACK
STAR LC10, LC10 Colour & LC10 Mk II BLACK Ribbon	£4.95	£24.95
STAR LC10 COLOUR Ribbon	£6.90	£34.95
STAR LC24-10, LC 24-200, XB24-10 & XB24-15 BLACK Ribbon	£6.90	£34.95
STAR XB24-10, LC 24-200 & XB24-15 COLOUR Ribbon	£14.95	£74.95
STAR LC15, FR10 & FR15 BLACK Ribbon	£7.49	£39.95
CITIZEN 120D / BJE / LSP10 & CBM MPS 1200/1250 BLACK Ribbon	£4.95	£26.95
CITIZEN SWIFT 9 BLACK Ribbon / CITIZEN SWIFT 24 BLACK Ribbon (Please Specify Which you require)	£4.95	£26.95
STAR LC200 BLACK Ribbon (Please Specify Which you Require)	£7.95	£40.95
STAR LC200 COLOUR Ribbon (Please Specify Which you Require)	£12.95	£69.95
CITIZEN SWIFT 9/24 COLOUR Ribbon	£12.95	£69.95

AMIGA DOS INSIDE AND OUT - VOL 8 ABACUS BOOKS, The complete guide to Amiga DOS and the CLI. NEW Edition inc. DOS vers 2.0 — £18.45

AMIGA PROGRAMMERS HANDBOOK II - SYBEX, In depth reference to device I/O programming for the Amiga series of computers. — £23.95

AMIGA HARDWARE REFERENCE MANUAL - ADDISON WESLEY, written by the technical experts at Commodore Amiga Inc, USA....The people who designed your Amiga. Hardware level machine code prog. at advanced level. — £21.95

EDUCATIONAL SOFTWARE For most age groups!

PRIMARY MATHS COURSE - Ages 3 to 12, Complete 24 Programme Course.	£21.95
BETTER MATHS - Ages 12 to 16, Higher level to Linear/Quadratic Equations.	£21.95
MICRO MATHS 24 easy to use programs for GCSE ('O' Level) revision or self tuition	£21.95
MEGA MATHS - A 9 level step by step tuition course. Ideal for mature beginners, 'A' Level studies & Micro Maths users	£21.95
MICRO FRENCH - GCSE French tuition or revision course. Covers both spoken & written French	£21.95
MICRO ENGLISH - A complete programe of self-tuition up to GCSE standard	£21.95
THE THREE BEARS - Ages 5 -10, Develops imaginative thought/reading skills.	£22.95
SPELL BOOK - Ages 4 to 6, Developed with the help of a Primary School Head Teacher to aid spelling skills.	£17.95
PLAY AND READ - Ages 4 to 9, The complete reading tutor. Part 2 teaches spelling to the beginnerat reading.	£18.95

ACCESSORIES

3.5" DISK HEAD CLEANER — £2.99

Essential maintenance for your disk drive. Keep clean and trouble free.

DISK STORAGE BOXES

80 Piece	Only £9.95
100 Piece	Only £10.95
Posso 150 Piece drawer type stackable	Only £19.95

BLANK DISKS with labels

10 Genuine Commodore 3.5" branded	Only £9.95
10 Unbranded with library case 3.5" certified	Only £7.95
200 Unbranded 3.5" certified	Only £72.50

HARWOODS PRO RAM PACK — Only £32.95

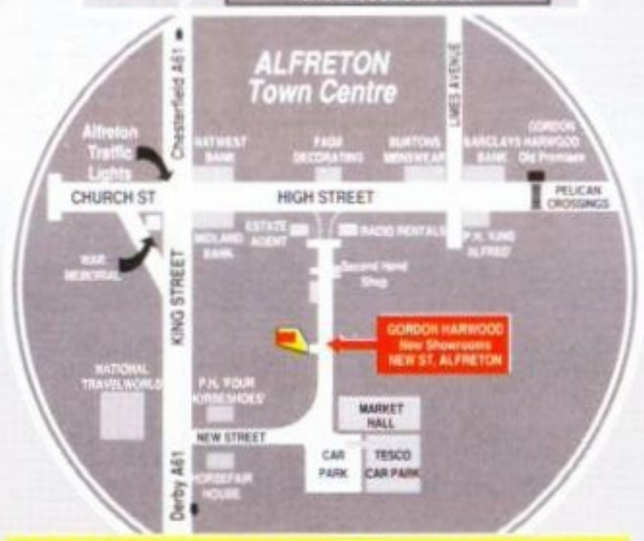
512K Memory Expansion for the Amiga...simply plugs in! 16 Chip, same configuration as A501 for full compatibility with latest 8327A Amiga 1Mb. Blitter. Enable/Disable Switch and Real Time Battery Backed Clock.

NAKSHA MICROSWITCHED MOUSE Amiga/ST/Amstrad PC — Only £24.95

GOLDEN IMAGE OPTICAL MOUSE Amiga — Only £32.95

Shown above is just a small selection from our vast range of serious Software, Books and Accessories...please phone us with YOUR requirements!

WE ALWAYS CARRY LARGE STOCKS OF THE FULL RANGE OF ABACUS BOOKS...Phone us for details!



Come and see for yourself amazing Amigas and a whole host of peripherals, along with our vast range of software & accessories. Our helpful team are always on hand. We look forward to welcoming you.

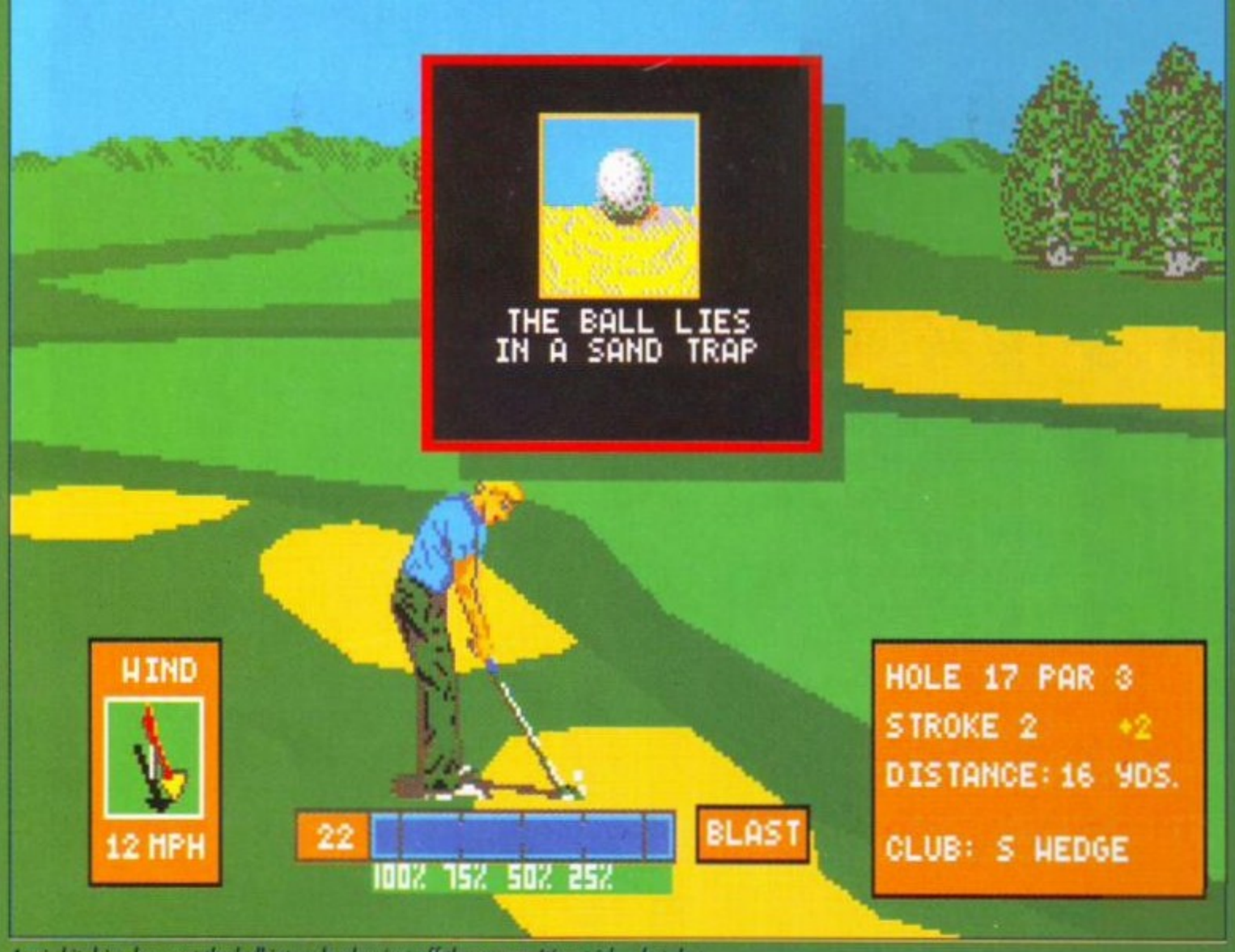
GORDON HARWOOD HARWOOD HARWOOD Computers

ORDER HOTLINE ORDER HOTLINE

0773 836781

VISA

GORDON HARWOOD COMPUTERS
DEPARTMENT **AUI**/D1, NEW STREET
ALFRETON, DERBYSHIRE, DE5 7BP
TEL:0773 836781 FAX:0773 831040



A mis-hit drive has sent the ball into a bunker just off the green. It's a tricky shot, but...

features is the switch in camera angles half way through a long shot. As you drive the ball up the fairway, it shoots off into the distance. The view then switches to one from a camera positioned approximately where the ball will land. Facing in the opposite direction now, the ball speeds into shot, giving you a very clear view of where it ends up.

When it comes to putting, you'll need to consult the contoured diagram of the green. Separate from the main "window on the world", this view of the green is overlaid with a grid, showing up all of its little hills and undulations. Although it's a bit awkward, you can rotate the view to get a good idea of where to aim your shot. Back on the real green, you get an

PGA Golf

Yes, PGA Tour Golf is better than Leaderboard. Find that hard to believe? Let me convince you.

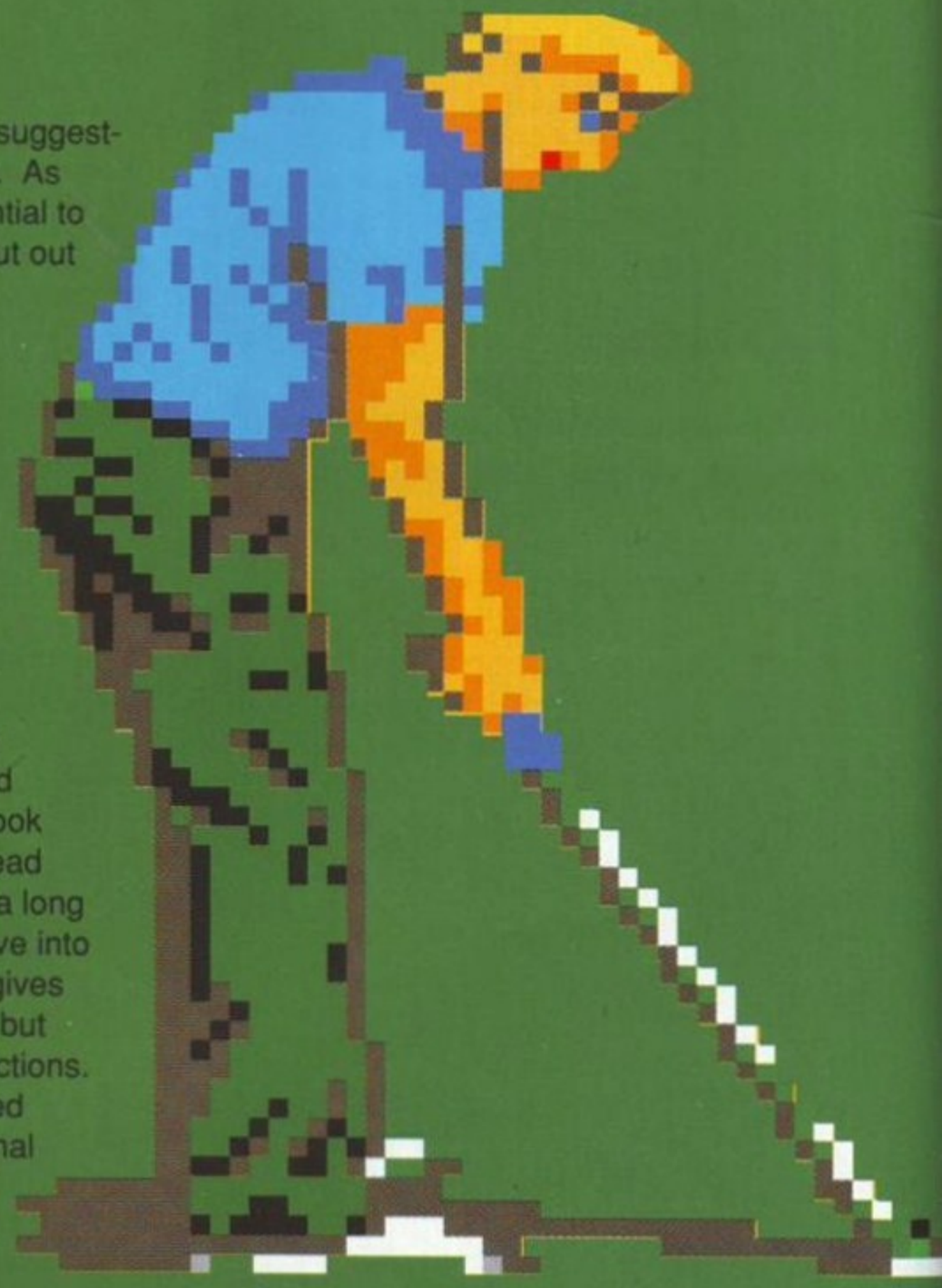
I'll get the worse point out of the way first. Rob Hubbard, once considered the Jan Hammer of computer game music, has supplied the soundtrack for the game. It consists of a grating series of fanfares, which squeal from the speakers as you enter the copy protection code. This from the man who composed some of the best ever computer music. Fortunately you can turn it off, leaving just the tranquil sound effects.

With that merely a distant ringing in your ears, you can get down to business. Up to four people can take part. Any of these four can be computer controlled, so even if you're on your own, you still get an opponent to play against. Although you won't see them, you're actually competing with 59 professional players, with your position on the leaderboard adjusted accordingly after each hole.

As you approach the first hole, and every subsequent hole, you're given a fly-by view of the green, before the camera moves back along the fairway to the tee. A selection of pros give brief bits of advice on each hole, suggesting the best route to the cup. As with most features not essential to playing a shot, this can be cut out altogether to save time.

A few different control methods have been tried in the past, but when it comes to actually hitting the ball, Leaderboard's two-part power and accuracy bar is a firm favourite. It works well, and PGA Tour uses an almost identical system. One click sends the power bar rising, a second sets the power of the shot, and a third click decides whether you hook or slice the shot, or play it dead straight. If you need an extra long shot, you can let the bar move into the overswing sector. This gives you extra power in the shot, but magnifies any slight imperfections. A shot that might have veered slightly to one side with normal power, may now end up way off course, embedded in the rough.

One of the best new



...nothing's too much for this golfing ace: it's in the hole for a great birdie! Let's see that again in slow motion!

aerial close-up view of the hole in the corner of the screen, as you make your putt and hold your breath. Your own "Oooh!"s are echoed by the computer as your ball circumnavigates the hole and pops out. Even so, you'll be congratulated with a healthy round of applause when you do get it down, no matter how many shots it takes you. Birdies and eagles are met with a suitably ecstatic reaction from the invisible crowds.

Some of PGA's new features may not sound revolutionary, but they each make the game that bit more compulsive. Especially good shots are replayed automatically, with the ball's flight-path plotted as it goes. Any shots not deemed impressive by the computer can still be replayed at the player's request. Unlike most other golf games, the wind in PGA is constantly changing direction and speed, even as you line up your shot, which adds a touch more realism.

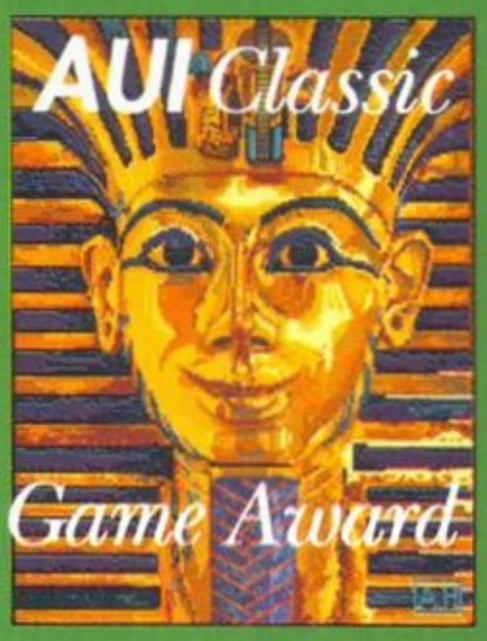
Player names and records are automatically saved to disk. Thanks to this, you can load up your player from disk before each game, attempt to better your driving accuracy, or try to knock a couple of shots off your best 18 holes. This means you need to leave the program disk write-enabled, so watch out for viruses. Both of the disks are AmigaDos compatible, so do make a backup to be on the safe side.

PGA Tour Golf has just about everything Leaderboard has, and more. It's not a game that's going to knock you out with stunning graphic tricks, and because of its easy-going nature, you probably won't realise it's won you over until you look at your watch and see you've been playing it all afternoon. The multi-player option and the computer controlled players make it suitable for both social and solo occasions. With its four 18 hole courses, it's got a long life ahead of it. Even if you wouldn't know a sand wedge from a cricket bat, it makes no difference in PGA Golf Tour. If you're still unconvinced, track down an independent dealer and get yourself a play test. You'll be hooked in no time.
T.H.

Tour

Electronic Arts

"Especially good shots are replayed automatically, with the ball's flight-path plotted as it goes"



DECISION

Difficulty: 5/10

Graphics: 92%
Clear and attractive 3D backgrounds with fast, smooth and realistic ball movement.

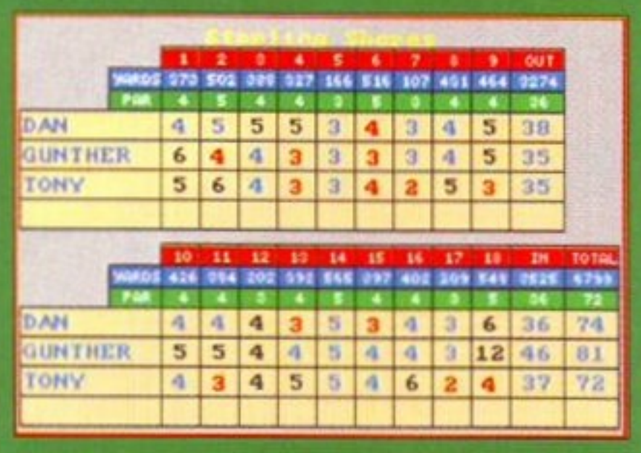
Sound: 50%
The painful music is offset by the quality sampled sound effects.

Gameplay: 94%
Relaxed but very competitive, with bags of long-term attraction.

Decision: 94%
A great game worthy of any sportsfan's folding stuff.

Going into the 18th hole with a slim lead, Gunther, the computer player throws it all away at the last. Here we see his sixth attempt to get across the water. A few shots later, the disheartened golfer picks up his ball and "takes a 12".

Learn to read the green and you can pull off some splendid putts.



	1	2	3	4	5	6	7	8	9	OUT
YARDS	370	502	399	527	166	516	107	401	464	3274
PAR	4	5	4	4	3	5	3	4	4	36
DAN	4	5	5	5	3	4	3	4	5	38
GUNTHER	6	4	4	3	3	3	3	4	5	35
TONY	5	6	4	3	3	4	2	5	3	35

	10	11	12	13	14	15	16	17	18	IN	TOTAL
YARDS	426	194	202	592	566	397	402	209	549	3525	6759
PAR	4	4	3	4	5	4	4	3	5	36	72
DAN	4	4	4	3	5	3	4	3	6	36	74
GUNTHER	5	5	4	4	5	4	4	3	12	46	81
TONY	4	3	4	5	5	4	6	2	4	37	72

The final scores. Note Gunther's tragic score of 12 on that last hole, as the resolve and consistency of the AUI staffer gets him round in a neat 72 shots to win the match.

SUPERCARD AMI-II

Now is the time to own the most powerful backup system that ever will be made. We have searched for a program that this software, hardware package can not backup, and it is yet to be found. Over 10,000 units sold!!! Please join our search.

NEVER BEFORE 100% BACKUP. . .

- Easy to use, mouse driven software.
- Most software backed up in 60 seconds!
- Transparent when not in use.
- Fits any Amiga, even the 3000! (Please specify when ordering).
- Backup any 3.5" disk (IBM, ATARI, MAC, AMIGA).
- No soldering required!
- Cross-country BBS support system (Call for nearest you).
- Backup your original – the day you buy it!
- Super Card AMI II works on NTSC (60 Hertz) and PAL (50 Hertz) systems.
- Tested world wide to be the 'one and only' 100% backup system.

Don't wait, one original lost can cost more than this backup system! We have a full stock on hand and your system can be on its way to you fast!
Remember, specify the Amiga you have when ordering. A500/1000/2000/2500/3000 using one or more external drives, or A2000/2500/3000/ with two internal drives.

NOW ONLY £54.00

AMI-II SOFTWARE UP-DATE

Now Available 2.0 Software

- Copier files that allow 60 second backup for most programs.
- Easy to use instructions.
- Save those programs onto the copier files for future use.
- Join our automatic up-date list, and never miss another up-date.

SUPERCARD

UTILITIES

Copier Construction Set – Create copier files for Super-Card AMI II v1.0 software.

Disk Analyzer – Display format and structure information of tracks. This will help determine which mode you should use with Super-Card AMI II.

Drive Speed Checker – Checks drive speeds of ALL drives.

Drive Alignment Checker – Checks drive alignment of ALL drives.

MFM Editor – Read & Write MFM data. Works in conjunction with Copier Construction. Set to help create files.

£19.99

SUPER TRACKER

Have you ever wanted to know where problem tracks are located?
Now with Super Tracker AMI you can tell. . ! This beautiful digital track display simply plugs into the last drive in your Amiga system (all Amiga models will work). The head location (Track) side (top or bottom head) & where protect position are all are displayed. . !

£39.99

SOUND TRACKER

Once again on the living edge of technology!
First we created the state of the art audio digitizer. Then we designed a high tech audio dithering unit the result – a purely amazing audio digitizer capable of surpassing all others on the market.
The special dithering unit we designed breaks up patterns in the sound waves. This process creates much more comprehendible samples even when the sample rate is as low as 4khz.
Adjustable dithering and level input gives you complete control of the sound samples.
A three foot cable with a male RCA plug connects to any low level sound source. From CD players to VCR Audio outputs this digitizer works with all known public domain software and commercial digitizing software. No software is included with this hardware unit.

£29.00

HARD DRIVES

The state of the art 44 meg SCSI hard drive. This cartridged Based Hard drive has an access time of 25ms the syquest can be fitted internally or externally which makes it compatible with all Amigas. Amiga 500 users with no HardDrive will need a SCSI controller. Ask for more details on SCSI controllers. A2000 users can fit the Syquest in the 5.25 bay or use the external SCSI port. Each Syquest cartridge cost £65.00 per cart giving an impressive £1.47 per Meg.

Internal £359.99
External £449.99

ST-506 Hard Drives

ALL DRIVES LISTED BELOW COME FULLY BOXED WITH EXTERNAL POWER SUPPLY

40	Meg Hard drive	£149.99
80	Meg Hard drive	£195.00
100	Meg Hard drive	£229.99
ST-506 Controllor with 1/2 meg fits into your 501 bay		£138.00

USA Orders
UTILITIES LIMITED

PO Box 532, North Plains, OR 97133,
FAX: (503) 648 8992
Technical Assistance: (503) 647 9022
Telephone: (503) 647 5611

UK & European Orders
SOFTWARE MADNESS

487a Dallow Road, Luton,
Beds, LU1 1UL
24hrs Sales TEL: (0582) 483640
TEL/FAX: (0582) 33772

Some of the bigger tracks seem to have been designed around the streets of Paris city centre

Supercars II

Gremlin £24.95

I'll always welcome a bird's eye viewed racing game, as I've been a big fan ever since Atari's monochrome Sprint coin-op was released all those years ago. Supercars was the first to have any success in recreating the style on the Amiga, and the sequel, of course, promises even more.

Like the first game, Supercars II doesn't attempt to simulate a particular form of motor racing. The cars are imaginary Lotus and Ferrari deviants, and the tracks look like something you would make up with a Scalextric kit. There are three divisions from which to choose. They range in difficulty, with the complexity of the tracks and the skill of the opposing drivers increasing as you move up. You're advised by the instructions to start in the easy division, but, unless you want to simulate a cruise around a disused airfield in a Reliant Robin, go straight to the second division.

Control of the car is simple, but that's not to say it's easy. In fact, the controls can be the cause of a lot of initial frustration. The program runs at a fairly low frame rate, and as you might expect, it's rather late in reacting to the joystick. More often than not, the car oversteers a little after you release the stick. This problem should have been rectified, as it gives you a lot less control than you really need. Similarly, if you tap the joystick to turn just a little, it often ignores you completely.

What it lacks in speed and control response, it makes up for in the track designs. The first few are nothing to shout about, but once you get onto the banks and jumps of the tricker circuits, things take a turn for the better. The car reacts realistically to the dips and banks, giving the tracks a good solid, semi-3D feel.

Another new feature is the two-player mode. This is let down a little by the scrolling, which has trouble keeping up with the cars. A lot of the time, partly because of the reduced window, you only get to see an inch or so in front of the car, so there's not much warning of what's coming up.

In between races, you get occasional conversation interludes. Selecting the "correct" answers from a shortlist will either earn you money, or reduce a fine. This is just a matter of learning the right answers through trial end error. The money you earn from the

"The car reacts realistically to the dips and banks, giving the tracks a good solid, semi-3D feel."

races can be spent beefing up your car. Missiles can also be bought and used to sabotage opposing cars.

On the sound front, it's lawnmower time again, and as for that music...Why nobody can manage to sample a car engine is beyond me. Still, played on the higher levels, Supercars II is good fun. It could do with a bit more speed, but just about gets along OK as it is. Fans of the original expecting a souped-up version probably will be satisfied.

Tony Horgan

DECISION

Verdict: 77%
A little disappointing, but still the best race game of its type on the Amiga.

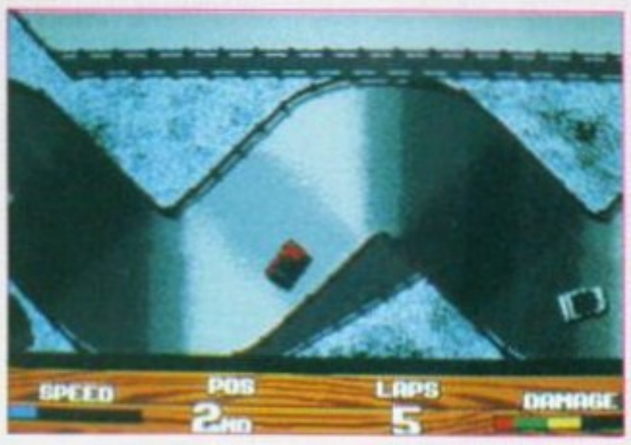
Graphics: 81%
Detailed sprites and backgrounds, but rather shaky scrolling at times.

Sound: 43%
A standard whining "boom-chakka" soundtrack irritates between races, while sampled washing machines are used to simulate the roars of the hot rods.

Gameplay: 79%
Veers on the over-fiddly side, but manages to get the pulse racing on the meaner tracks.

Difficulty: 6/10

"You'll never take me alive, suffer!" seems to be lacking from your choice of comments in the police station.



Snaking bends, hills and banks are all thrown at you in the first few tracks of the second level.

It's a jungle out there! If you're going to survive, you'll need to be tooled up with some heavy duty ammo.

ENTERTAINMENT

SOUNDTRAP 3 AUDIO SAMPLER

~~37.50~~ SOUNDTRAP 3 29.95

1. HIGHEST QUALITY
2. SMALLEST ON THE MARKET
3. FITS A1000 OR A500/2000
4. PRINTER PASS-THRU
5. GAIN CONTROL
6. SOFTWARE, SCREWDRIVER & LEAD INCLUDED.
7. COMPREHENSIVE MANUAL

UNLESS OTHERWISE STATED, ALL OUR PRODUCTS CARRY A 12 MONTHS WARRANTY, PLUS OMEGA PROJECTS PROUD UNLIMITED SUPPORT

MINI-MIDI INTERFACE + ——SOFTWARE——

1. HIGHEST QUALITY
2. SMALLEST ON THE MARKET
3. FITS A500/2000/1000**
4. DATA INDICATORS FITTED
5. 2 METRES CABLE BUILT IN
6. FULLY OPTO-ISOLATED
7. TRIED & TESTED DESIGN

~~24.99~~ MINI MIDI 19.95

** A1000 REQUIRES SPECIAL ADAPTER

A500 REPLACEMENT INT. DRIVE	54.95	512K with CLOCK + SWITCH	32.95
A2000 INTERNAL DRIVES	59.95	IN500 with 1.5meg INSTALLED	99.95
A3000 INTERNAL DRIVES	59.95	SIN500 OK	85.95
45 MEG SCSI 3.5" HARD DRIVES	239.95	SIN500 with 2meg INSTALLED	175.95
90 MEG SCSI 3.5" HARD DRIVES	349.95	X-RAM OK (for A500/1000)	175.95
136 MEG SCSI 3.5" HARD DRIVES	475.95	X-RAM with 2meg INSTALLED	279.95
182 MEG SCSI 3.5" HARD DRIVES	535.95	X-RAM with 8meg INSTALLED	529.95
A590 CMOS RAM CHIPS (512K)	25.00	OCTABYTE OK (for B2000)	140.95
B2000 18 PIN DRAMS (2Meg)	109.95	OCTABYTE with 2meg INSTALLED	249.95
256*1 DRAMS 150nS	.99	OCTABYTE with 8meg INSTALLED	499.95
1.3 ROMS	34.95	INMATE OK+SCSI+68881 SOC.	284.95
68000 CHIP (8Mhz)	12.95	INMATE+2meg+SCSI+68881 SOC.	350.95
68000 CHIP (16Mhz switchable)	42.50	4 CHANNEL AUDIO MIXER + MIC	34.95
68010 CHIP	24.95	SOUND TRAP 3 + MINI-MIDI	47.50
68020 CHIP (20Mhz)	79.95	SOUND TRAP 3 + AUDIOMASTER2	54.95
68030 CHIP (25Mhz)	195.95	SOUND TRAP 3 + AUDIOMASTER3	84.95
68030 CHIP (33Mhz)	275.95	MINI-MIDI + MUSIC-X	94.95
68881 CO-PRO (12Mhz)	49.95	AUDIOMASTER 2	29.95
68881 CO-PRO (16Mhz)	54.95	AUDIOMASTER 3	54.95
68881 CO-PRO (20Mhz)	75.95	X-COPY PROFESSIONAL v3.1	32.95
68882 CO-PRO (20Mhz)	99.95	BYTE'N'BACK (H/DISK BACKUP)	19.95
68882 CO-PRO (25Mhz)	149.95	MUSIC-X v1.0	49.95
68882 CO-PRO (33Mhz)	179.95	3.5" EXT DRIVE + ON/OFF SW.	59.95
68882 CO-PRO (50Mhz)	399.95	3.5" EXT + TRACK COUNTER	88.49
A3000 RAM 256*4 80ns 1MEG	65.95	A590 HARD DISK OK	299.95
A3000 RAM 1024*4 80ns 4MEG	299.95	A590 HARD DISK 2meg	364.95

68030 ACCELERATOR CARDS FIT A500/2000/1000 FROM 339.95

CALL FOR THE KEENEST PRICES ON THE FASTEST 68030 AVAILABLE

AMIGA 500 SCREEN GEMS PACK	379.95
AT-ONCE CARD (PC/AT Emulator)	195.95
5.25" ext. DISK DRIVE (40/80 TRK)	109.95

OMEGA PROJECTS
14 DERWENT CLOSE
CULCHETH , WARRINGTON
CHESHIRE , ENGLAND
WA3 5DY

ALL CHEQUES, P.O., ETC SHOULD BE MADE PAYABLE TO OMEGA PROJECTS. WE ALSO TAKE ACCESS, VISA, MASTERCARD & EUROCARD.

23WAY CONNECTOR no hood	1.99
23WAY CONNECTOR + hood	2.99
X-COPY HARDWARE ONLY	9.95
3.5" BLANK DISKS	0.49
10 CAP. DISK BOXES	4.95
40 CAP. DISK BOXES	6.95
80 CAP. DISK BOXES	9.95
DYNAMIC MICROPHONES	14.95
CONDENSER MICROPHONES	19.95
PAIR HI-FI SPEAKERS	29.95
PAIR PANASONIC SPEAKERS	24.95
JOYSTICK EXTENSION LEAD	3.95
1.2 MTR MIDI LEADS	pair 4.95
3 MTR MIDI LEADS	pair 5.95
5 MTR MIDI LEADS	pair 6.95

512K RAM inc. CLOCK & SWITCH 24.95
21.95 NO CLOCK

FATTER AGNUS CHIPS NOW IN STOCK AT ONLY 59.95
WHILE STOCKS LAST

ALL PRICES INCLUDE VAT

68000 14Mhz SWITCHABLE 42.50 NOW PCB MOUNTED

0925-763946 FOR ORDERS & TECHNICAL QUERIES

0860-795260 IF WE ARE OUT OF THE OFFICE

0204-884230 FOR ORDERS ONLY

HAVE YOU GOT AN A590 HARD DRIVE THAT IS NEARLY FULL? IF SO, DON'T DESPAIR WE CAN UPGRADE YOU!!!. IF YOU ARE STILL UNDER WARRANTY, THEN YOUR OPTION IS EXPAND EXTERNALLY, AND IF YOU ARE NOT, THEN EXPAND INTERNALLY.....

ALL DRIVES COME WITH CABLE & INSTRUCTION GUIDE

DELIVERY EXTRA

EXTERNALLY		INTERNALLY	
45MEG	339.95	45MEG	259.95
90MEG	449.95	90MEG	369.95
136MEG	575.95	136MEG	495.95
182MEG	635.95	182MEG	555.95

REPLACEMENT A500 INTERNAL DRIVE 54.95

VIRUS FREE PD

Amiga Public Domain Software

OVER 1400 PD DISKS AVAILABLE.
PD SOFTWARE HELPLINE.
THOUSANDS OF SATISIFED CUSTOMERS.
OVER 100 DISKS ADDED EVERY MONTH.
MOST ORDERS SENT WITHIN 24 HOURS
ALL DISKS DISTRIBUTED VIRUS FREE

BUY ANY TEN PD DISKS AT £2.00 EACH. AND PICK ANOTHER 5 FREE!!!

PD STARTER PACK *Only £5.00 inc P&P*
WET BEAVER TENNIS
RSI DEMO MAKER
MVK 2.1
5 COOL DEMO'S
VOGUE MUSIC COMP

15 PD DISKS = £20.00 inc 5 FREE
ONLY £1.00 FOR EACH SUCCESSIVE DISK. EG:
16 PD DISKS = £21.00
17 PD DISKS = £22.00
20 PD DISKS = £25.00
Call for details of discounts on bulk orders.

*OVER **1400** PD DISKS CATALOGUED*

Official AMOS PD Disks Now Available

AMOS Licenceware. £3.50 a disk

DEMOS
1365. PORKY PIG ANIM
1339. COPPER DEMO 2
1318. SYS VIOLATION
1307. MAJOR DELIGHT
1306. EVOLUTION 76
1305. PHENOMINA
1300. FART & BELCH
1297. CLOTHS PEG
1173. PANIC
1180. DISASTER
1167. MOVIE DEMO
1172. ENFORCEMENTS
1185. THUNDER CHILD

AMAZING TUNES 2
20 FANTASTIC TUNES.
3 Disks, 1 Meg

GAMES
843. METAGALACTIC LLAMA'S
1064. LETTRIX (GREAT)
1020. MASTER OF TOWN
1204. WET BEAVER TENNIS
840. THE HOLY GRAIL
850. BREAKOUT CON KIT
830. QUIZ MASTER
670. MONOPOLY
595. CAVE RUNNER
1209. WACKO IN WONDERLAND
832. AGATRON GAMES
531. BLIZZARD
530. PACMAN
509. PARADRIOD
1207. FRANTIC FREDDY
505. DRIP
255. FLASCHBIER
856. XENON 3 ETC
117. MORIA RPG
154. TRACK RECORD 1MEG
534. GAMES DISK 1
1179. CHESS ETC
1184. MASTERMIND ETC

UTILITIES
659. ESSENTIAL UTILS 1
1206. MANDLEBROT MAKER
1208. DATABASE WIZARD
1078. ESSENTIAL UTILS 2
1099. PRO TRACKER 1.1
1202. RSI DEMO MAKER
1146. ICON MAGIC
1151. C-LIGHT
1156. DRIVER GENERATOR
1368. SPECCY EMULATOR
1310. MVK 21

MUSIC
1320. SLABYS MUSIC
1317. '19'
1308. VOGUE MUSIC COMP
1303. IMAGINATION
1322. FLASHING BYTES
1319. ORIGINAL RIPS 3
1323. MATRIX MUSIC 3
1324. BLOOD SUCKERS
1327. TRIUMPH MUSIC 11
1333. AMIGADEUS
1334. THE BEATLES HITS
1338. TURN UP THE BASS
1347. CLASSIX 2
1353. THE BEST OF RAF
1348. HOT WIRED
1217. EQUAMANIA 2
1181. TRUE ENERGY

BLANK DISKS
Branded 3.5" Disks
Only **35p** each.
With any other purchase.

EXCLUSIVE WARE.
CROSSED SYSTEM
MEGA FAST SHOOT EM UP
SILKY
SMOOTH SCROLLING
DIGITIZED SFX & SPEECH
MULTIPLE WEAPONS
AND MORE
EXCLUSIVE TO US
Only £3.99 inc P&P
Crossed System is NOT PD

Do the Bartman
A 3 DISK VERSION OF THE No1 HIT SINGLE
ONLY £3.00 inc P&P

MASTER VIRUS KILLER 2.1
Can now detect 124 Viruses/Bootblocks.

RED SECTOR DEMO MAKER
Available Now.

FOR JUST £1.00 YOU CAN RECEIVE OUR HIGHLY PRAISED CATALOGUE DISK. GIVING DETAILS OF OVER 1000 PUBLIC DOMAIN DISKS. OR ORDER 3 OR MORE OF THE ABOVE AND RECEIVE IT FREE OF CHARGE.

NOW AVAILABLE CLIP-ART VOLUME 2. 3 DISKS, ONLY £3.00inc

Catalogue Disk Available at £1.00 sent FREE with all orders

Send Cheque, or Postal order to:
VIRUS FREE PD (Dept AUI), 23 Elborough Rd, Moredon, Swindon, Wilts, SN2 2LS, England. Tel: 0793 512321 Fax: 0793 512075

All prices include P&P in UK. Minimum order of 3 Disks. Overseas orders welcome. But please send Euro cheque or Bankers draft with order. Please add £3.00 towards Postage and Packing.

Digital Applications

118 Middle Crockerford, Basildon, Essex SS16 4JA
0268 553963

A BETTER CLASS OF PUBLIC DOMAIN

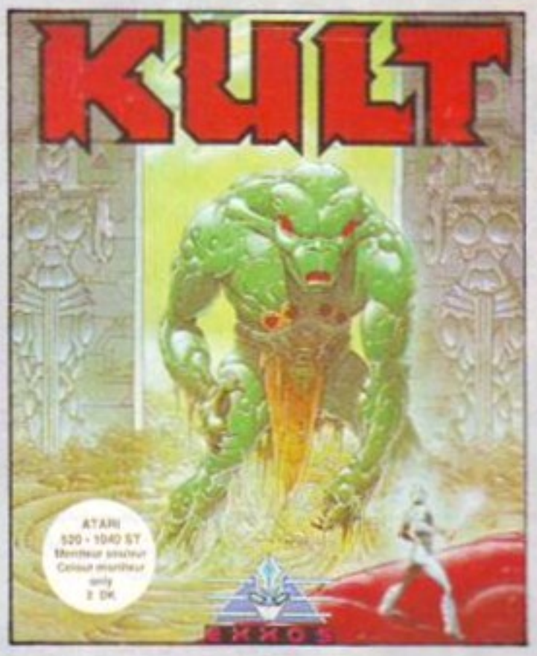
PDX 1 THINK AHEAD. A GOOD BOARD/ARCADE GAME.
PDX 44 POPEYE. AN LED TYPE ARCADE GAME.
PDX 53 BREAKOUT CONTRUCTION.
PDX 54 WORD SQUARE SOLVER.
PDX 67 GAME DISK 2: PACMAN, CHINA TILES.
PDX 68 GAME DISK 3: SPITE & MALICE ETC.
PDX 69 GAME DISK 4: DIPLOMACY, VIDEO POKER ETC.
PDX 81 GAME DISK 6: RISTINOLLA, QUICKFLIX (ARCADE).
PDX 84 GAME DISK 7: MARBLE SLIDE, SENSO PRO. (ARCADE).
PDX 99 BOARD GAME 1: MONOPOLY, BACKGAMMON.
PDX 100 GAME DISK 8: CRIBBAGE, OTHELLO, TUNNEL VISION.
PDX 104 GAME DISK 9: ASTEROIDS, MISSILE COMMAND + OTHERS
PDX 144 PETERS QUEST. A GREAT ARCADE PLATFORM GAME.
PDX 181 RETURN TO EARTH. A SPACE TRADING GAME.
PDX 112 BROKER. A STOCK BROKING GAME.
PDX 78 ADVENTURE CREATOR. INCLUDES AN ADVENTURE.
PDX 86 COMMUNICATION DISK. MODEM PROGRAMS + ACCESS.
PDX 132 LABEL PRINTING DESIGNER. PRINTS DISK LABELS.
PDX 141 GHOST WRITER. MAKE YOUR OWN BOOTUP SEQUENCE.
PDX 148 ALCATRAZ. A GREAT MUSIC DEMO/ANIMATION.
PDX 76 EXPLORATION. A BRILLIANT ANIMATION SEQUENCE.
PDX 129 MICHAEL JACKSONS SMOOTH CRIMINAL SAMPLE.
PDX 145 PUMP UP THE VOLUME. ACID MIX.
PDX 49 GAMES MUSIC CREATOR.
PDX 70 CLERK. AA SMALL BUSINESS.
PDX 208 GAMES DISK 10: STAR-TREK, GERBILS, BOOMERANG +
PDX 205 MASTER VIRUS KILLER. DATABASE OF OVER 105 VIRUSES.
PDX 207 COMMODORE 64 EMULATOR.
PDX 211 BOOTBENCH. MANY BOOT MENU MAKERS ON THIS DISK.
PDX 206 THE EVIL DEAD. SHOOT THE CREEPIES AS THEY APPEAR.
PDX 72 QBASE & QSPREAD. A DATABASE AND SPREAD SHEET.
PDX 27/28 HOMEAPPLICATIONS. USEFUL PROGRAMS (2 DISKS).
PDX 85 SMALL BUSINESS INVOICE PRINTER.

ALL DISKS ARE £1.50 EACH Catalogue free with orders

MAKE CHEQUES PAYABLE TO - DIGITAL APPLICATIONS AND SEND TO, 118 MIDDLE CROCKERFORD, BASILDON, ESSEX, SS16 4JA. PHONE 0268 - 553963
MON TO FRI 10AM TO 6 PM

KULT FOLLOWING

With every new 12 month subscription to the DIRECTORY, we will give away a FREE copy of KULT- a game for Atari 520-1040 ST. (Colour moniter only.) Late subscribers will receive 1 free issue. THAT'S 5 FOR THE PRICE OF 4! Yipeee.



Please send me one year's subscription to THE DIRECTORY!

I enclose my cheque/money order for £_____ made payable to MCPC Ltd or debit my

Access/Visa card No. _____ Expiry date _____

Name _____

Address _____

_____

_____

Post Code _____

Signed _____ Date _____

Send to; MSM Subs. Dept., Lazahold Ltd., P.O. Box 10, Roper Street, Pallion Ind. Estate, Sunderland SR4 6SN.
Subscription rates, including Airmail service, UK £11.80, EUROPE £18.00, REST OF THE WORLD £24.00.
Closing Date MAY 30th 1991. DS91.(offer while stocks last only.)

? ? Do you get the best out of your Amiga ? ? ?

Amiga Amiga Amiga Amiga Amiga Amiga

The U.K. Amiga Users Group is the Largest Amiga only user group in the world. We are now in our fourth year and are the most established and experienced Amiga user group in the U.K. We have over 1,500 members and are able to offer an unrivalled level of support. Our members receive a 60+ page bi-monthly newsletter packed with articles of interest at all levels, we have a massive library of public domain software and run an Amiga only bulletin board. We offer our members superb discounts on all hardware,software and books. The U.K.A.U.G. is the group to belong to regardless of your age or level of experience, our aim being to provide support and encouragement to everyone. Why not join us and start to appreciate what Amiga computing is all about.

For more info' send a stamped addressed envelope or telephone...

The U.K.Amiga User Group

144 Charles Street
Leicester LE1 1LB

(0533) 510066

Reach the top with..... **LCL** **NEW**

Self-Tuition Courses

World leaders - Hons graduate/teacher authors - At all major shows - £5 off total for 2, £10 off for 3

READING WRITING COURSE **NEW**

NATIONAL CURRICULUM (AT 1-5) 24 program course teaching reading & writing plus 2 books & voice tape £24

PRIMARY MATHS COURSE Complete course for ages 3-12 years with full screen colour graphics.
NATIONAL CURRICULUM (Levels 1-4). 24 programs + 2 books. £24

MEGA MATHS A-level step-by-step course of 24 programs. Full screen graphics for calculus. £24 (Amiga, CPC, BBC).

MICRO MATHS

Complete course taking beginners to GCSE in 24 programs on 59 topics + 2 books. £24 (Amiga, ST, PC, PCW, CPC, BBC)

MICRO FRENCH

Complete course taking beginners to GCSE, with real speech & graphics adventure game, 24 programs + 2 books. £24 (Amiga, BBC)

MICRO ENGLISH **NEW**

Complete course taking age 8 years to GCSE. Also for EFL. Now covers writing (punctuation, spelling etc), reading and oral. 24 programs and 2 books at £24 (Amiga, PCW, CPC, BBC).

Send coupon and cheques/PO's or phone orders or requests for free colour poster/catalogue to:

LCL (DEPT AMF) THAMES HOUSE, 73 BLANDY ROAD, HENLEY-ON-THAMES, OXON RG9 1QB

Phone now for immediate despatch

VISA **or ring 0491 579345 (24 hrs)** Access

Name .....
Address .....
Title .....
Computer .....

KCS POWER PC BOARD

THE PC EMULATOR FOR AMIGA 500

DUE TO RECOVERY OF DEVELOPMENT COSTS

KCS ANNOUNCE PRICE SLASH

Only £199.99 ex VAT (234.99 inc VAT) complete

Run professional MS-DOS software on your Amiga 500 at a price you can't resist.

SPEED – OUTSTANDING (faster than many 286 AT's (Amiga Format Oct/90) now even faster with new software upgrade ver 2.0

COMPATIBILITY – EXCELLENT (All the software I tried ran perfectly – Computer Shopper Feb/91)

CONVENIENCE – A DODDLE (For a plain plug 'n' go pc emulator with no installation hassle there is no competition – Computer Shopper Feb/91) Fitted in seconds and does not invalidate your guarantee

MEMORY – AMIGA IMB RAM +512K RAM disk
PC 704 KB + min 192 KB ems

DISK SUPPORT – Floppy 3.5, 5.25, H-D A590, (other hard drive support to follow – software upgrade)

VIDEO SUPPORT – MGA – Hercules – GGA 16 col (dynamic) (EGA – VGA soon)

ALL UPGRADES ARE SOFTWARE BASED

VALUE
JUST SEE FOR YOURSELF

INCLUDED WITH KCS BOARD	WORTH
MS-DOS 4.01 GW basic Shell inc manuals (not GW Basic)	£80
Phoenix DOS help	£55
1MB on board memory plus clock	£64
KCS PC Emulator	£35.99
TOTAL	**£234.99**

So whats the point in having a wizzo processor if its no faster (Amiga Computing Jan/91) – and invalidates your guarantee

Compatibility is excellent but no-one can guarantee every single program available, therefore if your purchase depends on a particular program, please ask us first or send in a copy of the program. (With suitable S.A.E if to be returned). Price subject to change without notice.

BDL **BITCON DEVICES LTD.**
88 BEWICK ROAD, GATESHEAD,
TYNE & WEAR, NE8 1RS ENGLAND
TEL: (091) 4901919/4901975
FAX: (091) 4901918

Access *Trade enquiries welcome UK & Export* VISA

Super Monaco GP

US Gold £24.95

If you can stand the spine-twisting seat of the coin-op, Sega's Super Monaco GP is a brilliant race game. Massive sprites are used to recreate the Monaco circuit, with the finishing touch given by the sporty new Formula One "butterfly" gearshift behind the steering wheel. Both of those were obviously going to be compromised for the conversion, but there was hope for a decent replica, as the anonymous programmer of Super Hang On and Power Drift was drafted for the 16-bit conversions.

Instead of a straight conversion of the coin-op, we're given a kind of 12" remix. The original featured the Monaco circuit and nothing else. A race game with one circuit isn't going to win many fans, so another three have been added to the Amiga version. This means that before you get to race around the Monaco circuit, you have to get through three very difficult qualifying rounds.

Your four-race season begins in France. Qualification takes place on an empty track, but it's not without its hazards. Setting the mood for the rest of the game, the qualification is an all or nothing affair. Getting pole position is easy enough, as long as you don't crash. One little knock, and you could find yourself out of the race.

Back on the grid once more, the race gets underway. If you're unlucky, you'll have to race in the wet. Your car doesn't have great traction at the best of times. In the wet, it slides around all over the place, demanding you keep your speed right down. Either way, almost all the bends need to be rounded with extreme caution. As in the qualifying lap, just one little scrape can send a front wheel spinning into the air, bringing the game to an abrupt end. The further you get into the game, the more infuriating this becomes. As far as arcade race games go, it's a rule of thumb that the player is never instantly put out of the race because of a single error. There are good reasons for this, and Super Monaco GP would have done well to conform to the rule. Why it punishes mistakes so severely is strange, as I've never encountered the problem with the coin-op.

Technically, Monaco GP is impressive. The update is fast, and the graphics are neat. It's not exactly a rip-roarer when it comes to sound, but it does the job.

Rather than putting the extra tracks before the Monaco race, it would seem a better idea to have done it the other way around. Some lesser skilled fans of the coin-op may never even get to race the Monaco GP! It could have been a great game. Instead, it's a missed opportunity that's going to disappoint fans hoping for a conversion that's just like the original.

Tony Horgan

DECISION

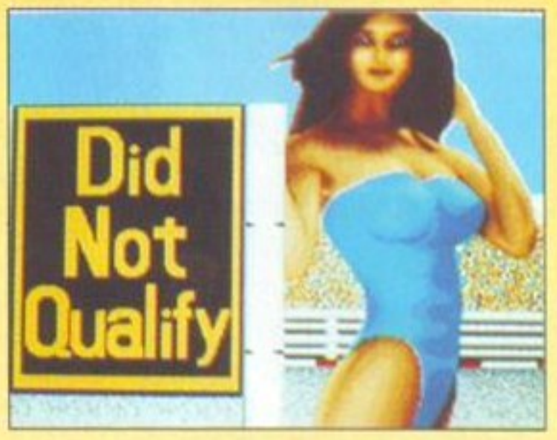
Decision: 67%
There's fun to be had, so long as you can handle the frustration.

Graphics: 78%
The roadside scenery is speedily animated, but looks as if it's moving backwards at times.

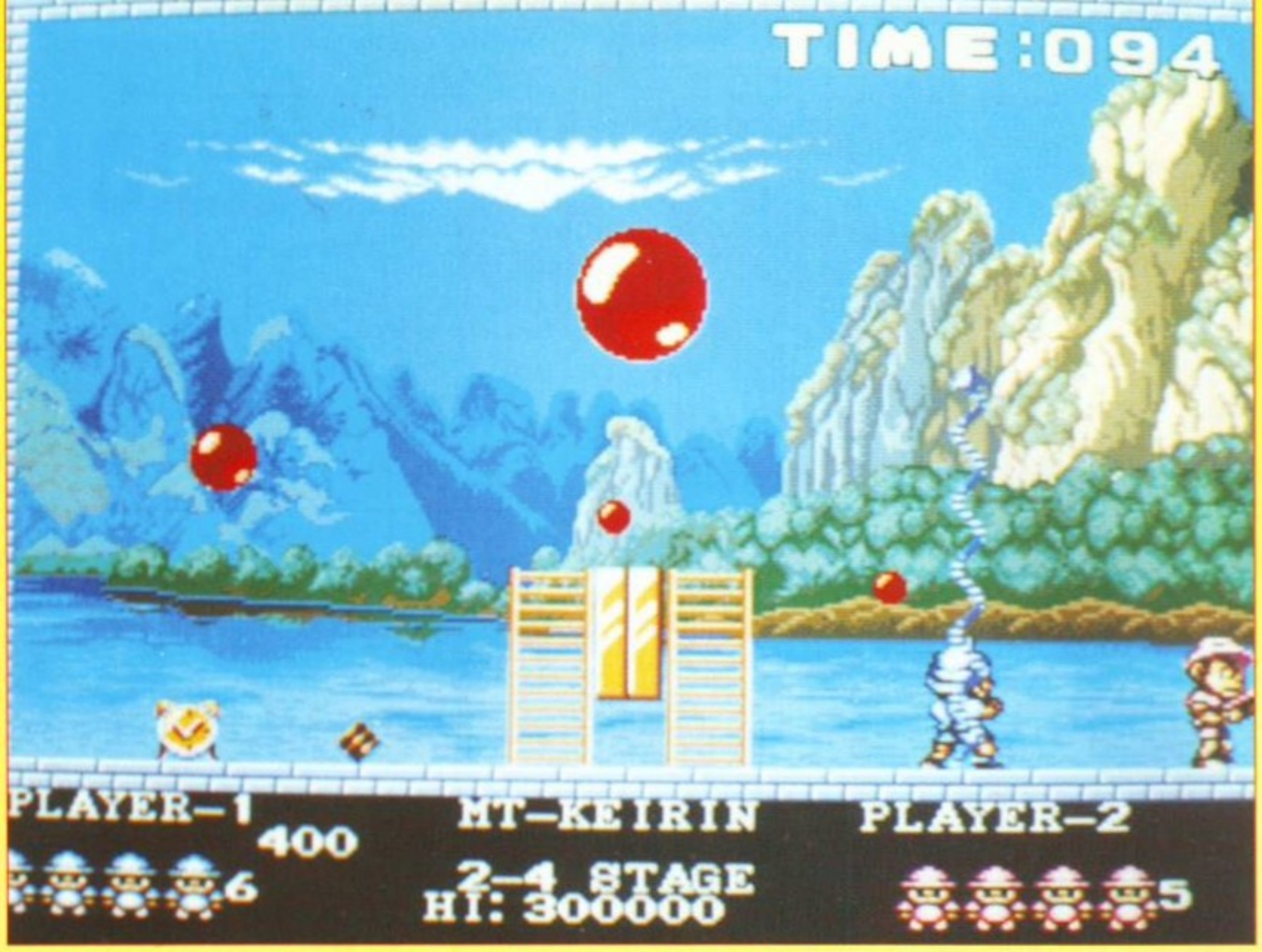
Sound: 60%
The absence of the bleepy music would be no loss, but the in-game effects are adequate.

Gameplay: 66%
If you get off on pulling your hair out and beating your head against the wall, you'll have the time of your life.

Difficulty: 9/10



"As far as arcade race games go, it's a rule of thumb that the player is never instantly put out of the race because of a single error."



Player two seems to have had enough, and this is only the beginning! The alarm clock on the left of the screen can be used to freeze balloons, while the dynamite blows them into tiny bubbles.

Pang

Ocean £24.95

What a stupid idea! Who on earth would think up a game that involves travelling round the world, shooting balloons with harpoon guns? Who else but the Japanese...

Simple, satisfying gameplay is where Pang scores. It's like a cross between Space Invaders and Asteroids, and occasionally it turns into a platform game. Instead of a spaceship, you control a safari-suited cartoon kid. The asteroids are changed to balloons, but like asteroids, they divide into two smaller balloons when they're shot.

The game takes place in a series of enclosed screens. Starting in Japan, you tackle your first balloon before a backdrop of lush green mountains. Pressing the firebutton sends a harpoon spiralling up the screen. If the balloon hits either the point or the dangling rope, it splits in two. Each balloon splits into another smaller pair, until they get so small, that they disappear altogether. Clear them all and you've cleared the screen.

As you work your way across the globe, the screens get more crowded, with more balloons, platforms, ladders and various wildlife complicating matters. Some balloons hold bonus items, including pistols, shields and harpoons tipped with grappling irons.

If you feel things are getting a bit predictable, have a go at the simultaneous two-player mode. With both players dashing around the screen, frantically trying to burst more balloons than the other, you can get through your stock of lives in no time! The screen has to be restarted when one player is hit by a balloon, so it can be a right uphill struggle if your partner's no good.

This is one of the closest arcade conversions I've ever played. It's barely distinguishable from the coin-op; put it in a coin-op cabinet and no-one would notice the difference. The sprites are superb. Both the players have a cute monkey-like appearance, blinking their big eyes as they totter across the screen. With clever use of different colour schemes, the equally impressive backgrounds are recycled without looking cheap. A typically jingly tune plays in the background, along with some good balloon-bursting sound effects.

Pang is the sort of game that's simple enough for the youngest gamers to get into, but still has a lot to offer the rest of us. The difficulty level can be set to one of four levels, so there's no problem there. Ocean France have done the business again, with a carbon copy of a very playable coin-op. Give it shot if you fancy something a bit different.

Tony Horgan

DECISION

Verdict: 82%
Just like the coin-op!

Graphics: 94%
Excellently animated cuddly sprites and colourful backgrounds.

Sound: 70%
Twinkly jingles and decent sound effects.

Gameplay: 84%
Instantly addictive.

Difficulty: User-definable (2-8/10)

The familiar backdrop to Japan's Mount Fuji is an appropriate choice for the tranquil first level.

The world is your toaster . . . . pick your destination from the stylised map.

Ouch! Player one gets a soapy bubble in his eye, and loses his last life.

Norbert the Narc tests out his new rocket launcher.

Narc

Ocean £24.95

Narc's a funny old coin-op. It houses some extremely high resolution graphics hardware, but uses it to display some very unspectacular sprites and backgrounds. Still, helped along by the William's brand name that's etched onto the minds of millions of Defender addicts, it made its mark. Unfortunately, it looks less certain to make an impact in its Amiga incarnation.

Had the central character been a crazed gunman, and the "enemy" cast as innocent civilians, Narc would no doubt have caused an outcry for its extreme bad taste. Blowing away crowds of people for with bazookas and shotguns is, however, okay if the bloke with the gun is a cop, and the crowds are dope dealers. That's one way of silencing the shoot 'em up critics I suppose.

Twelve modestly dimensioned levels make up the game. The idea's pretty simple: blow away as many enemies as possible on your way to the level's exit. You're armed with two guns. One has an unlimited supply of normal bullets. The other is just for special occasions, like when a whole bunch of men come at you in a line. Let rip with a rocket, and the felons are reduced to a pile of gory lumps.

Most levels have their own particular enemies, but the bulk of your lead finds its way into the swarms of dirty old men in brown raincoats. These are backed up by packs of dogs, constantly yapping at your heels. To get rid of these you have to crouch down and fire your gun, but the controls are so unresponsive at times, you hardly ever get the chance. This is made even worse by the habit the dogs have of sticking to you like superglue. Trying to shake them off doesn't get you far. As soon as you've got rid of one, another three or four turn up its place.

The graphics are fairly close to the originals, with the reduction in resolution of course, but look very dated. The backgrounds seem to have been knocked together from a collection of hastily-drawn brickwork patterns, shop fronts and doorways. The juddery scrolling does nothing to help its looks (another victim of the old ST-port syndrome?).

Although there are twelve levels, there's very little variety. No level guardians, no extra weapon pick-ups, and a distinct lack of imagination in the level designs. Hardcore fans of the coin-op will get something out of it.

Tony Horgan.

DECISION

Decision: 56%
Have a look if you're mad about the original, but don't expect too much.

Graphics: 53%
Dodgy scrolling, plain backdrops and wooden sprites.

Sound: 70%
Sampled blasts, bangs and barks do the job.

Gameplay: 57%
Monotonous after the first few minutes, with nothing much to keep you going for long.

Difficulty: 5/10

Put the card in the bank machine to open the exit.

Norbert demonstrates two methods of arrest, one rather more violent than the other.

CHIP'S CHALLENGE

EPYX £24.95

DECISION

Decision: 67%

Playability: 69%

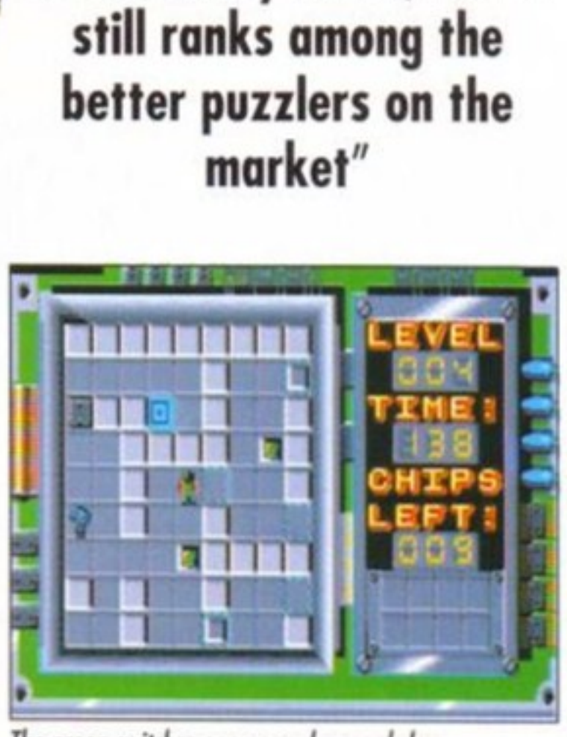
Absolute Value: 67%

Price: £24.95

Pick up the water shield to cross the moat, to get the spiked boots to grip the ice, to get the fire shield to cross the flames, to get the magnet to stop the conveyor belt. Get the idea?

When you cross the thief square, marked with a masked bandit, make sure you're not carry any vital equipment. The blue circles are Guantlet-style teleports.

"Few are going to find it as absolutely compulsive as Gameboy Tetris, but it still ranks among the better puzzlers on the market"



The green switches open one door and close another. The glowing blue square just above Chip is the exit.

It doesn't look like an Epyx game, does it? We've come to expect ground-breaking graphics and gameplay from the former-king of computer games. So why then, does Chip's Challenge look like something from the days of the Vic 20? Well, as they say, the old ones are the best, aren't they?

It kicks off with a long-winded copy protection check. It uses the old code-wheel technique, and demands you input three correct codes before you get into the game. Those with less than perfect eyesight should beware, because in order to make photocopying impossible, the codewheel is printed with a glossy black ink, on mat black card. An interesting contribution to the current anti-piracy furore.

"The first few levels gently break you into the flow of the game, introducing the various features and traps without overwhelming those of us too lazy to read the instructions."

The game itself is a variation on the Gauntlet theme, with the emphasis switched from monster bashing to puzzle solving. Each of the 144 scrolling screens has an exit leading to the next. Before you can leave through the glowing portal, you have to round up a certain amount of silicon chips, which varies from level to level. The first few levels gently break you into the flow of the game, introducing the various features and traps without overwhelming those of use too lazy to read the instructions.

Picking up chips isn't just a matter of munching dots Pacman-style. Most are blocked off in one way or another. Locked doors are a common problem, which can only be opened with their corresponding colour-coded keys. Water are fire are no-go areas unless you've found the appropriate shields. Conveyor belts act as one-way systems, ice can be countered with spiked boots, and a selection of switches toggle various other obstacles. You're given a password after each completed level, but if you continually fail to solve a screen, you get the option to jump to the next. Together, these features manage to rule out boredom from playing the same levels over and over again.

If you're after meaty sound effects and funky music, you'll be disappointed. Chip's Challenge does the best impression of an Atari ST you'll ever hear. The block-based graphics aren't going to have you foaming at the mouth either. Nice sounds and graphics aren't, however, the most important factors here. As there's no lives system, you can take things at your own pace, experimenting without fear of being thrown back to the start. Few are going to find it as absolutely compulsive as Gameboy Tetris, but it still ranks among the better puzzlers on the market, thanks to its laid-back style spiced up with an occasional increase in pace.

Considering the low sonic and visual standards, along with the old style gameplay, a more modest pricetag would have gone down well. Still, if you're hungering for a puzzler, you should get your fill from Chip's Challenge.

Tony Horgan

Access

VISA

State of the Art

FREEPOST
STATE OF THE ART
39 HEREFORD STREET
SHEFFIELD S1 4PP

Basic Amiga 500

COMES WITH WORKBENCH 1.3, EXTRA'S DISK, TUTORIAL DISK, ALL WITH MANUALS AND FULL ONE YEAR WARRANTY. INCLUDES MOUSE, TV MODULATOR AND CABLES

★★★★★★★★

ONLY
£296 INCLUDING VAT!
OR £329 WITH 1MB UPGRADE!

★★★★★★★★

Screen Gems Pack

ALL OF THE ABOVE PLUS:
SHADOW OF THE BEAST II
BACK TO THE FUTURE II
DAYS OF THUNDER AND NIGHT BREED.
T-SHIRT AND DELUXE PAINT II

★★★★★★★★

ONLY
£349 INCLUDING VAT!
OR £379 WITH 1MB UPGRADE!

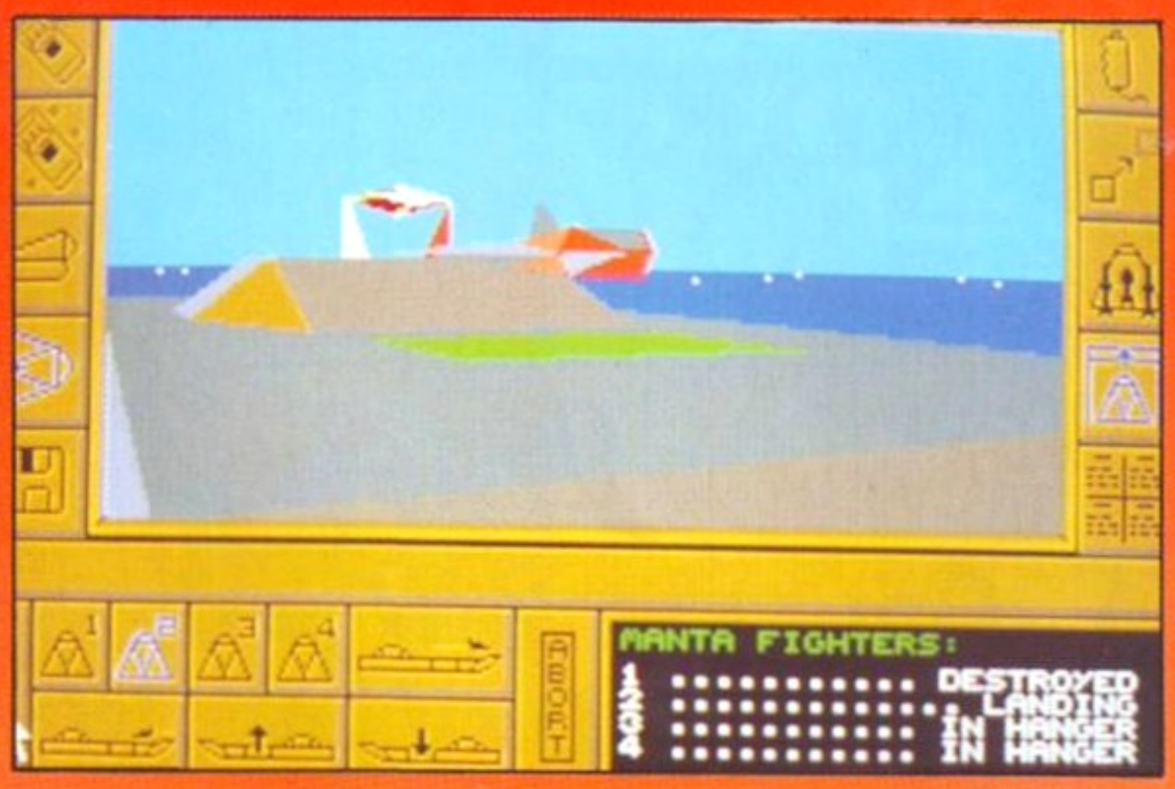
★★★★★★★★

0742 700310

0742 700310

Carrier Command

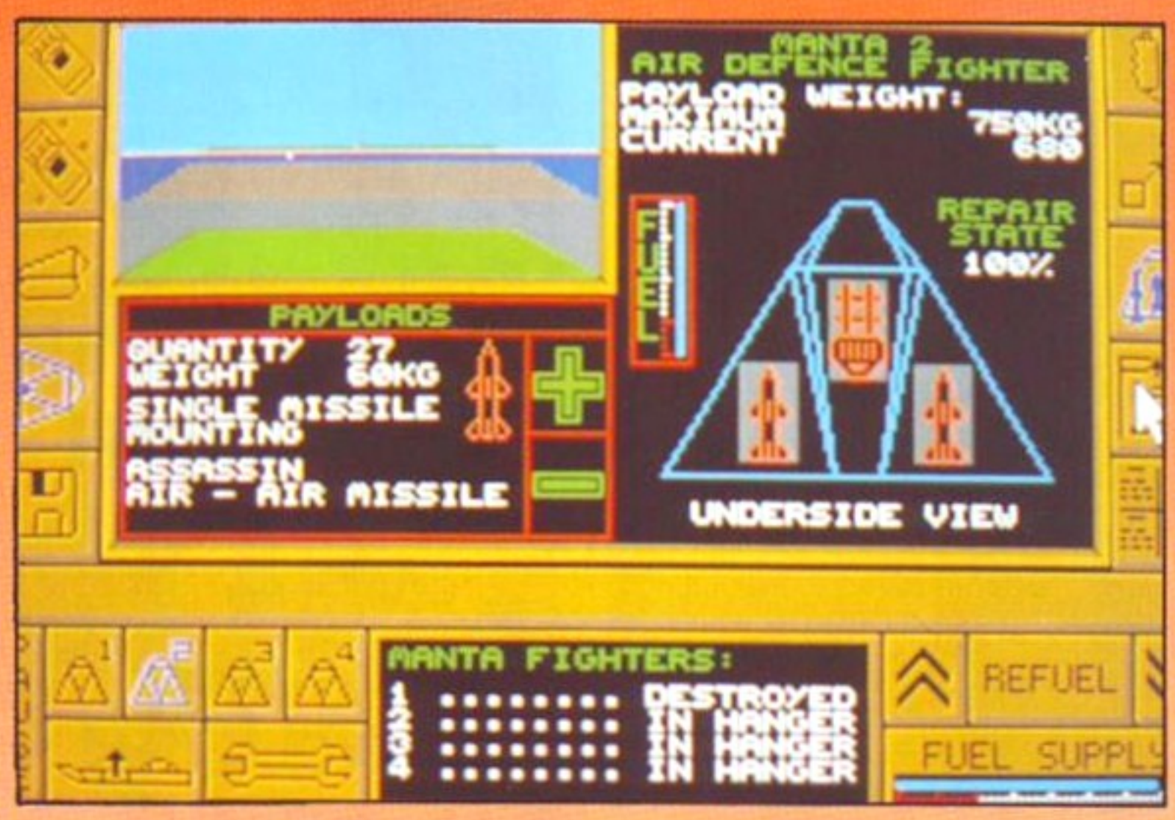
Mirror Image
£9.99



If it weren't for its speedy graphics, Carrier Command could easily be mistaken for one of Mike "Midwinter" Singelton's games. The game's big, the manual's big, and if you're going to get anywhere with it, your commitment has to be pretty big too.

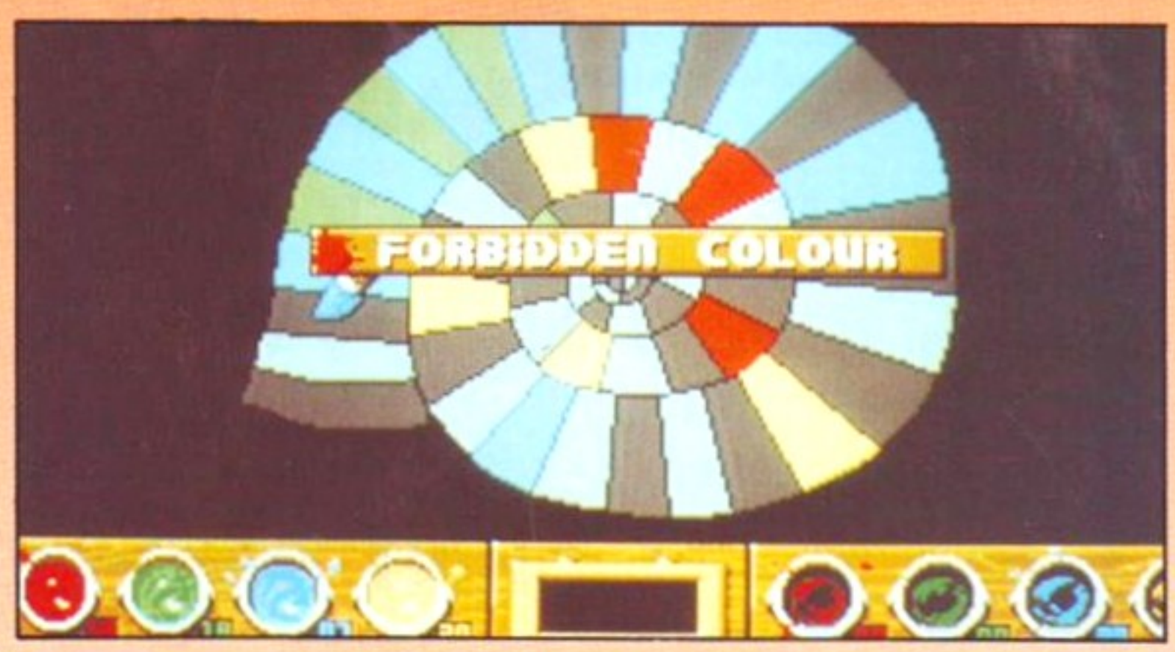
It's all about taking control of a mass of newly formed volcanic islands. You attempt to do this with a small fleet of planes and amphibious vehicles, which are controlled from your HQ on the bridge of an aircraft carrier. You can control any of the vehicles directly, or program their autopilot computers. You'll need to spend quite a while just figuring out what to do, and once you've done that, you've got to put your plans into action. Carrier Command is definitely not everyone's cup of tea, but if you go for this sort of thing, there's plenty to get your teeth into.

Decision: 80%
Difficulty: 9/10



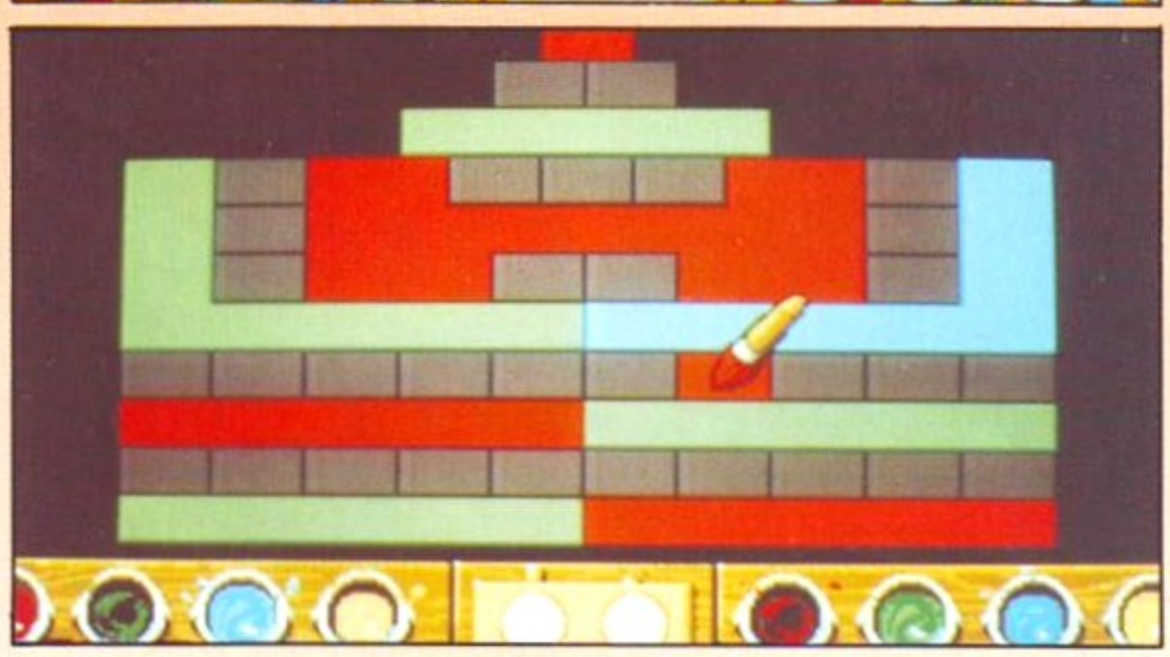
Quadrel Loriciel

£24.99



Did you know you can fill the regions of any map with no more than four colours, without ever having two identical colours bordering each other? You do now. Try it if you doubt it.Quadrel uses this "theorum of four colours" as a basis for a simple game. It's primarily a game for two players, although there are a couple of solo modes. Played with two, the idea is to colour a "map" (really a rectangle divided into many smaller boxes), according to the theorum. You're given a certain amount of paint, which is randomly divided into four colours. If your opponent has a predominance of blue for example, colouring the larger squares with your own blue paint blocks off every adjacent zone for his own blue paint. When one player can't colour any of the empty areas, the other has won. It's an interesting idea, and is moderately entertaining for a while, but has no real depth or staying power. In fact, it's very similar to the pen and paper game "dots and boxes". If there's not a PD version available now, I'm sure there will be very soon.

Difficulty: User-definable from 3-6/10
Decision: 40%



ENTERTAINMENT

Monster Pack Volume 1

Psygnosis £20.99

Three very different games from Psygnosis' back catalogue have been compiled to form their first Monster Pack: Infestation, Nitro and Shadow of the Beast.

Infestation is a sci-fi arcade adventure of the 3D vectored kind. On a nearby moon, thousands of alien embryos are quickly developing inside their eggs, and if left alone, will form an awesome fighting force, and invade your home planet. You've been sent to the aliens' base to kill the hatchlings with poison gas. Once you've done that, the powerstation has to be rigged to blow up the moon. Its style runs loosely along the lines of Mercenary and Damocles, and although the graphics aren't the fastest ever seen, the eerie atmosphere keeps you snooping around the game for some heavy sessions. Even if the plot has been lifted from Aliens, it makes a pretty involving adventure.

For some, Nitro will be a far more digestible game. It's a variation on the Hot Rod/Super Sprint theme, with a futuristic slant. Races take place across multi-directionally scrolling tracks, set in city centres, deserts and woodlands. Fuel is in short supply, and if you run dry during a race, it's game over. The scrolling is smooth and the controls responsive. It lacks a certain flair that would make it a classic, but Nitro is still up there with the best Amiga racing games.

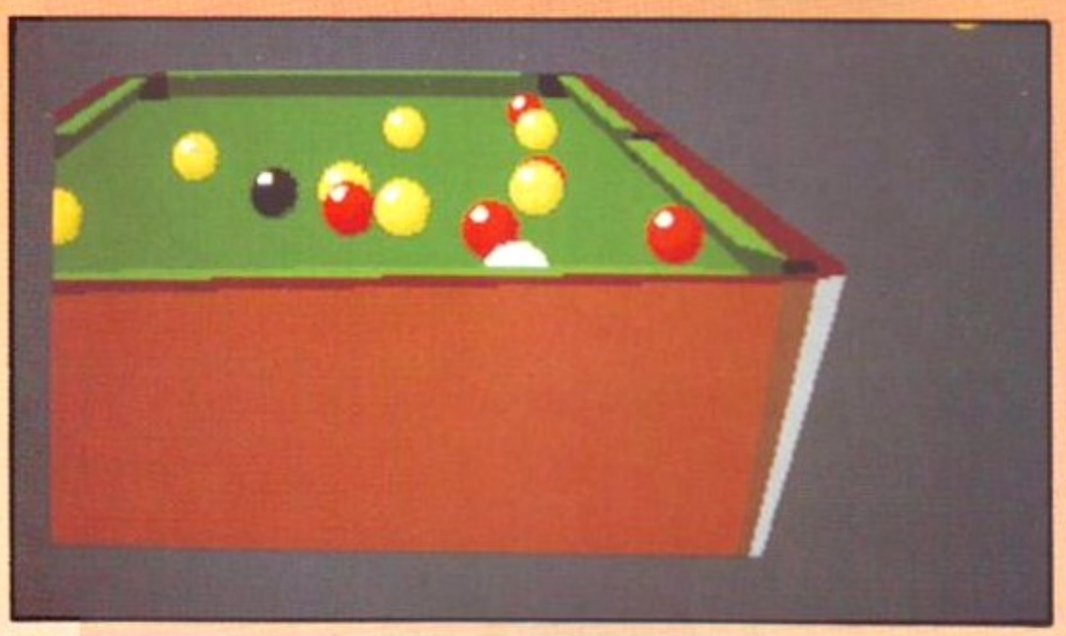
Finally there's Shadow of the Beast. This is the original Beast, not to be confused with the sequel. Excellent technical standards are the star of the show. Multi-plane parallax scrolling can be found all over the place, with loads of massive monsters scattered throughout the levels. To be honest, there's not a great deal to the gameplay, but the stunning graphics and spooky sounds are so impressive, that you keep playing if only to see what's round the next corner.

All three games alone are worth the price of the compilation, so if more than one appeals, it's well worth a shot.

Difficulty: Infestation: 8/10
Nitro: 6/10
Shadow of the Beast:7/10
Decision: 90%

3D Pool

Mirror Image £9.99



3D Pool is a pacey scrolling shoot 'em up. Well, no it's not actually. Despite the misleading title, it's a 3D pool simulation, another budget re-release from Mirrorsoft. It's played in a ghostly void, with the pool table drawn in solid vector graphics. The full complement of sixteen balls are light-source shaded, and move around the table in realtime. There's no visible cue or crosshair to help you line up the shot. Instead, you view the table from the tip of your imaginary cue, so when you hit the ball, it always travels directly "into" the screen. It's a strange idea, but it works. Even so, it could still do with a crosshair fixed to a vertical axis in the centre of the screen. The balls move around realistically, although it can be a little slow, as you might imagine. The only irritating feature is the very low top-end of the power bar, which doesn't allow very fast or hard shots. It's a great game anyway, which may be bettered by Archer McLean's forthcoming 3D Snooker, but for now it's in a class of its own.

Decision: 89%
Difficulty: 7/10

AMIGA HARD DISKS AND RAM

Fujitsu 3.5" SCSI Hard disks

43Mb, 25ms, 1" high	£199
90Mb, 19ms	£349
135Mb, 19ms	£469
180Mb, 19ms	£520

All Fujitsu drives fully support synchronous SCSI transfer (with Amiga 3000 and some Amiga 2000 controllers).

Tapestreamers now available!

150Mb SCSI tapestreamers now available. Prices start at £399. Please ring for details.

Seagate, WD, Toshiba, Maxtor

Far too many drives to list here, please ring for details and prices. MFM, RLL, ESDI, SCSI and AT drives available.

Amiga SCSI controllers

You will need a SCSI controller to use any of the hard drives listed above. Please ring for the latest prices on ICD, Microbotics and Commodore controller cards.

RAM Chips

256x4 80ns DRAM (For A590, A2091, A540, etc.)	£38 per Mb
1 Mbx1 80ns DRAM (For A2058, 8-Up, etc)	£40 per Mb
1 Mbx9 80ns SIMMS (For GVP Series II, etc)	£42 each
4Mbx9 80/70ns SIMMS	£CALL

Plus 3.5" SCSI Hard disks (Quantum)

52Mb, 17ms, 1" high	£249
85Mb, 17ms, 1" high	£399
105Mb, 17ms, 1" high	£439
120Mb, 15ms	£499
170Mb, 15ms	£689
210Mb, 15ms	£749

All Plus hard disks have a 64kb inbuilt cache which gives an 11 ms read access time. Quantum is a subsidiary of Plus Development.

FREE PUBLIC DOMAIN!

Buy any hard drive over 100Mb from us, and we will put on as much free Public Domain software for the Amiga as you want! Just say how much you want, you can list specific Fish disks (1 to 410) in your order if you wish.

Almathera Systems Ltd.

Tel (081) 683 6418 Fax (081) 689 8927

Challenge House, 616 Mitcham Rd, Croydon, CR9 3AU.

All prices **include** VAT and delivery.

Data cables and 5.25" mounting frames are extra. Free PD can only be provided for controllers that support Commodore's Rigid Disk Block standard (CBM A2091 & A590, GVP Series II, Microbotics Hardframe, ICD etc). Please check your controller manual.

All prices are correct as of 14th March 1991. E&OE. All trademarks respected.

SORRY! THE WORLD IS OUR LIMIT!

TOP QUALITY 3.5" DS/DD DISCS AT EXPORT PRICES

ALL OUR DISCS ARE GUARANTEED

CALL FOR TOP PRICES ON ANY AMIGA SOFTWARE

NUMBER OF DISCS ORDERED	PRICES PER DISC IN BOXES OF 10 WITH LABELS					
	GERMANY DM	U.K. £	U.S.A. $	ITALY LIRE	SWEDEN KRONE	SPAIN PESETA
10-90	0.96	0.33	0.65	740	3.60	62
100-490	0.92	0.32	0.63	710	3.50	60
500 +	0.87	0.30	0.59	670	3.30	56
	IN BOXES OF 50 WITHOUT LABELS					
50-450	0.87	0.30	0.59	670	3.30	56
500+	0.83	0.29	0.57	640	3.20	53
POSTAGE (per order)	10.00	3.50	7.00	7700	38.00	650

Outside Europe : Shipping charged at cost.
Payments accepted in other currencies at current exchange rate against DM.
Please Note: These prices do not include any local taxes (eg VAT)
Prices subject to variation following changes in exchange rates etc.

To: GTI International Amiga Service, Zimmersmuhlenweg 73, 6370 Oberursel, West Germany.
Telephone (49) 6171 73048 Fax (49) 6171 8302

Please send me _____ 3.5" DS/DD Discs in boxes of ☐ 10 ☐ 50.

Name _____ Address _____

Method of Payment:

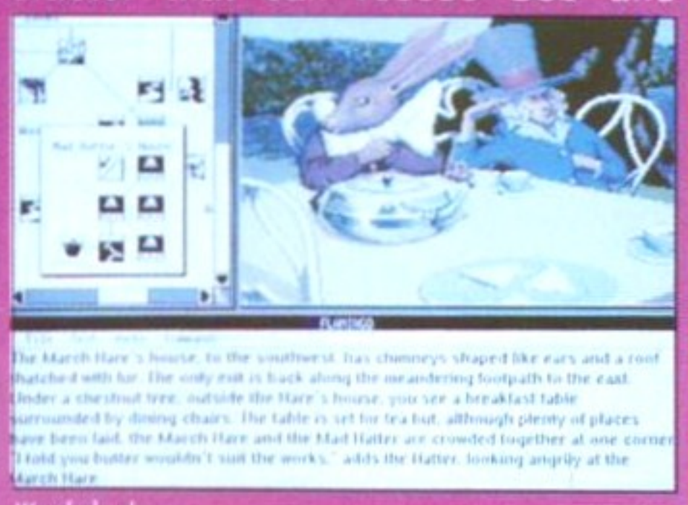
- ☐ Eurocheque enclosed.
- ☐ Cash Enclosed *(Please use registered mail!)*
- ☐ Acces/Visa/Eurocard/Mastercard/Amex/Diners
- ☐ *(Credit Card Number _____ Expiry_____)*
- ☐ Cash-on-delivery *(only available in Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland).*

ADVENTURE NOW!

WITH ANDY MOSS

There are now many many new Amiga owners who are only just experiencing the tremendous entertainment capabilities of our splendid computer system. With this thought in mind, (and an unusually quiet month for new releases) I have taken the liberty this month to look back at some past Infocom classics to whet the appetite of adventures new and old particularly as they are now available on Virgin's Budget Label at £9.99. Couple this with a review of the Colonel's Bequest, new from Sierra, and you have the makings of a great column. But first the news. Has Cinemaware popped its corn?

It seems that my old friend Bob Jacobs has finally run out of steam. Cinemaware, up to its neck in debt, looks set for a demise that can only be halted if a buyer can be found very quickly. This is particularly sad news, as the company was one of the very few American software publishers dedicated to developing games on the Amiga first. With massive hits like DEFENDER OF THE CROWN, ROCKET RANGER, IT CAME FROM THE DESERT, LAND OF THE RISING SUN, AND LATERLY, WINGS, Cinemaware built a reputation for fabulous graphics and sound combined with sound strategy and depth of play. It is all too easy with the benefit of hindsight to point out why a business fails, particularly when the man at the top is so full of enthusiasm and energy about his company. However, the warning signs were evident when I visited him in California a couple of years ago. I remember thinking, when I was shown around the spacious new office complex with the purpose built Chinese rock garden surrounding it complete with streams and bridges, that there was an expansion program running here that could get out of control. Bob's unending enthusiasm, and positive thinking, coupled with the brilliant successes of his products pushed him into borrowing vast sums of money to finance projects that were just pipe dreams at other companies. He showed me the results of his 12 month development into interactive video entertainment, where live actors performed a scenario that was driven by your computer inputs. A huge investment in people and CD hardware that was still only in a embryonic state. He branched out into extra work with Disney and consoles, a partnership that whilst potentially lucrative was very expensive to fund. His staff numbers increased dramatically as more and more of his visions were put into real development. How was he to know that the world recession would come when it did? Bob does not know the meaning of slowly slowly catchee monkey. In the end it all proved too much, a bit like the Infocom story I suppose, but I hope that somewhere out there lies a benefactor that can rescue Bob and



Wonderland

Cinemaware from its problems, because the talent that lies within is extraordinary. All it needs is a long leash to stop it running away and getting lost.

WONDERLAND READY?

Here are some new clips from the Amiga version of Mag Scrolls Wonderland which is almost ready for release. Having played the PC version, I can tell you that the game

▲ *Command HQ*

is well worth the wait. As far as I am concerned, text adventure purists will be salivating playing it, with a wealth of options and windows, and pics, and maps,and humour, and story and everything. Where can they possibly go from here?Also talking about new clips, here are some latest shots of FLAMES OF FREEDOM, the Midwinter sequel from Mike Singleton. Looks good don't it?

INFOGRAMMES GO TO ANCIENT CHINA

What has a cast of over 250 characters, each with individual personalities, speech habits, and social standing, a sophisticated battle system that incorporates everything from seasonal terrain changes to fireballs and magic, and four separate scenarios for one to seven players BANDIT KINGS OF ANCIENT CHINA is what, a sort of eastern Defender of the Crown mixed with ladles of war strategy that has you, as the Emporer's last chance, to unite China against the rampant hordes of the evil minister Gao Qiu. Sounds like rivetting stuff.

MICROPROSE IN GLOBAL CONFLICT

Yes folks, the ultimate in global warfare will soon be at our fingertips. COMMAND HQ gives you the opportunity to compete in either World War I, II, or even future conflicts as Supreme Commander of your forces. You can after deciding your strategy, mover your land, sea and air forces to conquer territories, and assimilate nations and resources. When a particular battle commences all the action is seen through detailed 3D animations, like a short film.

Also due out now is the Amiga version of RAILROAD TYCOON, a Sid Meir barnstormer of the perils of setting up a railroad in the Old West. These screen shots really seem to capture the Old West flavour and colour. Reviews of both these games shortly.

▲▼ *Flames of Freedom*

▼ *Railroad Tycoon*

US GOLD GET IN ON THE ROLE PLAYING ACT

Two more role players from US Gold, care of New World Computing, the people who gave us Might And Magic. THE LEGEND OF BILLY BOULDER, is set in the stone age and has your good self cast as the hero to defeat a wicked wizard who has bewitched a fair princess (who ever heard of a princess in the stone ages). Thousands of hidden caveways,dens, jungles and lakes with 22 cities, each comprising 50 different stores, jails and casinos. KINGS BOUNTY is the second on offer, where the mission is to track down a group of cunning master villains across the kingdom of Four Continents. It is a race against time as you recover pieces of the map that will lead you to the hidden Sceptre of the Order and the salvation of the Realm.

THALION FLYWAY

I have it on good authority. Thalion are to make arcade games no more. Instead they are to concentrate solely on flight simulations, not 'Wings' type action sims mind, but pure state-of-the-art-accurate-never-been-done-as-well-as-this-before type sims that really mean business. Two are already about to be launched. The first is a detailed Air Traffic Control sim (review next month) and the second will be the first ever simulation of a commercial airliner that can fly anywhere in the World. It is also the first to be fully endorsed by an airline, Lufthansa , who are backing this project all the way. Thalion assure me that the constant fight between cockpit detail and out-

The Legend of Billy Boulder.

▲ *The Colonel's Bequest.*

side views, (neither of which have been satisfactorily computerised for me so far) have finally been resolved. We wait.

THE COLONELS BEQUEST

This is a different kind of Sierra adventure from the style that we are used to. It is played out as a sort of theatrical production over eight acts and with a multitude of different endings. I suppose you could call it the computer version of THE MOUSETRAP.

The cast is made up of 12 motley characters from the Colonel himself, Colonel Henri Dijon, through to Jeeves the butler and Fifi the maid.

The plot revolves around the old Colonel, who calls a family reunion weekend at his island bayou mansion in 1925. During the welcoming dinner party, the Colonel announces that he feels that he does not have long to live, and that he is bequeathing his millions to each member present. Each will inherit equal amounts, however should anyone die before the old man, then their share will also be divided equally between the surviving parties. All of a sudden, there is the scent of foul play in the air, as family members eye each other suspiciously, each with more than a hint of greed about them. You are cast as Laura Bow, a girl- friend of Lillian, the Colonel's niece, and it is as Laura that you will set about solving the mystery of just who is killing off the guests. As in any good who dunnit, there are plenty of reasons why everybody wants to kill everyone else, and you must spend time talking to all the characters to find out the inside stories. As I said before, there are many ways to finish this adventure, because as you get to know the characters, you will uncover hidden secrets about each. Is the Colonel doing naughty things with Fifi; are Rudi and Gloria doing naughty things with each other; does Auntie Ethel wish that she could still do naughty things; and what is the mysterious Dr Wilbur Feels prescribing for the rich old man? It is all complicated, and best played by following one lead through and seeing where it takes you.

There are plenty of hidden passages, secret rooms, and dangerous turns, but all gloriously wrapped inside Sierra's wonderful colourful graphics. This first Laura Bow Mystery is the prelude to another Sierra series, and if they are all up to this standard we can all go to bed happy.

GRAPHICS 90%
PLAYABILITY 80%
OVERALL 88%

INFOCOM REVISITEDLOOKING BACK OVER THE MANY CLASSIC INFOCOM RELEASES. THERE WERE A FEW FAVOURITES FOR ME. HERE IS A LOOK AT JUST A COUPLE.

SHOGUNIN

James Clavell's masterpiece brought to your screens by that man Dave Lebling once again.This was the first Infocom adventure to have full colour graphics, and very pretty they were too, using an airbrush style rich in Japanese detail. The game was developed with Clavell overseeing every bit of it, and this is evident in the writing style. It includes loads of puzzles in true Lebling fashion, and the huge effort that went into constructing this adventure is plain to see. You play John Blackthorn, a Pilot Major of a merchant ship bound for the East in the year 1600. He is destined to become the first Englishman to set foot on Japanese soil and to ultimately become Shogun, supreme ruler of Japan. The plot does follow the book, but the horrid puzzles that abound are unique, and so if you havn't read Clavell's novel it matters not. The famous Infocom parser system still stands up to the test of time, although response time is a little on the slow side, which is due, no doubt, to the extra tasks the program has to perform now that there are graphics to tend to.Right from the start you are plunged into a problem, your crew are mutinous, starving and sickly, the ship is in the middle of a storm, and you have to find land soon before you sink or lose command. The answer is to be brutal, cruel and commanding right from the word go, gain the respect of the crew, navigate your way through treacherous waters and begin your path to becoming Shogun. Help is at hand with on screen hints if you get really stuck, but the fun is trying to crack it on your own. Well worth getting today, as a reminder of just how to write a cracking good adventure story.

A.M.
GRAPHICS 80% OVERALL 90%

THE LURKING HORROR

INFOCOM/VIRGIN £9.99

This was the only genuine Infocom adventure that was serious horror, and it sure made the hairs on the back of my neck stand up. Admittedly I was playing it with all the lights turned out, at around midnight, but still....The nightmare begins with you, as a student at the GUE Tech, braving a violent snowstorm to get to I.T. centre on campus to finish your computer assignment. Unfortunately, after you arrive, the storm gets worse, and you have to spend the night in the complex.....but you are not alone. the trouble seems to start when you begin exploring the darkened building, you go downstairs and suddenly are drawn into a world of sacrifice, tribal rituals, magic and evil. Escape is possible, and when it happens you do not know if you dreamt it or not. You do have an ally though, a fellow student locked in with you, who appears ignorant of all these strange happenings, although later on he will be of great importance to you. The author, Dave Lebling, who incidentally co-wrote the original ZORK series, and was a founder member of Infocom, based this adventure on the works of HP Lovecraft, and Stephen King, two of his favourite writers.At this point in their history, Infocom were just text only, but part of their charm was that each game box carried a number of items relating to the story. They were the first to do this type of marketing, and although it was superfluous to the story, it helped create the right mood.LURKING HORROR has many puzzles, none more taxing than in the Alchemy lab where a cutting instrument is needed to get through into the final phase of the adventure. This puzzle is typical of the Infocom style, hard tests that when cracked provided immense satisfaction. Unfortunately, in later games, they built in hints so players would finish quicker and go buy more games, which led to the inevitable quick peek if you got stuck for longer than five minutes. Lurking Horror was part of the glory days before all this, so you are in for many hours of trial and error with this one. Do not play after dark!

PUZZLES 90% OVERALL 90%

THAT'S ALL I HAVE ROOM FOR THIS MONTH. DONT FORGET, IF YOU HAVE SOMETHING TO SAY ABOUT ADVENTURE OR STRATEGY
WRITE TO ME ANDY MOSS AT AMIGA USER INTERNATIONAL, PANINI HOUSE, 116-120 GOSWELL ROAD LONDON EC1.

SEE YOU NEXT MONTH.

pd news

THE MAGAZINE FOR AMIGA PD ENTHUSIASTS

Other Theme Packs Available

"Printer Workshop"

for January

We have included on two packed disks the finest PD/Shareware programs to help Amiga users achieve high quality print results. Print disk labels with DiskPrint, Post is a Postscript Interpreter, PLUS PrintStudio, PrintImage, PrintSpool GPrint and SoftFont. A total of 25 programs.
2 Disk Set for £5.99 (Members £5.49)

"Home Management Vol.II"

for February

More useful programs for home use and the small business. There is a typing tutor and grammar checker PLUS 'Web' a superb spreadsheet and 'DataEasy', an easy to use database. 'CheckBook' will keep track of your finances and 'Mileage Master' will tell you just how much your car costs to run. A total of 19 programs.
2 Disk Set for £5.99 (Members £5.49)

"Famous Board & Puzzle Games Vol.II"

for March

Fifteen games that include BackGammon, Chinese Checkers, a superb Draughts plus Dominoes, BlackJack Lab, the latest version of 3D TicTacToe, Step 3, Puzz, Raps and Bounce.
2 Disk Set for £5.99 (Members £5.49)

"Disk Utilities Vol.I"

for April

Do you have problems validating or formatting disks? Need an efficient back-up program? Want to speed up disk loading or even edit disks? This packed set includes over 20 useful programs that will solve these and many more disk related problems.
2 Disk Set for £5.99 (Members £5.49)

Are you reading *PD News?*

Just send 50p for a trial copy and keep in touch with top quality PD programs from GTS.

"K.O. the Virus"

V4.0 of an exclusive compilation of the most effective PD and Shareware virus detectors and killers. Includes VirusX, ZeroVirus, NoVirus and many more.
Only £3.99 (Members £3.49) Update Service £1

"Video Applications Vol.I"

A custom pack for the Genlock user and Video enthusiasts. Features smooth scrolling titling programs, useful utilities, transport tools & fonts.
2 Disks Set for £5.99 (Members £5.49)

"T.V. Graphics"

Original Video Fonts and Scenic Backgrounds for fixed Video displays and titling. Ideal for home videos when a Genlock is not available.
2 Disk Set for £5.99 (Members £5.49)

"Catalogue Workshop"

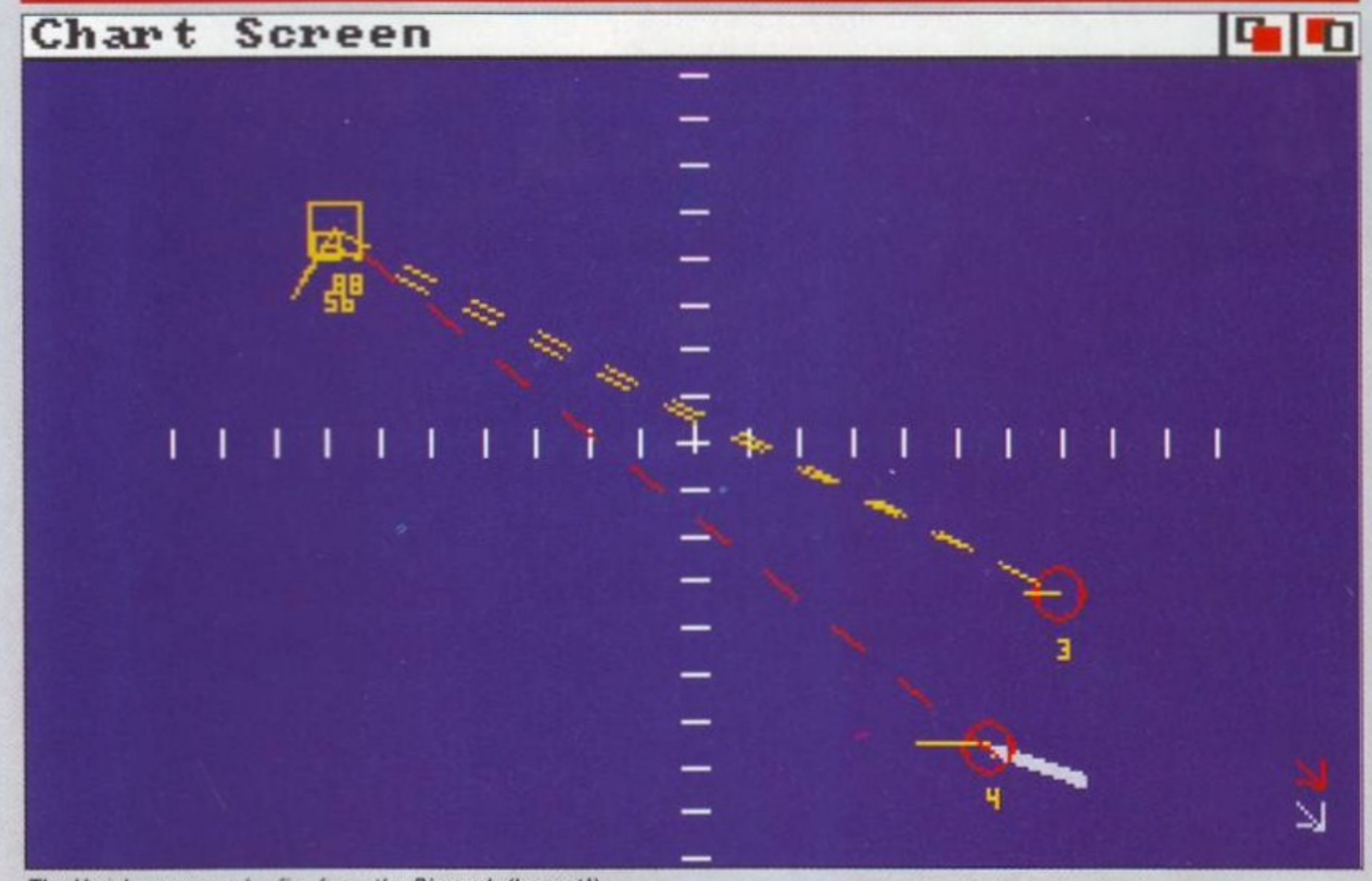
Catalogue your Video/Audio Cassettes, Records, Magazines, even your GTS PD Library! Print disk and cassette labels and much more!
2 Disk Set for £5.99 (Members £5.49)

ACCESS PUBLISHED BY GEORGE THOMPSON SERVICES VISA
UNIT 1, DIPPEN, BRODICK, ARRAN, KA27 8RN SCOTLAND TEL: 077 082 234 (24 H SERVICE) FAX: 077 082 212

GAMES WITHOUT TEARS

war without fears

As a special treat to celebrate our new look, Nick Veitch tests some recent wargames, two available from Australia and two from the UK... War, of course, is hell. . .



The Hood comes under fire from the Bismark (honest!)

ACTION STATIONS

PANTHER GAMES £30.00

One thing that doesn't get covered much in strategy games is naval conflict. It may feature as a small theatre of operations (as in Red Lightning) in some more macrocosmic wargames but rarely is there a game devoted entirely to the fight on the ocean waves.

"The markers denoting your ships also contain vectors representing the actual speed and direction of the craft and its ordered speed and direction."

Action Stations! sets out accurately to recreate any surface combat scenario from 1922-45. With full data on all of the ship types of the period it should be possible to recreate many famous engagements. Well, any that don't include aircraft that is - only spotter aircraft are accounted for - so a re-run of the battle of Midway would be a little pointless.

Many scenarios of action in the Med, the Pacific and the Atlantic are included but should you get board there is the opportunity to create your own - using all of the very detailed ship information which comes with the game.

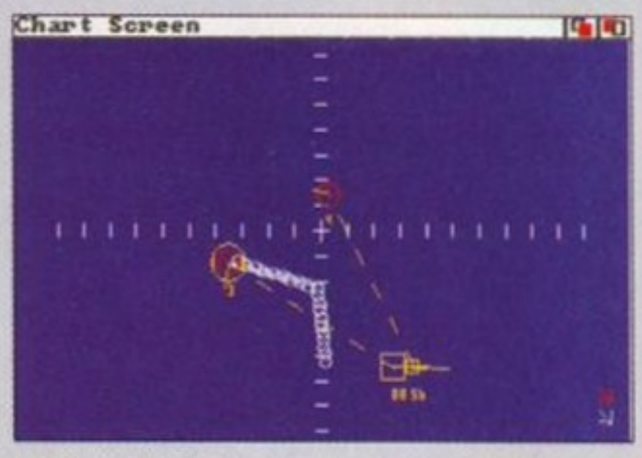
The screen on which most of the action takes place is the battle plot. This is where the relative positions of your and the enemy's ships (if known) are recorded and the traces of any gunfire appear. Smoke coming from the stacks or from deliberate munitions fire is also included on this plot. The markers denoting your ships also contain vectors representing the actual speed and direction of the craft and its ordered speed and direction.For the most important part of the game it doesn't seem to have received that much attention. It would be a lot easier to discern the action if a medium resolution screen had been used anyway. The zoom functions are slow and cumbersome to use too.

The actual mechanics of the combat are handled very well. Not only can you specify the targets of each ship but you can split the fire as well by taking direct control of the designators. It is even possible to specify the guns to be controlled by each designator.

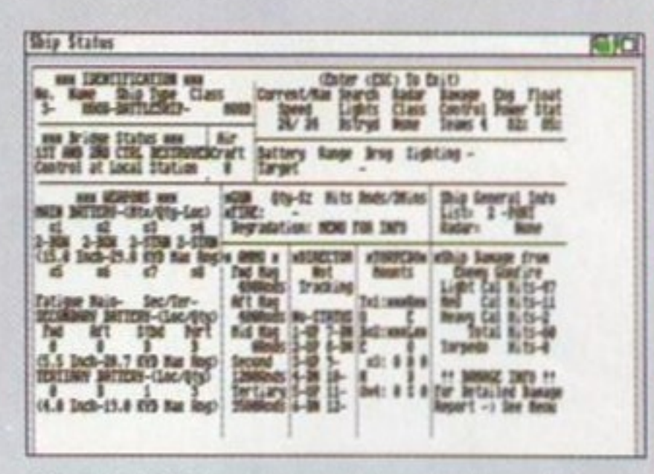
Damage control is reported in excellent detail and precautionary countermeasures such as counterflooding (to correct a dangerous list) and flooding the magazine (to prevent very dangerous explosions) are implemented.

Since it is not always the case that naval engagements occur on perfectly flat seas on a nice summer day around noon there is the emminent possibilty that your enemy may remain unseen until quite close at hand. Starshells, searchlights and spotter aircraft are included to help eliminate the risk.

The wonderfully detailed mechanics of this simulation are only let down by the poor menu structures and downright nasty graphics.



HMS Hood is in a bad way - look at the smoke!



More detail than you could possibly need. Night manoeuvers off Japan

"Since it is not always the case that naval engagements occur on perfectly flat seas on a nice summer day around noon there is the emminent possibilty that your enemy may remain unseen until quite close at hand."

DECISION

Decision: 46%

Graphics: 16%
Miserable battle plot makes playing a pain

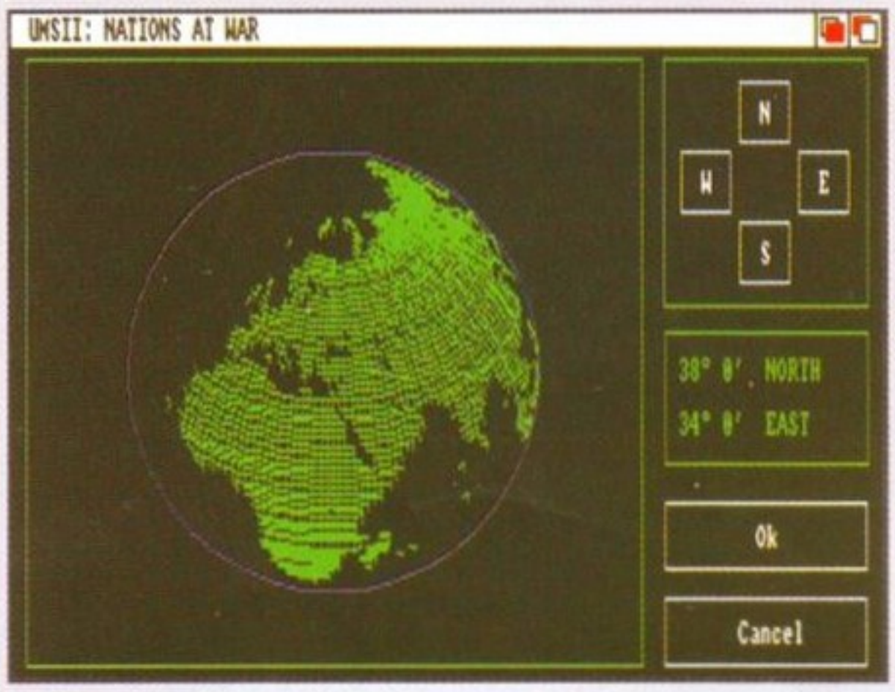
Sound: 0%
What sound?

Gameplay: 72%
Scenarios and action is very realistic

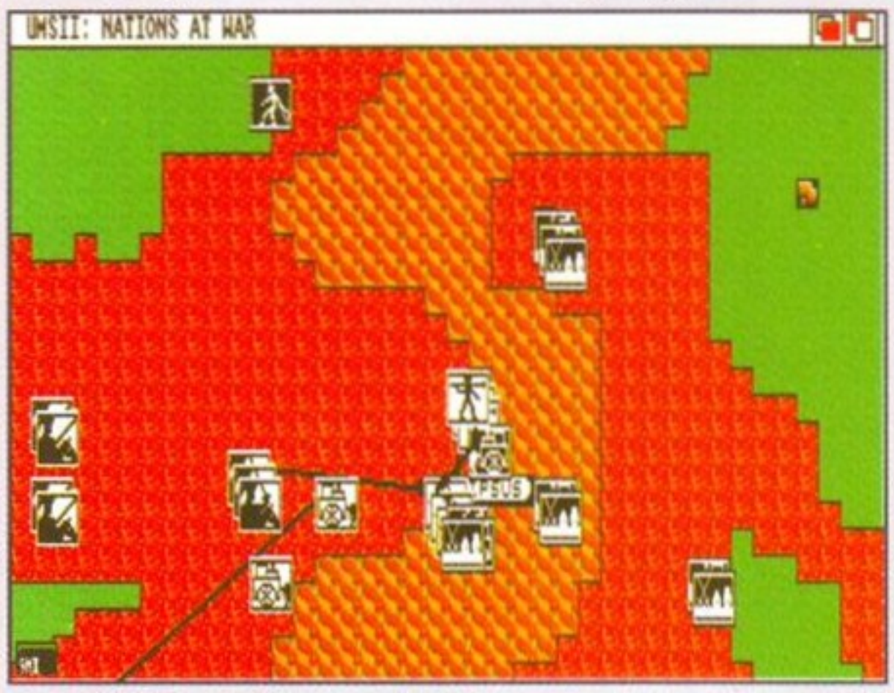
Difficulty 8/10

WHITE DEATH

Storm Computers £30.00



1. Night time on the front, but the fighting goes on.



2. The strategic map shows command placements

Decision:34%

Graphics: 74%
Very pretty and even innovative in parts

Sound: 5%
Troublesome

Gameplay: 12%
High on strategy, low on ease of use.

Difficulty:8/10

The great tragedy of life is that it is so easy to lose it. War brings about an even greater tragedy as so much life is swapped for short term tactical gain. The winter of 1942 saw one of the greatest human tragedies, the most useless waste of human life even in such a conflict that was thick with it. The German forces had been halted in their march deeper into Russian territory and now the snows had come it was the Soviets 3rd Shock Army that was gaining ground.

A series of punishing assaults on the weak German lines left thousands of troops completely surrounded. The Russians, however neither the inclination nor the strength to go in and mop up these concentrations. Many more soldiers died during the siege from cold, hunger and disease that from enemy fire. Relief attempts to try and free these units had been tried, but most were ineffectual.

White Death deals with one such engagement, where battle-weary troops and the remnants of earlier campaigns were pulled together to recapture the strategic transportation town of Velike Luki.

There are several scenarios, each dealing with a particular phase in the battle for the town. These are not true scenarios in the sense that at the beginning each side gets to chose their starting positions - an option obviously not available to the generals of the day.

Someone has come up with the bright idea of representing the amount of movement and relative strength a unit has by little bars on the sides of its icon. This means it is possible to tell at a glance more or less how strong your forces are, especially as the unit icons are so big. Unfortunately, though, the amount of map on a screen is therefore neccessarily small and since there is no scroll option, it is a wearisome trip up and down the menus just to move a few hexes in any direction.

Combat is handled in an unusual but effective way. Unhappily, it can also be very slow and frustrating. The computer, which can control either side, is a worthy but uncharismatic opponent but unfortunately the set-up phase gives whoever places their troops last too much of a strategic advantage.

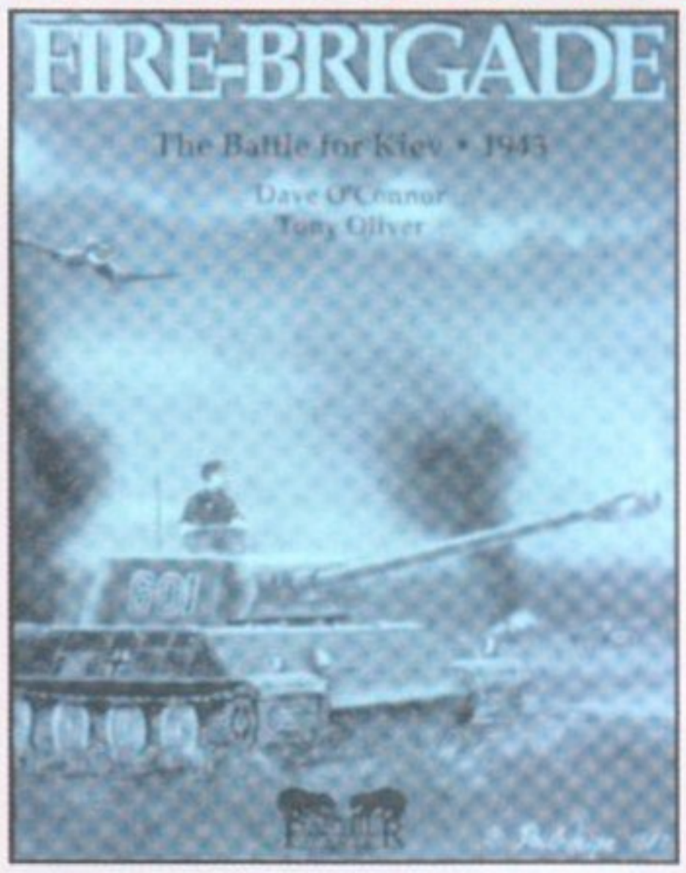
Ultimately, whilst very challenging, the unnatural menu system and the annoying quirks of the rest of the game make it all but unplayable.

GAMES WITHOUT TEARS

war without fears (cont)

FIRE BRIGADE

Panther Games £30.00



Who knows why the German war machine, which had conquered the sophisticated defences of Western Europe in a matter of weeks, failed so miserably to destroy the red threat to the East? It was certainly a different sort of war. Who but the Russians, unconcerned about attrition amongst their own ranks, would launch offensives in the bitter cold of Ukranian winter?

Perhaps the German units were too tired, poorly equipped or just had no stomach for this fight with their former ally. In any case, the winter months of 1943 had them fighting to hold on to their limited gains in the Steppes. With combat weary troops the Germans prepared the defense of Kiev. It was time to call in the 48th Panzer, the renowned "Fire-Brigade", instruumental in the halt of previous Soviet advances.

The game is a Macintosh port and it shows. I always get nervous when I read things like "We wanted to capitalize of the inherent user-friendliness of the Mac system" in the manual. What this means is that screen updates are tortuously slow - the Mac doesn't have a Blitter so, reason the programmers, it can't be any good for anything.

Apart from that the user interface is quite good - oh, except for the orders icons. They are more or less completely unintelligible so keep the manual handy for the first couple of games otherwise you might be ordering your troops to surrender instead of dig in.

Well okay then, apart from that the graphics are exceptionally good, with clear maps, intelligible unit markers and nice scroll-bar windows. There is even the option to change palettes if you can't make things out on your TV or mono-monitor.

The computer shows a good deal of strategic awareness as do your own subordinates - the command structure is modelled properly so even though you may order a group commander towards a cer-

UMSII Microprose £29.95

How many strategy games have a cult following? Apart from the crowd of anoraks that cluster around "War in Middle Earth" very few. UMS or the Universal Military Simulator seems to be destined to become one of them. The original was unique in that it combined a tactical system which could handle almost any kind of land combat and a scenario designer which enabled the user to recreate, or just create, any skirmish or battle they could think of.

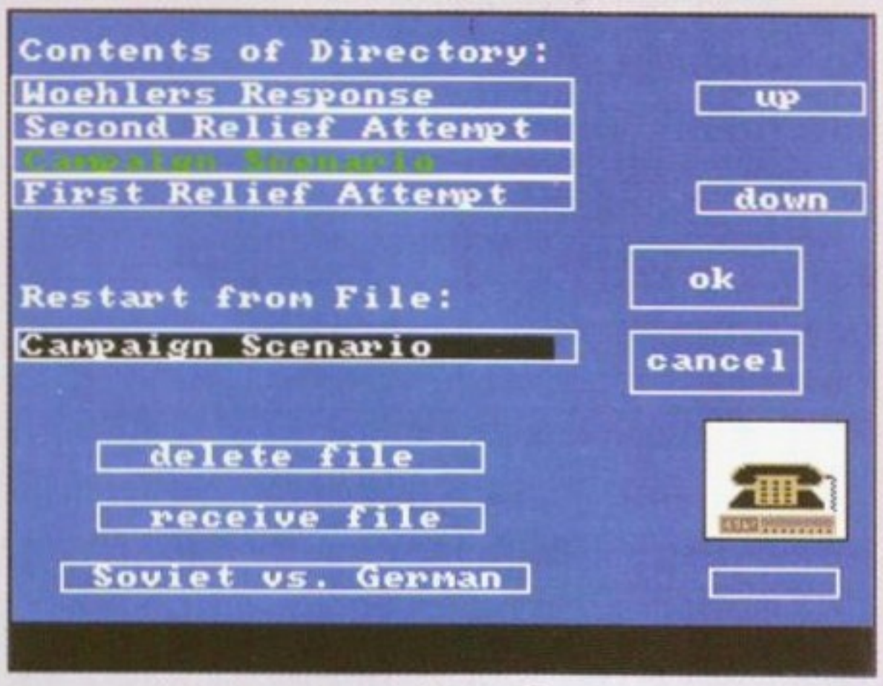
Now the sequel, UMSII (or "umsy") has gone one step further. Taking a global approach, all of the terrain data of the entire world is now represented - no more fidlling around altering the landscape, now you can use any country, continent or ocean - UMSII handles naval engagement as well. Diplomacy is covered too, but only in a rudimentary fashion.

The subbtitle "Nations at War" is well chosen. The whole strategy of battle is now considered on a more national level. Whilst there is still control of individual units in terms of strategic orders, supply and so on there is no control over tactical actions - the player does not control the actual field combat down to individual shots as in UMS. Rather than an update, UMSII is more of a big brother to the original.

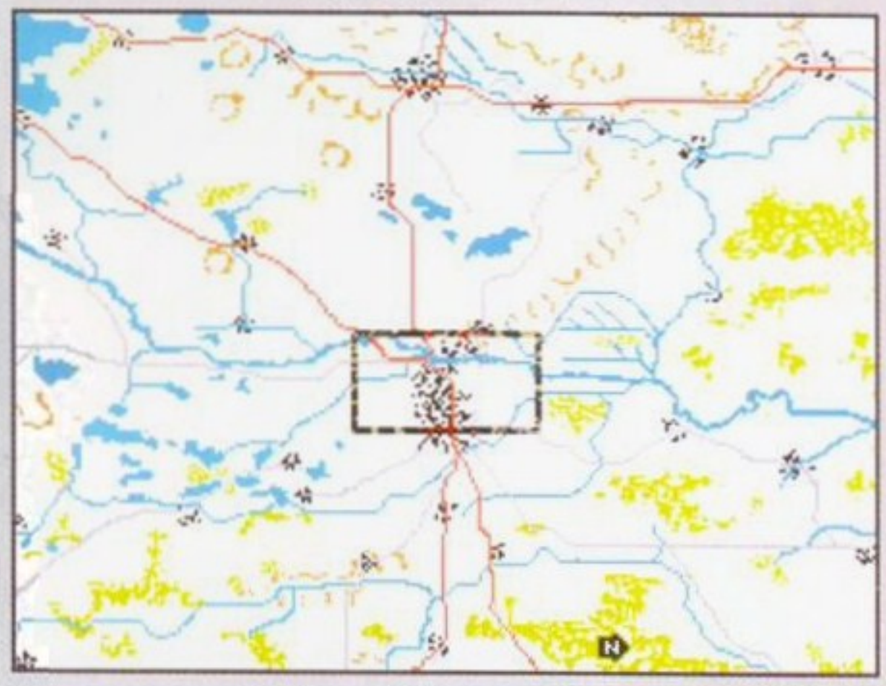
An amazing level of combat detail is taken into account, even the weather. Options from the display menu allow weather symbols, local temperatures and pressure systems to be displayed. You might not think they make a difference but they can be very influential. Of course, if you don't think they are nearly important enough you can always factor them out of the equations - UMSII has a battle equation which can be altered to give greater weight to particular aspects of combat. For example, in Ancient Greece, the ability of a unit's commanding officer might be considered more influential than in a present day conflict when better comunications are available - this is easy to alter.

A major disappointment is the omission of a scenario generator. Only three scenarios are provided: Napoleon, Alexander and the D-Day landings. These will occupy any serious strategist for many months but part of the philosophy of the original was the ability to invent and create. A scenario generator will apparently be available some time in the future.

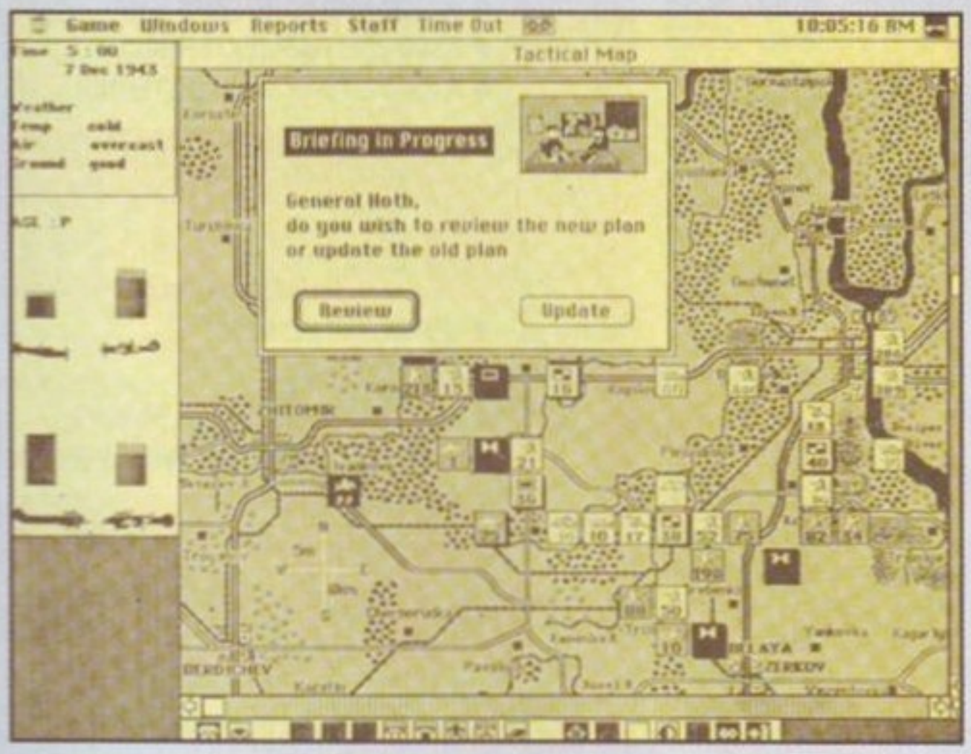
In spite, or perhaps because of the sophisticated and complex memory management and compression routines the game can be tediously slow at times. I mean really slow - I mean, are these armies being raytraced or something? I suppose that is the price to be paid for realism.



1. Here is your theatre of operations



2. Alexander besieges the Persians in 334 BC



tain goal, the actual specifics are up to him. This makes it important, as in real life, that unit commanders are trustworthy and intelligent which doesn't seem to be the case most of the time.

If you can survive the play-by-mail screen updates and the insane noises that come out of the speakers during combat resolution you may find this an unusually rewarding simulation.

Panther Games can be contacted on (062) 285 1999 and all prices are approx. and include a 1-week delivery air mail postage.

Storm Computers can be contacted on 081 870 4941

Microprose can be contacted on 0666 504326

Decision: 62%Graphics: 70%
Slow, slow, slow - but pretty.

Sound: 15%
Why? Hasn't humanity suffered enough?

Gameplay: 45%
Tough and demanding - but that's just the icons.

Difficulty: 9/10

Decision:84%

Graphics: 86%
Informative and decorative.

Sound: 60%
Stirring theme tune but can get annoying after a few hours.

Gameplay: 80%
Slow but worthwhile.

Difficulty: 7/10

AMIGA direct

EUROPE'S NR. 1 AMIGA SPECIALISTS

PERSONAL CALLERS WELCOME
NR. 1 AMIGA SHOP
MON-FRI 9.30-17.30
SAT 9.00-12.00

NOW IN BRITAIN **"AMIGA DIRECT"** EUROPE'S TRAILBLAZING AMIGA CLUB, MORE THAN **12,000 MEMBERS.** DUE TO OUR INTERNATIONAL NETWORK (HOLLAND, BELGIUM, GERMANY, USA, SWEDEN & ENGLAND) YOU CAN NOW **SAVE HUNDREDS OF POUNDS ON RECOMMENDED** RETAIL PRICES. YOUR ONLY COMMITMENT IS TO PAY £10 FOR ONE YEARS **MEMBERSHIP.** WHEN YOU JOIN, YOU CAN CHOOSE ANY ONE OF THE FOLLOWING **FREE GIFTS, 1** MOUSEPAD, CONTINENTAL CIRCUS (VIRGIN), OR THE AMIGA DIRECT COPY DISK (15 PROGRAMS). YOU WILL ALSO RECEIVE 4 TIMES A YEAR A **FREE COLOUR CATALOGUE**, DISCOUNTS ON CERTAIN UK COMPUTER SHOWS ENTRANCE FEES AND SPECIAL OFFERS AT UNBEATABLE PRICES. **NO OBLIGATION TO BUY!!!** HOWEVER AT OUR UNBEATABLE PRICES YOU CAN'T RESIST.

PERSONAL CALLERS WELCOME

TOP 100 AMIGA GAMES

	MEMBER	RRP
A10 TANK KILLER	24.99	39.99
ACTION-STATION	18.99	29.99
AMOS GAMES CREATOR	27.99	49.99
AWESOME	19.99	34.99
ARMOUR GEDDON	14.99	25.99
ATF II	14.99	24.99
ATOMINO	14.99	25.99
BADLANDS	12.99	19.99
BATTLE COMMAND	14.99	24.99
BACKGAMMON ROYALE	14.99	24.99
BACK TO THE FUTURE III	14.99	24.99
BETRAYAL	18.99	29.99
BILLY THE KID	14.99	24.99
BRAT	14.99	24.99
CADAVER	14.99	24.99
CHAOS STRIKES BACK	14.99	24.99
CHASE HQ II	14.99	24.99
CHUCK ROCK	15.99	24.99
CODENAME ICEMAN	24.99	39.99
CONQUEST OF CAMELOT	24.99	39.99
ELVIRA	19.99	29.99
EPIC	18.99	29.99
ESCAPE FROM COLDITZ	18.99	29.99
ESWAT	14.99	24.99
F15 STRIKE-EAGLE II	18.99	29.99
F19 STEALTH MISSION	18.99	29.99
FLIGHT OF INTRUDER	18.99	29.99
GAUNTLET III	15.99	24.99
GENGHIS KHAN	19.99	29.99
GO	15.99	24.99
GODS	15.99	24.99
GOLDEN AXE	12.99	19.99
GREMLIN II	12.99	24.99
HARD DRIVIN' II	14.99	24.99
HARPOON	18.99	29.99
HILL STREET BLUES	14.99	24.99
HOLLYWOOD COLL. (4 Games)	18.99	29.99
HORROR ZOMBIES	15.99	24.99
INDY 500	15.99	24.99
KICK OFF II	15.99	24.99
KILLING CLOUD	14.99	24.99
KINGS QUEST IV	24.99	39.99
LOTUS ESPRIT TURBO	14.99	24.99
LEMMINGS	14.99	25.99
LEISURE SUITE LARRY III	24.99	39.99
LINE OF FIRE	14.99	24.99
MAGNETIC SCROLLS Vol.1 (3 Games)	19.99	29.99
M1 TANK PLATOON	18.99	29.99
MIDWINTER II	18.99	29.99
MIG 29 FULCRUM	19.99	34.99
MIGHTY BOMBJACK	14.99	24.99
MOONSHINE RACERS	15.99	24.99
NAM	18.99	29.99
NAVY SEALS	14.99	24.99
NITRO	14.99	25.99
OBITUS	19.99	34.99
OCEAN POWER UP (5 Games)	18.99	29.99
PANZA KICK BOXING	15.99	24.99
POWERMONGER	18.99	29.99
POLICE QUEST II	24.99	39.99
PREDATOR II	14.99	24.99
PRINCE OF PERSIA	14.99	24.99
PRO TENNIS TOUR II	15.99	24.99
PSYGNOSIS MONSTER PACK (3 Games)	12.99	20.99
QUEST FOR GLORY II	24.99	39.99
RAILROAD TYCOON	18.99	29.99
ROBOCOP 2	15.99	24.99
SECRET OF MONKEY ISLAND	19.99	29.99
SHADOW OF THE BEAST II (+T-SHIRT)	19.99	34.99
SIM CITY/POPULOUS	19.99	29.99
SKI OR DIE	15.99	24.99
SKULLY CROSSBONES	14.99	24.99
SPACE QUEST III	24.99	39.99
SPEEDBALL II	14.99	24.99
SPIRIT OF EXCALIBER	19.99	29.99
STUN RUNNER	12.99	19.99
SUPER CARS II	14.99	24.99
SUPER MONACO GRAND PRIX	15.99	24.99
SUPREMACY	19.99	29.99
SWITCH BLADE II	14.99	24.99
SWIV	15.99	24.99
THE POWER	14.99	24.99
TOTAL RECALL	14.99	24.99
THEIR FINEST HOUR	19.99	29.99
TEENAGE MUTANT TURTLES	19.99	29.99
TOURNAMENT GOLF	14.99	24.99
TEAM SUZUKI	14.99	24.99
TIME WARP	24.99	44.99
TEAM YANKEE	19.99	29.99
TOYOTA CELICA GT	14.99	24.99
TURRICAN II	15.99	24.99
ULTIMA V	19.99	29.99
UMS II	18.99	29.99
UN SQUADRON	14.99	24.99
WARLOCK AVENGER	15.99	24.99
WINGS	18.99	29.99
WINNING TEAM (5 Games)	18.99	29.99
WOLF PACK	18.99	29.99
WORLD CHAMP'SHIP SOC'R	14.99	24.99
WONDERLAND	19.99	24.99

RAM EXPANSIONS

- A500 512K RAM CARD + ON/OFF SWITCH **£26.99**
- A500 512K + CLOCK + ON/OFF SWITCH **£29.99**
- A500 1.5Mb + CLOCK (INTERNAL) **£79.99**
- A2000 8Mb CARD (2Mb RAM) **£169.99**
- A500 2Mb RAM (EXTERNAL) **£199.99**
- A1000 2Mbyte CARD (EXTERNAL) **£199.99**

DISK DRIVES

- 3.5" INTERNAL A2000 ..... **£44.99**
- 3.5" EXTERNAL **£49.99**
- 5.25" EXTERNAL 40/80 TRACKS **£79.99**

ALL EXT. DRIVES WITH THRU PORT & ON/OFF SWITCH

MUSIC

	RRP	MEMBERS
AMAS - MIDI + DIGITIZER	**£99.99**	**£79.99**
FUTURE SOUND STEREO DIGITIZER .	**£89.99**	**£69.99**
MASTER SOUND AUDIO DIGITIZER ...	**£39.99**	**£29.99**
MIDI INTERFACE – 2 MIDI OUT/IN/THRU	**£29.99**	**£17.99**
PERFECT SOUND 3.0	**£79.99**	**£59.99**
SOUND EXPRESS STEREO DIGITIZER	**£39.99**	**£24.99**
SOUND BLASTER (Including TWO STEREO SPEAKERS)	**£54.99**	**£44.99**

SPECIAL OFFERS

	RRP	MEMBERS
SILKWORM	**£5.99**	**£19.99**
LANCASTER	**6.99**	**19.99**
DEFENDER OF CROWN	**7.99**	**29.99**
CHRONO QUEST II	**7.99**	**29.99**
STREET HOCKEY	**8.99**	**19.99**
TURRICAN	**8.99**	**19.99**
NINJA REMIX	**8.99**	**24.99**
BOMBER BOB	**8.99**	**24.99**
SWORD OF SODAN	**8.99**	**29.99**
COLONELS BEQUEST	**14.99**	**39.99**

*** AS LONG AS STOCKS LAST**

AMIGA DIRECT NOW IN SWEDEN

ALL PRICES INCLUDE VAT

4 WHITTON ROAD
TWICKENHAM
MIDDLESEX TW1 1BJ
ENGLAND
TEL. (44) 081-891 6704
FAX. (44) 081-892 8127

AMIGA direct

GVP PRODUCTS NOW AVAILABLE

PROFESSIONAL SOFTWARE

CAD CAM

	MEMBER	RRP
CALIGARI CONSUMER	119.99	199.99
INTRO CAD PLUS	69.99	99.99
MODELLER 3D	49.99	79.99
PROFESSIONAL DRAW 2.0	79.99	129.99

COMMUNICATIONS

	MEMBER	RRP
A TALK III	49.99	89.99
BAUD BANDIT	24.99	39.99
SKYLINE BBS SYSTEM	69.99	119.99

DESK TOP VIDEO & GRAPHICS

	MEMBER	RRP
ANIMAGIC	59.99	89.99
ART DEPARTMENT	49.99	89.99
ART DEPARTMENT PROFESSIONAL	99.99	149.99
BROADCASTER TITLER II	179.99	299.99
COMIC SETTER	39.99	69.99
DELUXE PAINT III	59.99	79.99
DELUXE PAINT III TUTORIAL	14.99	18.99
DELUX VIDEO III/PHOTOLAB	89.99	139.99
DIGIPAINT III	44.99	69.99
ELAN PERFORMER 2.0	69.99	109.99
IMAGINE	149.99	249.99
LIGHTS, CAMERA & ACTION	39.99	59.99
MOVIE SETTER	39.99	69.99
PAGE FLIPPER FX PAL	79.99	119.99
PAGE RENDER 3D	79.99	119.99
PRO VIDEO POST	149.99	249.99
3D PROFESSIONAL	219.99	349.99
SCULPT 4D JUNIOR	79.99	119.99
SCULPT 4D	249.99	499.99
SPECTRA COLOUR	49.99	79.99
TURBO SILVER 3D	89.99	139.99
TV TEXT PROFESSIONAL	79.99	129.99
TV SHOW	49.99	89.99
VIDEOSCAPE 3D	89.99	129.99
VIDEO TITLER 3D	69.99	99.99
VISTA	49.99	69.99
WALT DISNEY ANIM. STUDIO	69.99	99.99

DATABASES

	MEMBER	RRP
SUPERBASE PERSONAL II	39.99	99.99
SUPERBASE PROFESSIONAL	139.99	249.99

DESKTOP PUBLISHING

	MEMBER	RRP
PAGESTREAM 2.1	149.99	249.99
PAGESETTER 2.0	44.99	59.99
PELICAN PRESS	49.99	69.99
PROCLIPS CLIPART	14.99	29.99
PROFESSIONAL PAGE 2.0	169.99	299.99
PRINTMASTER PLUS	24.99	39.99

INTEGRATED PACKAGES

	MEMBER	RRP
AEGIS PAINT, DRAW, CLIPART, ANIMATION	14.99	49.99
GOLD DISK OFFICE	129.99	199.99

ACCOUNTS

	MEMBER	RRP
HOME ACCOUNTS	19.99	29.99
SYSTEM 3	29.99	49.99

MUSIC

	MEMBER	RRP
AUDIOMASTER III	49.99	89.99
BARS & PIPES	149.99	199.99
BARS & PIPES PRO	199.99	249.99
COPYIST APPRENTICE	59.99	89.99
COPYIST PROFESSIONAL	149.99	239.99
DELUXE MUSIC CONSTR. SET	49.99	69.99
MIDI RECORDING STUDIO	34.99	59.99
MUSIC X 1.1	59.99	149.99
MUSIC X JUNIOR	44.99	79.99
QUARTET	29.99	49.99
SONIX 2.0	39.99	69.99
TIGER CLUB	49.99	69.99

PROGRAMMING LANGUAGES

	MEMBER	RRP
AMIGA VISION	69.99	99.99
AREXX 3.0	29.99	49.99
AZTEC C DEVELOPER	139.99	199.99
AZTEC C PROFESSIONAL	89.99	129.99
BENCHMARK MODULA 2	89.99	169.99
DEVPAC 2.0	29.99	59.99
HISOFT BASIC	29.99	59.99
LATTICE C++	239.99	299.99
LATTICE CV 5.10	139.99	249.99
LOGO	39.99	49.99

SPREADSHEETS

	MEMBER	RRP
ADVANTAGE	79.99	129.99
MAXIPLAN PLUS	79.99	149.99

WORDPROCESSORS

	MEMBER	RRP
PEN PAL	69.99	129.99
PRO WRITE 3.1	79.99	149.99
TRANWRITE	29.99	49.99
WORD PERFECT 4.2	119.99	229.99

UTILITIES

	MEMBER	RRP
AMI ALIGNMENT KIT	24.99	39.99
BAD OPTIMIZER-disk utility	24.99	39.99
BUTCHER-graphic utility	22.99	34.99
CROSS DOS 4.0-ms dos utility	24.99	39.99
DISK MASTER 4.0	29.99	49.99
DISTANT SUNS-Astronomy	34.99	59.99
DOCTOR AMI-diagnostics	24.99	39.99
DUNLAP UTILITIES	39.99	59.99
GB ROUTE	32.99	39.99
HD EXPRESS	24.99	39.99
MAVIS BEACON TYPING	29.99	49.99
PIXMATE-graphic utility	29.99	49.99
QUARTERBACK 4.2-hard disk	39.99	59.99
QUARTERBACK TOOLS	49.99	69.99
ULTRA 4	19.99	29.99
WORKBENCH 1.3 + MANUAL	14.99	19.99
X COPY PROFESSIONAL	39.99	49.99
WORLD ATLAS	29.99	49.99

VIDEO

	RRP	MEMBER
• DIGIVIEW 4.0 VIDEO DIGITIZER	£149.99	79.99
• VIDI AMIGA VIDEO COLOUR SOLUTION – VIDI AMIGA FRAME GRABBER – VIDI CHROME – PHOTON PAINT – RGB SPLITTER	£199.99	£149.99
• HITACHI HV 720 B/W Camera	£249.99	£199.99
• RENDALE 8802 GENLOCK	£299.99	£149.99
• RGB SPLITTER	£ 79.99	£ 59.99
• ROCTEC GENLOCK	£149.99	89.99

ACCESSORIES

AMIGA 500 HARD PLASTIC DUSTCOVER	£ 6.99
AMIGA 2000 HARD PLASTIC DUSTCOVER	£ 6.99
A590 HARD DISK	£259.99
AMTRAC TRACKBALL	£ 49.99
APROTEK MODEM A500 2400 Baud	£ 69.99
A500 POWER SUPPLY	£ 39.99
ATONCE PC EMULATOR	£169.99
BOOT SELECTOR DF0: – DF1	£ 6.99
CLEANING KIT 3.5" DISK	£ 1.99
CLEANING KIT 5.25" DISK	£ 1.99
CONTRIVER FIVE IN ONE MOUSE	£ 24.99
CONTRIVER TRACKBALL	£ 24.99
DISKS: 3.5" DSDD (Box of 10)	£ 4.99
DISKS: 5.25" DSDD (Box of 10)	£ 2.99
DISKBOX: 80 x 3.5"	£ 3.99
DISKBOX: 80 x 5.25"	£ 3.99
DISK DRIVE TRACK DISPLAY + VIRUS PROTECTOR	£ 24.99
ELECTRONIC BOOT SELECTOR DF0 – DF3	£ 19.99
ELECTRONIC MOUSE/JOYSTICK SWITCHER	£ 14.99
FLICKER MASTER For 1084S MONITOR	£ 9.99
JOYSTICKS: COMPETITION PRO	£ 8.99
JOYSTICKS: QUICKJOY SUPERCHARGER	£ 9.99
JOYSTICKS: QUICKJOY JETFIGHTER	£ 11.99
JOYSTICKS: QUICKJOY TOPSTAR	£ 14.99
JOYSTICKS: QUICKJOY SUPERBOARD	£ 19.99
JOYSTICKS: CONTRIVER INFA RED	£ 24.99
KICKSTART CARD + 1.3 ROM	£ 49.99
1048S STEREO MONITOR	£219.99
MOUSEPAD – TOP QUALITY	£ 1.99
PRINTER CABLE 1.8M	£ 4.99
PRINTER RIBBONS: STAR LC10/20	£ 2.99
PRINTER RIBBONS: STAR LC24/10	£ 3.99
PRINTER RIBBONS: CITIZEN SWIFT	£ 2.99
PRINTER RIBBONS: NEC P2200	£ 3.99
PRINTER RIBBONS: NEC P6+/P7+	£ 4.99
PRINTER RIBBONS: PANASONIC	£ 2.99
SCART MONITOR CABLE	£ 7.99
STAR LC-20 PRINTER	£169.99
ZYDEC DUAL MOUSE – AMIGA/ATARI	£ 14.99

AMIGA DIRECT INTRODUCTORY OFFER

Mail to AMIGA DIRECT, 4 WHITTON ROAD, TWICKENHAM, MIDDLESEX TW1 1BJ, ENGLAND Our Telephone No.: (44) 081-891 6704 Fax: (44) 081-892 8127

Please send me _____ £ _____ £ _____

_____ £ _____ £ _____

Type of Computer _____ total post and packing £ _____ Total £ _____

Software : Post & packing within the UK £2.00. Overseas £3.00. Hardware: UK £2.50. Overseas £4.00. Courier service £7.00 Membership only £ 10.00

• Cheque enclosed • Visa/Mastercard Name: _____ Tel No. _____ Total enclosed £ _____

• Postal Order Address: _____

• Credit Card no. _____ Exp. Date _____ Post Code: _____ Signature: _____

H A M - E

High quality RGB output for your Amiga

The HAM-E system gives you high resolution **pure RGB** images on your standard 1084 RGB monitor. They are pure RGB, not smeary composite. No other graphics expansion device offers so much performance and costs so little! And all the software to run it is **free.** Even upgrades! There is not enough room to cover all of the advanced features of this system, so here are just a few.

256 COLOURS FROM 16 MILLION PALETTE

262,000 COLOURS ON ANY STANDARD MONITOR

System Features :
* Paint, Render, cvt ip s/w
* 18/24 bit "pure" modes
* 256/512 colour register modes
* RGB pass through
* Screen overlay / underlay
* Screens pull up / down & go front / back
* View with any IFF Viewer
* Animate via ANIM or Page Flipping
* Works with DigiView ™
* Completely blitter-compatible
* NTSC encoder compatible
* S-VHS encoder compatible
* PAL & NTSC compatible
* Uses **only** RGB port
* FCC Class B. UL Listed
* Works w/std Amiga monitors
* Does **not** use Amiga power

Paint Features:
* Custom brushes use blitter
* RGB,HSV, HSL,CMY Palette
* RGB and HSV spreads
* Extensive AREXX™ support
* 10 colour cycle/glow ranges
* Range pong, reverse, stop
* smooth zoom, rotate or scale
* Area, Edge, outline fill / overfill
* Dithered 24 bit fill mixing
* Anti-Alias with tool or brush
* Loads, shows GIF™ **exactly**
* "C" source code available free
* Upgrade From BBS service
* Color or 256 greys painting
* 256 colour stencils
* Matte/colour/anti-alias/cycle draw
* Prints via printer device
* Auto enhance std IFF palettes
* Writes IFF24,GIF HAM-E

Image Compatibility:
* 24 bit IFF, 24 bit IFF with CLUT chunks; 2 to 256 colour standard IFF; half-bright, HAM. DKB and QRT trace; RGB8 and RGBN; Targa™; GIF™; Dynamic Hi-Res ; SHAM, ARZ0, ARZ1, AHAM, 18 bit ScanLab™ ; UPB8 brushes; All of the 12 different HAM-E format image file types.

* Images may be scaled and converted to 24 bit IFF files.

* Image processing software supplied provides edge enhancement, blur, various convolutions, and much more.

~~299.00~~ Anti-Alias Version Only 399.00

BLACK BELT SYSTEMS

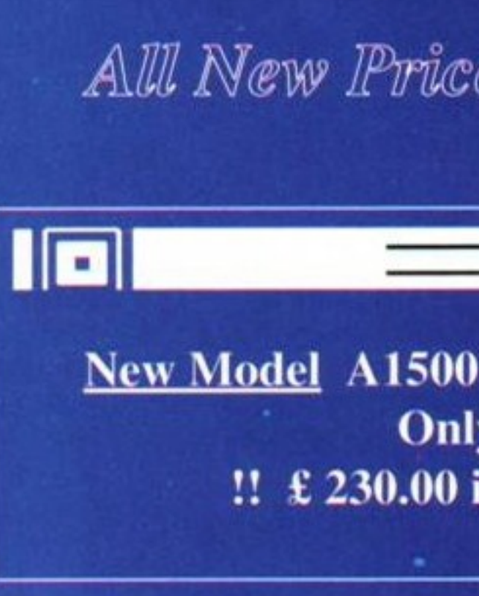
Distributed Exclusively in the UK by Checkmate Digital Ltd
80 Mildmay Park, London, N1 4PR, England
Sales 071-923 0658, Fax 071-254 1655

CheckMate Digital Ltd, 80 Mildmay Park, London, N1 4PR: Sales 071-923 0658 , Fax 071-254 1655

All New Prices

New Model A1500 Base Unit Price Only
!! £ 230.00 inc vat !!

Ring For the Latest Checkmate Catalogue



CanDo
Version 1.5
Now shipping
only
£ 125.00

Hyper Helpers
only
£ 49.00

CDL Separate Keyboard Kit £59.00
And at last I hear you cry
CDL B2000 Slot (half length cards) £ 69.00
Well it's half way there - Much more to come

A590 Hard Drive Systems

A590 Adaptor Kit (A1500)	£ 69.00
A590 20 meg drive 2Mb Ram	£ 349.00
A590 42Mb SCSI Drive, 2Mb RAM	£ 499.00
A590 86 Mb SCSI Drive,2Mb RAM	£ 599.00
A590 173 Mb SCSI Drive, 2Mb RAM	£ 799.00
3.5 inch SCSI Drives for A590, CDL A1500, HiQ:-	
45Mb £ 239.00. 90Mb £ 349.00. 182Mb £ 535.00.	
B2000 hard drive systems From 45Mb, only	£ 399.00
Brand New A590 20Mb Drive units	£ 75.00

Hi-res Opto-Mechanical Mouse	£ 24.95
400 DPI Hand Scanner, 64 half tone levels	£ 199.00
200 Watt Power Supply for A500	£ 79.00
Colour Monitors	
NEC 3D Multi-Sync Special Price	£ 499.00
Commodore A1084S colour + stereo	£ 249.00
ICD ADSCI Card , fastest hard disk controller	£ 130.00

RING FOR DETAILS ON OTHER PRODUCTS

GAMES NEWS

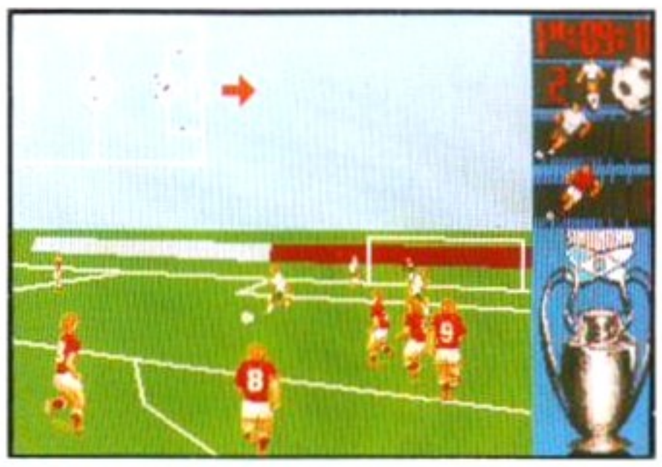
Life on the Ocean – sorry Domark – away . . .

Skull and Crossbones. ***Domark.*** Oh, to be a pirate! Your the baddest outlaw in the world when you want to be, and at the drop of a hat, you can transform yourself into a folk hero. Skull and Crossbones should quell any yearnings of a life of adventure on the ocean wave. It's a timber-shivering arcade slice 'em up, in which you'll do battle with countless enemies as you scour the Caribbean New Worlds in your search for booty. Look out for it on the shelves in Mid Spring.

Between Mario Bros and Donkey Kong . . .

Toki. ***Ocean.*** If Pang (reviewed this ***AUT***) is anything to go by , refering to their conversion of Toki, Ocean's claims of "identical coin-op graphics and sound" could well be true. If so, we should be in for some of the best platform arcade action seen this year. Toki is a kind of cross between Mario Brothers an Donkey Kong Jr, in which you play a poor soul who's been turned into an ape. Thrugh your travels,all kinds of weird monsters take a disliking to you, so rescue your lady friend and turning yourself back into you former self is going to be a tough job.
Find out if you're up to it around the begining of June.

Pole Position style football . . .



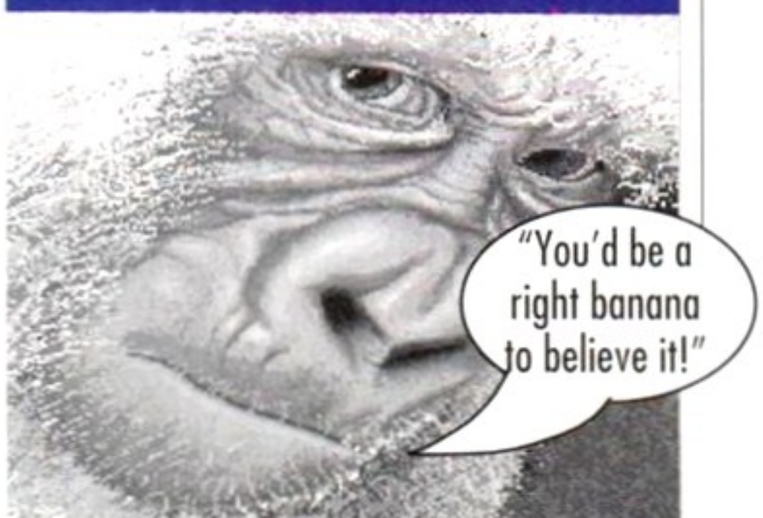
I Play 3D Soccer. ***Simulmundo.*** Where do they get them from? So, new names for footy games are getting a bit thin on the ground, but this one takes the biscuit. Still, the game looks interesting. It's all viewed in 3D from just behind the player under your control, Pole Position-style if you like. Three detail settings allow you to tweak the game to your own preference; the lower the level of the graphical detail you choose, the faster the game runs. Sprites are used for the players, and the pitch and goals are drawn with vectors. While the players disappear for their halftime oranges, you can reflect on the first half, winding back and forward through a "video tape" of the action. Sounds like a good crack. Keep it here for the review in a future issue.

Specially for Nostalgia Nuts

Megapheonix. ***Dynamics.*** The end of level guardian is now a regular feature of just about every shoot ' em up, but where did it first appear? Pheonix could credibly claim to be the originator of the idea. It also introduced a number of other new ideas to the world of shoot 'em ups, but until now, this pioneering classic coin-op has never made it to the Amiga. Megapheonix is, as you would imagine, a deluxe fuel-injected update of the original, including a simultaneous two-player mode. Nostalgia nuts should get their fill from it within the few weeks.

Games News

Tony Horgan heard it on the Grapevine



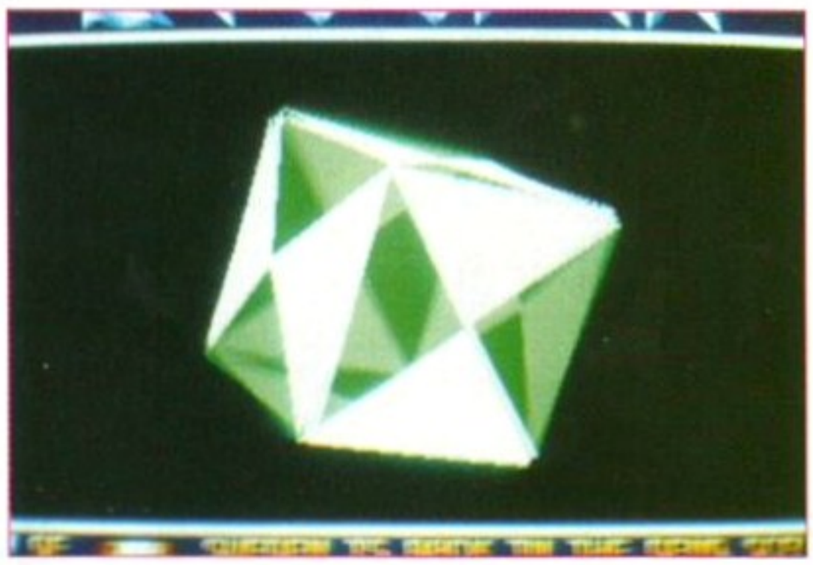
Xenon Style Puzzle

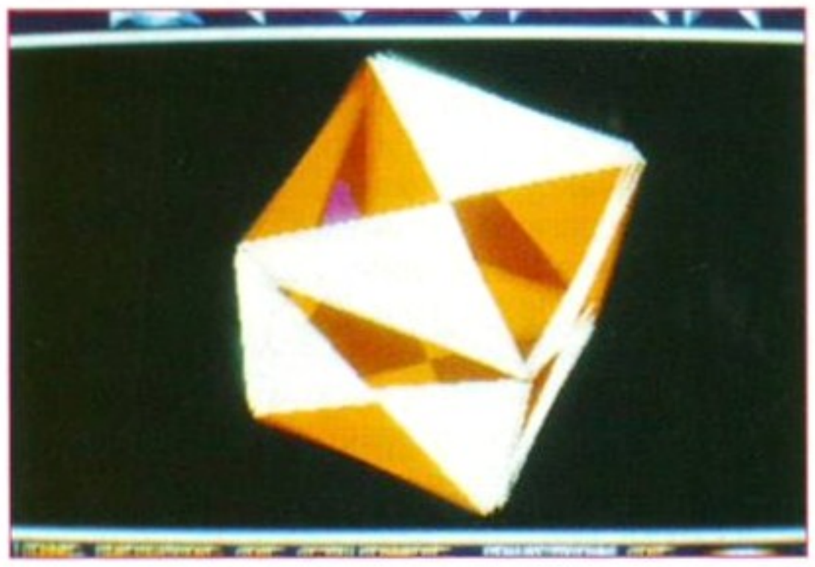
Coming soon . . . Skull & Crossbones, Toki, I Play 3D Soccer, Gods, Megapheonix, Encounter

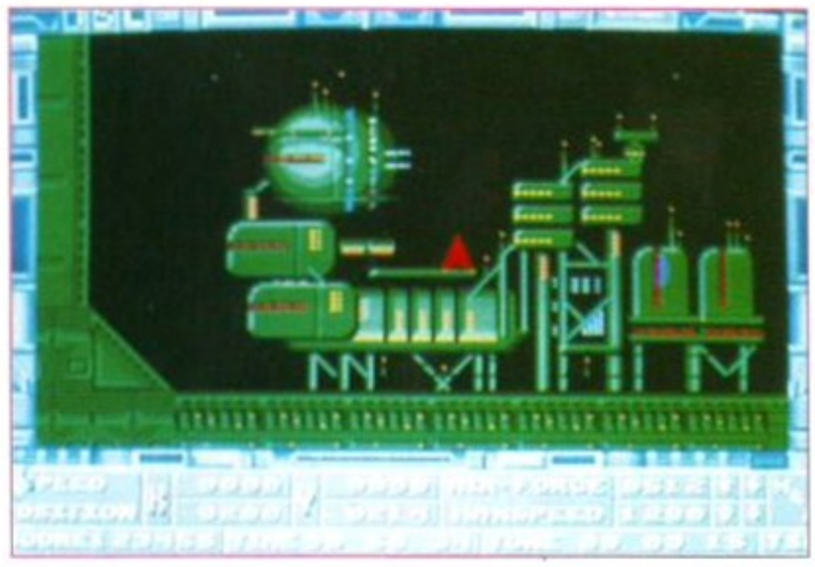
Gods. ***Renegade.*** The first release on the new Renegade label from The Bitmap Brothers (or The Bighead Brothers,as Pat Kelly would have it), is very near to completion. Gods is a scrolling platform arcade adventure, based on the adventures of Hercules. The spooky graphic style of Xenon II puts in another apperanse here, with a menagerie of highly detailed, though slightly jerkily animated creatures. Plenty of key collection and trap disabling seems likely to form the core of the gameplay, with each level holding its own unique puzzles and tasks. Another world-beater? Wait and see.

Close encounters of the Novagenic kind . . .

Encounter. ***Novagen.*** It was 1984 that Paul Woakes unleashed his Battle Zone-inspired 3D shoot 'em up Encounter. Highly praised for its speed, and frantic gameplay, it was to achieve classic status in the view of many C64 gamers. Some years later, Backlash appeared on the Amiga, a lightning-paced update on the original Encounter theme, also from crack-coder Woakes. Now Novagen are ready to release the "real" Amiga version of Encounter, entitled Amiga Encounter. It's promised that all the excitement of the original has been retained, with enhanced graphics to top it off. Review coming up shortly . . .







Anarchy Is Back!

There are dozens of demos made every week so choosing which too review is not easy. These demos are picked at random, Gary Fenton claims. But if Freud said there was no such thing as an accident, how can anything be at random? Or is anarchy really back once more...

You have to earn your way to the next tune by playing a "Thrust" clone using the joystick.

Sit Back and Watch

Frap's latest compilation brings you the Magnetic Fields Hysteresis demo. It goes on for a while showing large bobs, solid vector objects with stenciled effects and the usual tricks you find in demos. The best bit is at the end with the Channel Four logo breaking apart and spinning about the screen before joining together again. Also on the disk is the Anarchy Madness demo part II. Big colourful bobs is the order of the day with filled vectors to polish it off.Staying with Magnetic Fields, their 75th compilation disk holds a home to 6 demos. Cerberos present a large 4096 colour globe made from a scroll text while Concept's intro features some good pop music with a jazz organ to lead the way. Anarchy is back once more with the Shape-Change demo. This is the first to have solid shapes that actually curve and flex as they spin round at a fast rate. No doubt other coders will follow. My favourite demo in the collection is Anthrox's Bobby The Ball. It starts off with the usual vectors and then introduces our friend Bobby. Instantly transported to Stone Henge, he finds himself bouncing up and down on a wavy VU type thing that goes along with the music. After laughing at Bobby's expense he finds a female companion and, the rest is history to say the least.

Turn Up The Volume

Moving swiftly on to a disk from Tankard that contains 2 minutes and 40 seconds of the smash hit "19" by Paul Hardcastle. This is the best version that I've heard on the Amiga thanks to the very clear stereo sample. It loads quickly but comes to a harsh end and resets. This is a good demo for all fans of the original.The Silents return with a two disk offering called Blues House and is entirely original for once. It could have been an ordinary music disk where you simply select the tune and it plays, but not this one. The game is simple. Fly your spaceship from one spacepad to the next and each time you land on a different pad it loads up a new tune. If you want to listen to all 14 songs then you must visit all 14 pads. Alternatively you can load up any tune you wish while you're floating around but if you crash or land on a pad the old tune reloads. A genuine novelty and addictively annoying too!Finally we come to "The Wall" by Kefrens. A three part demo accompanied by an enjoyable piece of music, fast 3D vectors, a thunder storm and a crumbling wall. Another goodie available from most PD libraries.

CITIZEN PRINTERS

Silica presents some great offers on the award winning range of high quality dot matrix printers from Citizen. Each Citizen printer is built in the UK to exacting standards, ensuring superb reliability and a very high quality of output. Our confidence in the quality of Citizen printers is such that we are pleased to offer a unique two year guarantee with every printer. Plus, if you purchase your Citizen printer from us, we will give you a Silica Printer Starter Kit (worth £29.95), *FREE OF CHARGE!*

FREE DELIVERY
Next Day - Anywhere in the UK mainland

FREE STARTER KIT
Worth £29.95 - With every Citizen printer from Silica.

FREE COLOUR KIT
Worth £39.95 - With Swift 9 and Swift 24 printers.

2 YEAR WARRANTY
Silica offer a 2 year warranty (including the printer head) with every Citizen printer purchased from Silica.

WINDOWS 3.0
Free Windows 3.0 driver - In the Silica Starter Kit.

FREE HELPLINE
Technical support helpline open during office hours.

MADE IN THE UK
Citizen printers are manufactured to high standards.

144 CPS DRAFT 9 PIN

CITIZEN 120D+

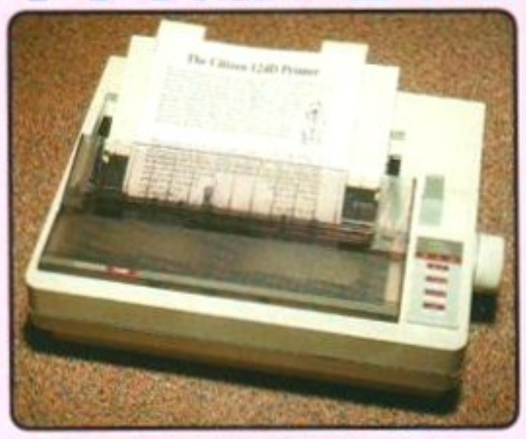
The Citizen 120D+ is one of the UK's best selling printers. It has a stylish appearance and excellent features and performance for such an inexpensive printer. The 120D+ is available with either a serial or parallel interface and is an ideal first printer.

- *9-pin Printhead*
- *Print Speed 144cps Draft*
- *30cps NLQ*
- *Epson & IBM Graphics Emulation*
- *Pull Tractor & Bottom Feed*
- *Superior Graphics - 240×216dpi*
- *FREE Starter Kit*

RRP £233.83
STARTER KIT £29.95
TOTAL RRP: £263.78
SAVING: £112.20
SILICA PRICE: £151.58

£129
+VAT = £151.58

144 CPS DRAFT 24 PIN



CITIZEN 124D

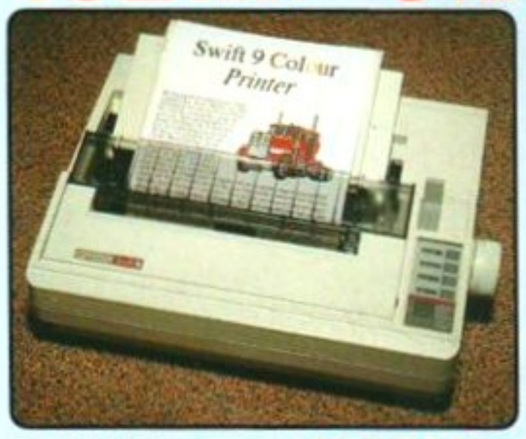
The award winning Citizen 124D brings high quality 24-pin dot matrix printing within every computer users reach. It is the ideal choice where high quality printing is required at a budget price.

- *24-pin Impact Printer*
- *Print Speed 144cps Draft*
- *2 LQ Fonts (48cps)*
- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *Superior Graphics - 360×360dpi*
- *FREE Starter Kit*

RRP £292.58
STARTER KIT £29.95
TOTAL RRP: £322.53
SAVING: £112.20
SILICA PRICE: £210.33

£179
+VAT = £210.33

192 CPS DRAFT 9 PIN



SWIFT 9 - COLOUR!

The Citizen Swift 9 is perfect for those who require high quality dot matrix black or colour printing at a budget price. The print quality of Swift 9 rivals that of other manufacturer's 24-pin models.

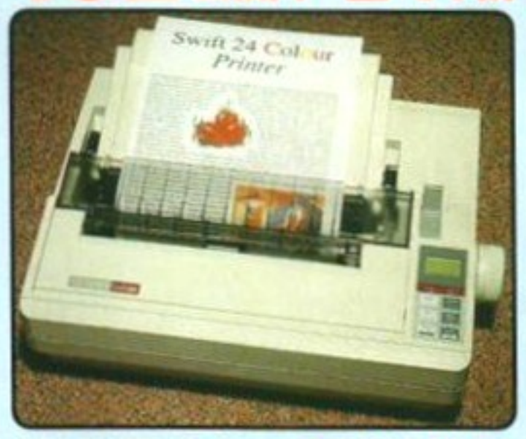
- *9-pin Impact Printer*
- *Print Speed 192cps Draft*
- *3 NLQ Fonts (48cps)*
- *8K Buffer*
- *Epson & IBM Graphics Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

RRP £280.83
STARTER KIT £29.95
COLOUR KIT £44.65
TOTAL RRP: £355.43
SAVING: £133.35
SILICA PRICE: £222.08

£189
+VAT = £222.08

192 CPS DRAFT 24 PIN



SWIFT 24 - COLOUR!

The Citizen Swift 24 is one of Europe's best selling printers and has won awards including Printer Of The Year 1990. Its rapid print speed, quality and black or colour options, make it a natural choice.

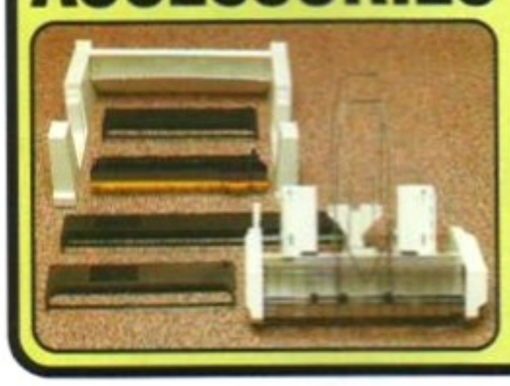
- *24-pin Impact Printer*
- *Print Speed 192cps Draft*
- *4 NLQ Fonts (64cps)*
- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

RRP £428.88
STARTER KIT £29.95
COLOUR KIT £44.65
TOTAL RRP: £503.48
SAVING: £199.15
SILICA PRICE: £304.33

£259
+VAT=£304.33

PRINTER ACCESSORIES



SHEET FEEDERS

PRA 1200	120D	£71.38
PRA 1215	124D/Swift 9/24	£88.70
PRA 1228	124D/Swift 9/24	£42.00

SERIAL INTERFACES

PRA 1189	120D+	£56.45
PRA 1209	Swift 9/124D	£32.25
PRA 1709	Swift 24	£26.38

PRINTER STAND

PRA 1242	124D/Swift 9/24	£24.03

ORIGINAL RIBBONS

RIB 3520	120D/Swift 9 Black	£4.11
RIB 3924	124D/Swift 24 Black	£4.70
RIB 3936	Swift 9/24 Colour	£15.63

COLOUR KITS

PRA 1236	Swift 9/24	£39.65

All prices include VAT and Free delivery.

FREE! STARTER KIT

Every Citizen printer from Silica, comes complete with the Silica Printer Starter Kit, including everything you need to get up and running with your new printer immediately, FREE OF CHARGE!

- *3½" Dual Format Disk with Amiga & ST Printer Drivers*
- *3½" Disk with Drivers for Microsoft Windows 3*
- *2 Metre Parallel Printer Cable*
- *200 Sheets of High Quality Continuous Paper*
- *200 Continuous Address Labels on Tractor Feed*
- *5 Continuous Envelopes on Tractor Feed*

If you already own a printer, and would like a Silica Printer Starter Kit, you may order one (ref: KIT 5000) for the special Silica price of £24.95 - £5 off RRP!

NORMAL RRP
£29.95

SILICA SYSTEMS OFFERS YOU

- ***FREE OVERNIGHT COURIER DELIVERY:*** On all hardware orders shipped in the UK.
- ***TECHNICAL SUPPORT HELPLINE:*** Team of PC technical experts at your service.
- ***PRICE MATCH:*** We normally match competitors on a "Same product - Same price" basis.
- ***ESTABLISHED 12 YEARS:*** Proven track record in professional computer sales.
- ***£13M TURNOVER (with 60 staff):*** Solid and reliable with maintained growth.
- ***BUSINESS/EDUCATION/GOVERNMENT:*** Volume discounts available for large orders.
- ***SHOWROOMS:*** Demonstration and training facilities at our London & Sidcup branches.
- ***THE FULL STOCK RANGE:*** All of your PC requirements from one supplier.
- ***FREE CATALOGUES:*** Will be mailed to you with offers and software/peripheral details.
- ***PAYMENT:*** By cash, cheque and all major credit cards.

Before you decide when to buy your new printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or some technical help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is one of the UKs leading independent computer dealers and provides a quality service to users at home, in education and in business throughout the nation. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature on the Citizen printer range and begin to experience the "Silica Systems Service".

SILICA SYSTEMS

MAIL ORDER:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX		**Tel: 081-309 1111**
Order Lines Open:	Mon-Sat 9.00am-6.00pm	No Late Night Opening	Fax No: 081-308 0608
LONDON SHOP:	52 Tottenham Court Road, London, W1P 0BA		**Tel: 071-580 4000**
Opening Hours:	Mon-Sat 9.30am-6.00pm	No Late Night Opening	Fax No: 071-323 4737
LONDON SHOP:	Selfridges (1st Floor), Oxford Street, London, W1A 1AB		**Tel: 071-629 1234**
Opening Hours:	Mon-Sat 9.30am-6.00pm	Late Night: Thursday until 8pm	Extension: 3914
SIDCUP SHOP:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX		**Tel: 081-302 8811**
Opening Hours:	Mon-Sat 9.00am-5.30pm	Late Night: Friday until 7pm	Fax No: 081-309 0017

To: Silica Systems, Dept AUI-0691-54, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND CITIZEN PRINTER INFORMATION

Mr/Mrs/Ms: ..... Initials: ..... Surname: .....

Address: .....

.....

..... Postcode: .....

Tel (Home): ..... Tel (Work): .....

Company Name (if applicable): .....

Which computer(s), if any, do you own? .....

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.

THIRD COAST TECHNOLOGIES

Unit 8, Bradley Hall Trading Estate,
Standish, Wigan, Lancashire,
WN6 0XQ
Tel: (0257) 472444 Fax:(0257) 426577

Hard Drives For The A500 & A2000

Xetec A500

- Xetec hard drives offer the ultimate in terms of performance for the Amiga A500
- Faster than any other competitor
- Transfer rates of up to 800K/S
- Supports tape backup & networking under SCSI
- Support of up to 8Mbytes of auto-configuring ram
- Compact host adapter with 1 metre connection cable
- Comes complete with 40 management utilities & manual

Xetec A500 Hard Drive & Ram Pricing

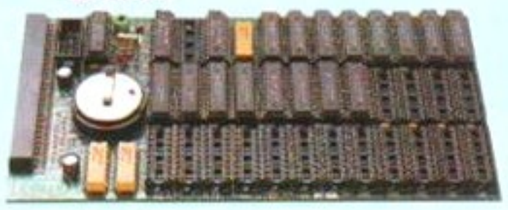
Xetec 50MB	10 Milli Head Park	£499.99	Xetec Ram	£99.99
Xetec 65MB	25 Milli Head Park	£549.99	Xetec 1.5MB	£199.99
Xetec 85MB	25 Milli Head Park	£599.99	Xetec 2MB	£249.99
Xetec 106MB	15 Milli Head Park	£649.99	Xetec 4MB	£349.99
			Xetec 8MB	£549.99

IVS Trumpcard

- Supports all embedded hard drives
- Supports up to 4Mbytes of fast ram
- 2-3 times faster than the A590
- Autoboot roms as standard, uses fastfile
- Compact design clips into side of Amiga A500
- Memory expandable in 512K, 1MB, 2MB steps
- Unique design allows controller & drive to be used with an Amiga 2000 should you ever upgrade
- Supports any 3.5" SCSI drive

32 MB	Trumpcard 25 Milli Auto Park A500	£349.99	Trumpcard Kit	£199.99
50 MB	Trumpcard 10 Milli Auto Park A500	£399.99	Meta 4 -2MB	£249.99
80 MB	Trumpcard 25 Milli Auto Park A500	£529.99	Meta 4 -4MB	£349.99
106 MB	Trumpcard 25 Milli Auto Park A500	£599.99		

Ram Expansions



ICD AdRAM A500

ICD AdRAM for the A500 offers memory expansion from 512K to 1MB then by adding 4 chips it expands to 1.5MB etc. The board comes supplied with comprehensive manual and clock. It takes only minutes to install & requires no soldering. Available in any configuration. Plugs in A501 expansion slot.

AdRAM 540 unpopulated	£79.99	AdRAM 540 with 2MB	£169.99
AdRAM 540 with 1/2MB	£99.99	AdRAM 540 with 4MB	£244.99
AdRAM 540 with 1MB	£134.99	AdRAM 540 with 6MB	£484.99
AdRAM 540 with 1.5MB	£149.99		

CP10 Pal Encoder

Price £129.99
Broadcast quality Pal encoding on the Amiga, PC and Atari allows you to get on your recording what you see on the screen without loss of quality. Supports S-VHS and also RUB & Audio in on Scart. Audio, Video and Y/c out. Supplied with comprehensive manual & PSU.

D640 Automatic Colour Splitter

Price £129.99
Allows images to be digitised in full colour from camera or recorder. Offers Pal in and also S-VHS in full brightness, contrast and colour controls. Fully Automatic without the need for manual switching between Red, Green and Blue. Fully compatible with all Amiga digitiser, supplied with comprehensive manual & PSU.

Faster Than any other Competitor "Amiga Computing"

ICD ADV 2000 Hard Drives

Advantage 2000 SCSI performance hard drive controller. Supports transfer rate of up to 900K/S. Fully autobooting supporting all embedded SCSI drives & SCSI/ST506 controllers. The ADV controller also supports optical drives, tape streamers & removable media drives. Cache buffering & 20 nanosecond GAL logic make this the fastest controller commercially available for the Amiga 2000 series. Programmable memory cache buffering is also available. ADV will support a drive in the landing bay or on the side of the card.

ADV 2000 Controller £129.99

Xetec minicard £99.99

ICD ADV 2000 Hard Drive Pricing

32MB 25M/S	auto head park & lock	£349.99	65MB 25M/S	auto head park & lock	£449.99
50MB 10M/S	auto head park & lock	£399.99	106MB 15M/S	auto head park & lock	£579.99
85MB 25M/S	auto head park & lock	£449.99	ST506 controller (MFM & RLL)		£99.99
330MB 15M/S	auto head park & lock	£1999.99			

Amiga Floppy Drives

Internal floppy drive requires no case modification
external 84 track slimline drive with cable & switch

External Floppy £69.99

No case mods
Internal Floppy £59.99

Graphics

Pro Genlock

£299.99
Pro-Genlocks offering video in & out, RGB & PAL out. Built in fader. External colour and contrast controls. Supplied with manual and features that leave the Rendale standing. + RGB splitter.

ICD Adspeed

GST Gold Genlock

Pro-Genlock with built in PSU, built in RGB splitter. Video in & out also RGB & PAL out. Built in key inverter. Allows digitised results to be stored and overlayed onto any VHS recorder. Title and animate any video. S-VHS + Fader £549.99

- 14MHz replacement processor
- 7MHz fallback software selectable
- On-board RAM cache
- No soldering required

Only £159.99

AMIGA BANDITS

FREE POSTAGE FIRST CLASS

AMIGA BANDITS PDL
GROUND FLOOR
28 LEMSFORD ROAD
ST ALBANS
HERTS AL1 3PB

DISKS NOW 85p

YOU WANTED IT SO WE GAVE IT! YES THAT'S RIGHT ALL DISKS ARE NOW ONLY 85p INC P&P

G019: Mech-Force/BattleTech clone
G017: StarTrek Game/1 meg-3 disks
G023: Return to Earth/Space trading game
G021: Pacman 87/Brill' Pacman game
G001: All new StarTrek Game/2 disk 512K
G018: Amoeba Invaders/SpaceInvaders game
A001: Walker Demo I/1 meg
A002: Walker demo II/1 meg
A075: Probe sequence/Been on TV!
A254: Budbrain II/Great sequel demo
A260: Lost Ark demo/(Anim.) Indy shoots Arab!
A261: Fraxion horror demo/Over 18!
A262: Robocop II demo/Stunning slideshow
A012: Puggs in space/Cute Alien visits Earth!
U065: M-CAD/Computer Aided Design Util.
U004: Workbench Plus/replacement workbench
U001: Amibase V3.76/Excellent Database
U061: Master Virus killer/kills 105 viruses!
U009: RIM/Relational Database
U010: Visicalc/powerful spreadsheet
U070: D-COPY/Superb disk copier from D-Mob
M021: Suburbia/Pet Shop Boys sample

512K MEMORY UPGRADES ONLY

28.99 POST FREE

FEATURES:

Top quality PCB
Latest low power consumption D-RAMS
Enable/Disable switch
Easy fitting
Clock version available (add £4.50)

Cheques payable: ABPD

I-C-P-U-G

the Independent Commodore Products Users Group is the largest and most friendly computer club in the country

- ★ **Over 700 disks of Amiga Public Domain Software entirely free to members - you supply blank disks and pay only for postage.**
- ★ Superb 100-page magazine published every two months - keep up to date with latest Amiga hints and tips. Get the news from America first!
- ★ Meet other Amiga users at one of our many local groups which meet regularly all over the country.
- ★ Help and advice services - hardware or software problems can be quickly resolved.
- ★ Discount scheme makes purchases easier! Save money on hardware add-ons and software.
- ★ Subscription for 1991 only £17.00 including £1 joining fee
- ★ Before requesting any software, please wait for your membership details to be sent to you.
- ★ Overseas prices on application.
- ★ Want to have a look before committing yourself? Back issues of the magazine from 1990 to all at £2 each.
- ★ We support ALL Commodore machines with extensive software libraries and help services.

If you are seriously interested in using or programming your Amiga, or indeed any Commodore Computer, then joining ICPUG is a must!

For full details send a stamped addressed envelope to:

ICPUG Membership Secretary, Jack A. Cohen
PO BOX 1309, LONDON N3 2UT
Telephone 081-346 0050 after 6.00pm

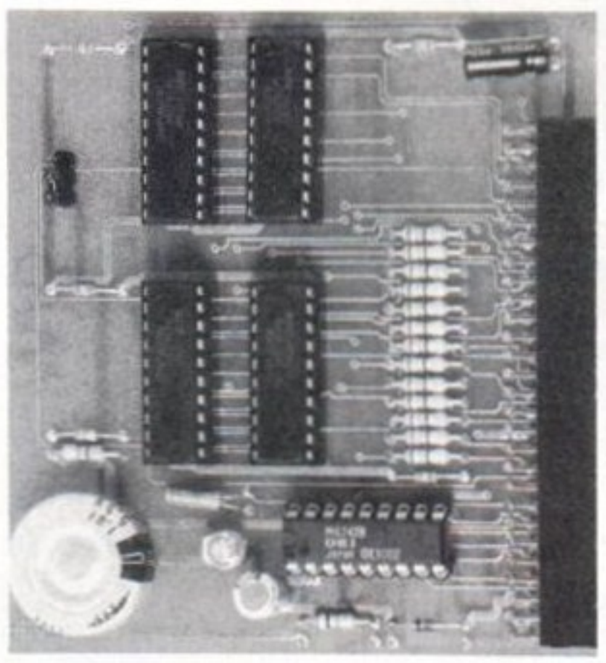
Virgo DEVELOPMENTS

Upgrade your Amiga 500

512K extension with clock

MADE IN U.K.

* Top-quality PCB and connector for total reliability
* Latest 1 meg D RAMs for low power consumption
* Auto-recharging battery-backed real-time clock
* Memory enable/disable
* Compact design
* Easily fitted in seconds. No risk to your warranty



No frills or gimmicks. Just a quality product at the best price you'll find.

£29.95 inc VAT P&P

Also available:

* 512K extension without clock	£25.99	* RAM chips per ½ meg set	£16.65
* Half meg card with clock (no RAMs)	£15.50	* 1½ meg extension with clock	£79.95
* Half meg card (no RAMs or clock)	£11.50	* 1½ meg card with clock (no RAMs)	£30.00

Credit card hotline
24 - hour service

0734 890588

Same day dispatch
12 - month guarantee

Virgo Developments Ltd, Sapphire House, Fishponds Road,
Wokingham, Berkshire, RG11 2QJ.

VISA

U.K. Games Chart

Position	Game	Company	Last Month	Rating	Price
1.	**Lemmings**	Psygnosis	(4)	100%	£24.99
2.	**Speedball II**	Imageworks	(2)	91%	£24.95
3.	**Powermonger**	Electronic Arts	(1)	82%	£29.95
4.	**Turrican II**	Rainbow Arts	(5)	90%	£24.95
5.	**F-19 Stealth Fighter**	Microprose	(3)	78%	£29.99
6.	**SWIV**	Storm	(-)	TBA	£24.95
7.	**MIG-29 Fulcrum**	Domark	(9)	86%	£34.95
8.	**Final Whistle**	Anco	(7)	97%	£12.99
9.	**UMS II**	Microprose	(-)	84%	£30.65
10.	**Indy 500**	Electronic Arts	(6)	93%	£24.95

Well, as we predicted those suicidal Psygnosis beings addicted themselves to the games world and hit the Number One spot. Imageworks' Speedball II, real quality there too, as we also predicted stays high and Rainbow Arts' Turrican deservedly makes it big. Class, like murder, will out... Newcomer SWIV from Storm is a hot shoot 'em up but UMS II will no doubt follow its predecessor by becoming a lomg running cult

GAMES RATINGS

So you've noticed a change in the game review ratings? Want to know what it's all about? Ok, here's the lowdown.

Verdict: Marked as a percentage, this sums up the reviewers opinion of the game as a whole. It's not an average, but an overall score which takes all the aspects of the game into account, including the price

Graphics: also marked as a percentage, this tells you how good looking the game is, and considers the variety of graphics and the standard of scrolling and animation, as well as the design of the graphics themselves.

Sound: does the music gee you up in an exciting, or irritating way? Do the monsters go "pop" when you kill them, or scream out a chilling death cry? Once again marked as a percentage.

Difficulty: each game we review is given a difficulty rating from 1 to 10. This rating differs from the rest in that a higher rating is not necessarily better. A game rated with a difficulty level of 1, for example , would be an absolute doddle for even the youngest or most clumsy player. A rating of 10 would reflect an extremely difficult game, which would drive the average player mad with frustration, but hold a substantial challenge for the very best gamers. We take a mark of five as an average.

To help you get a handle on the gauging of the difficulty level rating, this is how AUI would rate for difficulty three classic Amiga games.
R-type: **8/10.**
Rick Dangerous II: **5/10.**
F-A/18 Interceptor: **4/10.**

Recommended Games of Recent Months

Each month we review a whole pile of games; some awful, some good, occasionally some terrific. Not all the best ever get into the charts. In this section we recommend games which have been the best in recent months to keep you updated on the best when you part with your hard-earned cash. There is so much hype around, our unbiased and analytical approach should be a good guide on what to buy. Games we recommend have to be worth every penny - you can believe that!

Lemmings
Psygnosis
£24.99
***AUI* Rating: 100%**
If you only ever buy one game in your life it's got to be Lemmings. Lemmings is based on a race of simple creatures who will walk into Psygnosis' death traps. Using various skills which you can bestow upon these Walkers you can prevent them from dying and save the Lemming race. It's new, and addictive, with four different game difficulties from fun to mayhem. You'll not find another like it.

B.A.T.
Ubisoft
Price: £24.95
***AUI* Rating: 99%**
This long-awaited adventure was in the development stages for nearly 2 years and, as Andy Moss found out, was well worth the wait. It has to be one of the best adventures to date as Andy is not one to give out high ratings willy-nilly. The main character is one of the Bureau of Astral Troubleshooters' best agents and has been sent to Terrapolis to foil the evil plans of two terrorists who wish to bomb up the galactic city. There are over 110 static screens which are gloriously drawn and feature animation sequences. If investigative adventures are to your liking then B.A.T. must be on your shopping list!

Speedball 2
Image Works
Price: £24.95
***AUI* Rating: 91%**
Spikes, rivets, balls and helmets may all sound a bit kinky, but sex fiends will be disappointed to find that Speedball 2 is a violent future-sport. Steel-plated arenas are the venues for this barbaric variation on indoor soccer. Setting new standards in graphics, with top-notch sound effects and gameplay, Speedball 2 is a bare essential for armchair sportsmen.

GO!
Oxford Softworks
Price: £24.95
***AUI* Rating: 90%**
This isn't your normal run-of-the-mill game, and you certainly won't see it hit the charts. But, if board games is your type of challenge then this is going to keep you on toes for ages. Go is played on a grid using black and white counter-type peices and thae aim is to gain as much territory as possible. The gameplay is simple, but incredibly infuriating and difficult. Even the easiest level gives a challenging match. However, you can set up various positions to give advantage to either side, and thus altering difficulty enough for beginners and experienced users to play in challenging games. If you like games that make you think, Go! is for you.

Prince of Persia
Broderbund
Price: £24.95
***AUI* Rating: 92%**
A brilliant arcade adventure from the creators of Loderunner, Wings of Fury and Choplifter, Prince of Persia is one of the most compulsive games released for months. What at first seems to be a mundane and graphically dull game is uplifted by some superb character animation and devious level designs. Don't be deceived by its unexciting look in still shots. Get a copy ASAP.

PGA Golf Tour
Electronic Arts
Price: £24.95
***AUI* Rating: 94%**
PGA Golf Tour has ousted Leaderboard from its throne. Hard to believe maybe, but true. Never before has golf been simulated so well on a home computer. Four 18 hole courses are there for your selection, with the option to play against computer controlled opponents. Dynamic features such as dual camera angles, action replays, contoured greens, and 3D fly-by hole previews give it a TV style feel. Realism in the graphics and the movement of the ball create a completely believable environment. A great golf game, that will run and run.

PD Soft. (AUI)

1 Bryant Avenue,
Southend-on-Sea
Essex SS1 2YD.

Credit Card Hotlines
(0702) 466933/612259

(NEW FRED FISH,Use with Workbech)
F351 PDC/Complete C compilation syst
F356 NCOMM V1.34/Communications Prg
F359 DICE/Intergrated C Enviromment
Abridge/solution to Anim5 incompatib
F361 BRUSH4D/Convert Images 2 sculpt
F365 EASYBACKUP/Hard disk Backup PRG
F371 FRACTALS/Fractal generator that
generates different typesof fractals
F376 THE AZTEC C COMPILER,Version5.0
F379 THEA64PACKAGEV1/ Comprehensive
CBM 64 emulator Write in C64 Basic
F382 CROSSDOS/Read and write MS-DOS
F383 MANDELMOUNTAINS/Updated version
PCOPY/Updated version/high sped copy
F384 NORTHC V1.2/Latest Updated ver
F387 MANDANIM/Mandelbrot Animation &
MANDELBLITZ/Fast Mandelbrot plotter
F391 FRACTALLAB/Inveestigate fractals
F394 Some ANIMATED POINTERS. Duluxe
Paint Picutres.PRINTIMAGE/Easy print
F396 PCALENDER,Resident/AztecC utils
ROADROUTE/Trip planner program.
F397 DKBTRACE/A complete ray Tracer
F402 ADOC/Amiga Tutoraly Program.
The Latest PRINTSTUDIO New V1.20
F403 KAWAIEDITOR/Midi synthesizer
F404 NGTC/Trivia game based on Star
Trek The NEXT GENERATION series.(2)
F406 ATCOPY/Hard diskusers DirWork
DiskMasher,GnuAwk,GnuGrep,MadBlanker
F412 ZEROVIRUSII 1.15,DIRECTORYOPUS
Better than diskmassler/user friendly
F414 WRAP/Sculpt4d image around a
sphere/cylinder,even relleifed images
F416 BUDGET/Personal finance manager
SOUNDEDITOR/Stereo sound file editor
F417 DATAEASY/Database/Phone dialer,
speech,screen editor,screen print
F420 BOOTX V3.4/Virus Killer,JP2Scr
MenuWriter/Write a menu to Bootblock
(OFFICE UTILITIES)
V017 VC,VISICALC/Spreadsheet Program
V023 APPOINTMENT CALENDER/Complete
V024 BANKN/Complete checkbook system
V027 QUICKBASE/Another Neat Database
V028 WORDWRIGHT and AMIGASPELL
V029 HOUSE HOLD INVENTORY/Program
V105 AMIGAFOX/Word Processor program
V108 AMIBASE/The database program
V114 TEXTPLUS/Word Processor V2.0
V121 HYPERBASE/The Database Program
V122 MED/The Word Processor Program
V123 RIM/The Database Program
F098 QBASE/Mailbase management utl
(VARIOUS DISK COLLECTION)
V002 THE CLIP ART Collection(Bdisks)
V016 THE FISH TANK Simulator Program
V043 JASSBENCH/Replaces WorkBench
V056 DISKMASTER V3.0/AF Dec reviewed
V061 THE VIRUS KILLER Collection
V100 THE 3.5 DISK LABEL Printer prg
V106 POWERLOGO/Education Language.
V110 TEN PIN BOWLING League Program
V115 RAMOS 1.21 Amos Update Disk
V117 MAGNETIC PAGES/Cradle & Display
a disk based Magazine with Documents
V119 PRINTER DRIVERS/Includes LC-10
V120 NEW DIGI CONCERT DEMO CREATOR
V124 THE DPAINT PICTURE ART DISKS(2)
V128 BOOTBLOCK Utility collection(2)
V130 NEW CELTIC Demo Creator Disk
V131 C-LIGHT/Ray Tracing Program
F165 RAMCOPY/Copy a disk into ram(*)
F240 DUNGEONMASTERMAPS/ALL 14 levels
F272 AMIGAPUNT/Horse prediction PrgÂ
F273 PENNYWISE/CashBook Program/Good
F300 TITLEGEN V1.6/Video production
F305 SPACELOG/Database including all
man related space missions/Intresled
F355 TRACKSALVE V1.3/Remove CLI bugs
F337 THE COMPLETE CMANUAL for Amiga
F339 PASCAL COMPILERV1.1c/self comp
F347 CURSOR/3-Pass A Basic compiler
F349 MED V2.0/Amiga Musical Editor
F383 P-COPY/Latest updated version
(PD-SOFT SPECIAL COLLECTIONS)
V090 D-Copy,Mega Sound Cracker,Slide
Viewer,Tetra copy and Pilure Ripper.
V109 Print Studio,Amiga Spell,Noise
Tracker,Virus Destroyer,Power Packer
V118 Quickcopy,Fixdisk,Flash Sound
Tracker ripper,Pascal,Professional
Sound Tracker,Text Editor and Logo.
V126 TurboBackup,CrayonPaint,X-spell
Jed WP,Sound Tracker V2.5 & 6Rippers
(THE GAMES COLLECTION)
T045 WELLTRIS/Another Tetris Variant
0002 FLASCHBIER/Boulderdash Variant
0688 BACK TO THE FUTURE 3 (Playable)
0847 HEYTRIS/Very hard but excellent
0850 TURRICAN II (Playable version)
0913 BREAKOUT Contruction Set & Game
0920 BREAKER and CARDS The Games
1060 STAR TREK The NEXT GENERATION
the mega New STARTREK Follow up game
1073 TETRIS Clone/fast & responsive
1079 DRIVE WARS/The new shoot em up
1081 ULTIMATE STAR TREK See Below(2)
1083 MECHFIGHT The Role playing game
1203 AMIGOIDS/An ASTROIDS Variant
(New) MISSILE COMMAND Arcade game
F194 MORIA/Dungeon simulator game
F205 BATTY, BATTLEFORCE & CHESS game
F320 AMIOMEGA/Similar to Hack/rogue
but is much more complex, AD&D style
F345 CROBOTS/Simular to Meck warrior
F357 EMPIRE/Multiplayer economics gm
F362 IMPERIUM ROMANUM/Risk style gam
F420 SPACEWAR/V1.11 TwoPlayer Game.
V022 PACKMAN/The Classic game,V.Good
(THE GOLDEN DISK COLLECTION)
0111 WALKER Demos/state 1or 2Mb* (2)
0168 NASA PICS/ Actual space pictues
0286 KYLIE MANOGUE Picture/Music (2)
0272 FREDDY KRUGAR/Its a nightmare
0451 SCOOPEX presents Xenomorph
0592 MIAMI VICE & CROCKETS Theme (2)
0612 MONTY PYTHONS/The Gangs back(2)
0614 DEBBIE GIBSON Electric Youth(2)
0635 100 ORIGIAL 64 Classics Titles
0797 HANKY PANKY MADONNA Music disk
0838 THE STAR WARS Picture Disk
0854 KYLIE'S Made in Heavan (2)
0860 TEENAGE Ninja Turles Pictures
0972 BETTY BOO Music Sample disk
0883 808 STATE remixes/A NEW Disk
1047 ROBOCOP Digi-Movie productions
1109 NOT THE 9o'CLOCK NEWS 2 (4)
1115 BAD NEWS From the Comic strip
1162 WATERSHIP DOWN Slideshow
(MUSIC PROGRAMS)
V097 THE MUSIC COMPOSER Program
V039 STARTREKKER V1.2 Music Program
V047 JAMTRACKER V1.0 Program
V107 FUTURE COMPOSER Music program
V133 IST-001 8 CHANNEL Soundtracker
V116 ST-07 HOUSE Music Instruments
V132 ST-71 PSYGNOSIS Instruments
(ANIMATIONS)
F413 STEALTHY MANOEUVES II/The SWISS
ARMY F-16 in Combat,JUGGLER2 Anim
0674 EPIC/Oceans animated space city
0733 PMC FRACTAL/Reviewed AF jan *
0734 CLOTHES PEG/Reviewed AF jan *
0849 DRAGONS LAIR II The Time Warp *
0856 FILLET THE FISH/Reviewed AF feb
1021 USA vs IRAQ Animation reviewed
in NCE, Amiga Format & CUAmiga.
1035 BATMAN THE MOVIE/Reviewed AF *
1113 COYOTE Part II/The Road Test *
(MEGA DEMOS)
0349 RAF/Great Ghostbusters sect (2)
0664 BUDBRAIN The Origial one (2)
0948 MAXIMUM OVERDRIVE/Excellent (2)
0957 THE PRIME 90 Mega Demo, V Good
0960 D-MOB HOUSE Music Number 4 (2)
1002 BUDBRAIN MEGA DEMO II
THE BUD'S ARE BACK IN TOWN
1003 HORIZON/Another Excellent Disk
1004 TREACL/Present thier latest MD
1008 SHARE & ENJOY Amazing Tunes(3)
1016 CRIONICS Total Destructions
1019 TECHNOFLIGHT/What a great week
1044 KEFRENS Presents The Wall
1065 HAWK'S/Nice Batman Section
(THE NEW DEMO DISK SELECTION)
0723 DEPECHE MODE Music,101s (2)
0792 ALIENS Mega long Sample (2)
0804 JEAN MICHEAL JARRE Equinoxe
0814 JARRE'S Ultimate Docklands II
0876 THE COMMODORE 64 Picture Show
0905 ZOOLOOK Jean Michel Jarre
0908 GHOSTBUSTERS Digi music disk
0910 WAR OF THE WORLDS Mega music
0926 THE WHO Mega Sounds Number 1
0937 MIAMI VICE Remix disk/Very Good
0956 THE New EVIL DEAD Demo Disk
0959 THE BEST DEMOS of 1990 V Good
0989 WRATH OF THE DEMON Music disk
1005 SONIX HOUSE Music Number 5
Best of the Best House Music Disks
1022 SCANNERS (2) Horror Slideshow
1048 BRUCE LEE Mega Slide show disk
1049 TOTAL RECALL The demo disk
1050 BACK TO THE FUTURE II Demo
1052 THE NIGHTMARE Slideshow (2)
1054 THE BLUES BROTHERS Presents(3)
1105 JARRE LIVE The Best Jarre disk
1107 STAR TREKKIN The Whole song (2)
1119 CRUSADERS HOT Wired Music disk
1123 SONIX Presents BEATLES Music
1129 DIGITIAL NOSE2/Excellent remix
(RED HOT NEW DISKS)
1133 SCOOPEX MEGA DEMO 2 Latest Pro-
duction from One for the best Groups
1146 EQUIMANIA II - Drunken Skulls
1177 APPIRETICE/Playable/RainbowArts
1190 WIZCAT Presents THE TRASHCAN
(NEW) RED DWARF Hi-Res Pictures (2)
(TOBIAS RICHTERS SELECTION)
0186 STAR TREK Origial Anims (2) 1MB
0962 TB Slideshow FANTASIC ART (2) *
1028 Star Trek/Star Wars Anim1 (2) *
1030 Star Trek/Star Wars Anim2 (2) *
1032 Star Trek/Star Wars Anim3 (2) *
0914 ALL NEW STAR TREK Game (2) *
1081 The ULTIMATE STAR TREK Game (2)
The Lastest & Best Star Trek Game,
Extra Graphics/Sound For 1MB Owners

FLETCHER FONTS

PACK 1 to 4 : 6 disks per pack, each disk has 7 to 15 different colour fonts, various sizes but no repeats. Instructions to load the 16 colour fonts into DPAINT as fonts. Help, Advice & Support available from PD Soft.
PACK A or B : Black & White packs of fonts as above but 10 to 20 fonts per disk.
£15.00 Per Pack. IDEAL FOR VIDEO & ARTISTIC WORK

All Orders Dispatched Within 48 HOURS. CLEARED FUNDS ONLY

(n) = Number of Disks
* = 1MB Memory Required

Overseas Orders Welcome
WE ARE OPEN SATURDAY'S

HIGH QUALITY LICENCEWARE GAMES £3.00 each

L1 - SPACE BLOB : Platform Game
L2 - MR DIG (1Mb) : Dig Dug Style
L3 - Q-BOID : Tetris Variant.
L4 - COMPUTER CONFLICTS : Shoot 'em up
L5 - SUB CULTURE : R-Type clone. All 5 Exciting Levels.
L6 - BALLZONE : Arkanoid but with a new twist.
L7 - DIZZY LIZZY(1Mb) : Boulderdash type of game.
L8 - LIZZY'S FUNTIME 1 : 4 Educational Games.

CATALOGUE DISK

Tired of boring catalogue disks? Get the unique, easy to use PD SOFT Database Catalogue Disks. They contains details of over 1800 disks available directly from stock from us. A multitude of options including Search & Print.2 Disk Set Only £1.50. Free Updates.

FRED FISH PAPER

Ever wanted a complete description of all the Fred Fish disks on Paper? Well, the entire list is now ONLY available from PD SOFT. 80 Pages revealing everything about every program in this range as described by Fred Fish. **This Includes Sorted Index Of Every Program!** Only £2.50

PRICES PER DISK

1-5	Disks	£2.50
6-10	Disks	£2.25
11-20	Disks	£2.00
21+	Disks	£1.75

With exception to Licenceware and Special Packs.
XXX please ask for list and state that you are over 18.

ORBITAL PUBLIC DOMAIN

ALL DISKS ARE 99 PENCE

OPD316 DISCO FEVER 1
OPD276 MADONNA VOUGE (4)
OPD277 VISION HOUSE
OPD278 CRIONICS NEVERWHERE
OPD279 HATRICK RAVE DEMO
OPD247 MASTER VIRUS KILLER
OPD245 FLASHBIER P.D. GAME
OPD257 GLIDEASCOPE 2
OPD259 DOPE INTO WRITER
OPD254 SONIX HOUSE 1
OPD235 NEW ORDER MUSIC 2
OPD217 TURTLE POWER
OPD275 AMAZING MUSIC 2 (3)
OPD273 BANGING RAVES
OPD272 BATMAN THE MOVIE
OPD271 MAYHEM P.D. GAME
OPD269 HORIZON MEGADEMO
OPD268 FILLET THE FISH
OPD264 BUDBRAIN MEGADEMO 2
OPD112 MADONNA SPANKY
OPD220 STAR TREK GAME 3 (2)
OPD211 THE WALL PINK FLOYD
OPD197 A COPY (DISK COPIER)
OPD114 D COPY (DISK COPIER)
OPD209 P COPY (DISK COPIER)
OPD200 SAFE SEX DEMO

OPD334 ORBITAL UTILITY DISK 1
OPD070 RAF MEGADEMO (2)
OPD150 ALF 2 MIX
OPD026 COMPUTER CONFLICT
OPD132 REBELS MEGADEMO 6
OPD184 BADGE KILLER DEMOS
OPD218 CAVE PARTY DEMO
OPD159 MADONNA SLIDESHOW
OPD199 WALKER DEMO 2 (M)
OPD236 SAM FOX SLIDESHOW (X)
OPD133 MUSIC MAESTRO 6
OPD005 PUGGS IN SPACE
OPD078 BUDBRAIN MEGADEMO 1 (2) (M)
OPD207 DRIP P.D. GAME (M)
OPD187 PSEUDO COP P.D. GAME
OPD169 JAZZBENCH
OPD083 SPACE ACE DEMO
OPD120 FRAXION HORROR (X)
OPD127 ROBOCOP DEMO
OPD139 COOL COUGAR
OPD191 BETTY BOO (MUSIC)
OPD252 808 STATE REMIX
OPD198 WALKER DEMO 1 (M)
OPD222 KIM WILD SLIDESHOW
OPD193 BODY TALK (X) (2)
OPD085 FRESH COLA MUSIC (2)

CATALOGUE ON DISK £1.00 (INC 4 GOOD DEMOS)
Numbers in ( ) means number of disks, M = 1 Meg, X = 18 years only

Price is 99 pence per disk + 50 pence p&p per order
Cheques/PO payable to Orbital P.D.
5 Green Lane, South Chailey, East Sussex BN8 4BT England.
All overseas orders are subject to a 30 pence per disk surcharge.
SAE for a free catalogue. Tel: 0273 401286

HAMMERSOFT

MAIL ORDER HARDWARE SPECIALIST

VISA

SOFTWARE U.K. ONLY (Free delivery) (Courier £5.00)	
AMIGA PACK 1: (ALL AMIGAS ARE 1 MEG)	
AMIGA A500 SCREEN GEMS: TV modulator/Beast II. Days of Thunder. Nightbreed. Back To Future 2. DPaint v. mouse mat & 23 P.D.Games	£384.99
AMIGA PACK 2: As above with 10 Extra Games	£415.00
AMIGA PACK 3: Basic A500	£319.00
ATARI LYNX GAME CONSOLE	£97.90
PHILIPS MK II STEREO MONITOR	£253.90
C8M NEW 1084S MONITOR+LEAD	£264.00
A590 HARD DRIVE	£274.99
1/2 MEG EXPANSION/CLOCK	£34.99
CUMANA 3.5" DRIVE. Port+Switch	£69.99
ATONCE PC Emulator	£199.99
CITIZEN 120D+PRINTER	£144.99
CITIZEN SWIFT-9 COLOUR	£285.00
CITIZEN SWIFT-24 COLOUR	£385.99
SPECIAL OFFERS (while stocks last)	
Amegas (Arkanoid clone)	£5.99
Art of Chess	£5.99
Barbarian (palace)	£5.99
Battle Valley	£8.99
Bubble Ghost	£5.99
Burmuda Project 1.2 Only	£9.99
Data Storm	£5.99
Dungeon Quest	£5.99
E-Motion	£8.99
Exolon	£8.99
Gauntlet II	£8.99
Grand Monster Slam	£5.99
Heroes of the Lance 1.2 Only	£5.99
Kid Gloves	£5.99
Netherworld	£5.99
Mercenary	£5.99
Microprose Soccer	£8.99
Phantom Fighter	£5.99
Powerplay	£5.99
RVF Honda	£7.99
Shuffelpuck Cafe	£5.99
Slayer	£8.99
Terrorpods	£5.99
Tower of Babel	£5.99
Zynaps	£7.99
LEISURE	
AMOS Game Creator	£36.90
Altered Beast	£15.50
Armour-Geddon	£17.29
A.T.F. II	£16.75
A.W.E.S.O.M.E. + T-SHIRT	£23.99
Back to Future III	£17.29
BATTLE CHESS	£17.29
Battle Command	£16.79
Betrayal	£20.39
Bubble Bobble	£8.99
Castle Master	£15.99
CENTURION	*£17.29
Chase HQ II	£16.85
Corperation	£14.50
DAMOCLES	£16.29
Days of Thunder	£15.99
Deuteros	*£17.29
Double Dragon	£5.99
EPIC	*£20.39
Ferrari Formula 1	£8.99
Fists of Fury	£17.29
GODS	*£16.89
Golden Axe	£17.29
GOLF: Jack Nicklaus Unltd. 1MB	£20.99
Hunter	*£16.89
Indianapolis 500	£17.29
Interphase	£9.99
Kick Off II League Version	£13.29
Kick Off (1 Meg)	£16.29
Killing Game Show	£17.29
Lemmings	£16.99
Lotus Turbo	£17.29
Night Shift	£17.29
Panzer Kick Boxing	£16.89
PGA Tour Golf	£17.29
Populous	£17.29
POWERMONGER	£19.29
Pro Tennis Tour 2	£17.29
ROBOCOP II	£16.99
Silkworm	£5.96
Shadow of the Beast II	£23.99
Space Harrier II	£12.90
SPEEDBALL II	£16.99
Supremacy	£20.39
SW I V	£16.99
Team Suzuki	£17.29
TEENAGE MUTANT TURTLES	£16.75
Time Soldier	£8.99
Toyota Celica Rally	£16.79
Triad II	£15.99
Wheels of Fire Compilation	£17.29
XENOMORPH	£16.75
ADVENTURE RPG & SIMULATOR	**AMIGA**
Bards Tale III	£17.29
Battle Master	£20.39
BLOODWYCH	£14.90
Captive	£20.39
Chaos Strikes Back (1 MEG)	£17.29
Dungeon Master (1 MEG)	£17.29
F-16 COMBAT PILOT	£16.90
F-19 Stealth Fighter	£20.39
Flight of the Intruder	£20.39
Flight Sim. II	£26.90
Southern U.K./Europe Scenery	£13.99
The Immortal (1 MEG)	£16.99
Kings Quest IV	£24.90
Leisure Suit Larry I, II, III	£37.90
MIG 29 FULCRUM	£23.99
M1 Tank Platoon	£20.39
Red Storm Rising	£14.99
ULTIMA V	£20.39
U.M.S. II	£20.39
Warlord	£17.29
Waxtorb	£23.99
Naksha Mouse	
GRAPHICS & VIDEO	**AMIGA**
DELUXE PAINT III (PAL)(1 MB)	£58.90
REAL THINGS BIRDS 1+2	£22.90
Real Things Humans	£22.90
DELUXE VIDEO III (PAL)(1 MB)	£59.90
Digipaint III (PAL)	£58.90
DIGIVIEW 4-Digipaint (PAL)	£92.99
PHOTON PAINT (PAL)	£13.99
PHOTON PAINT II (PAL)(1 MB)	£25.99
Professional Draw 2 (1 MB)	£99.90
Pro Video Plus	£179.00
Pro Video Post	£199.00
Real 3D Beginner (1 MB)	£99.00
Real 3D Professional (3 MB)	£289.00
Trip-a-Tron	£22.90
X CAD Designer	£79.50
MUSIC APPLICATIONS	
Mastersound Digitizer	£35.90
Deluxe Music	£58.90
MUSIC X U.K. Version 1.1	£89.00
Midi Interface	£29.95
MIDI Lead	£2.99
BUSINESS & EDUCATION	
Advantage	£79.50
Arena Int. Accounts (1 MB)	£119.50
Distant Suns	£39.95
FUN SCHOOL 2	
Under 6's, 6-8's or over 8's	£14.29
FUN SCHOOL 3 <5, 5-7 or over	£17.29
GOLD DISK OFFICE	£96.90
Hisoft Basic	£56.00
Home Accounts	£20.99
Home Office Kit	£99.50
Kindwords 2	£35.90
Mavis Beacon Typing Tutor	£20.99
Micro GCSE	
MATHS, FRENCH or ENGLISH	£17.99
PEN PAL (PAL)(1 MB)	£98.90
PROTEXT V4.2 (rec 1 MB)	£66.90
PROTEXT V5.0 1 MB	£99.90
Pagesetter II (PAL)(1 MB)	£49.90
Pagestream 2.1 (1 MB)	£149.95
Professional Page 2 (1 MB)	£148.00
PUBLISHERS CHOICE	£68.50
SUPERBASE PROFESSIONAL	£152.00
Transwrite	£31.99
WordPerfect	£159.90
WORKS PLATINUM	£99.50
Workbench 1.3 Software+Manual	£14.90
QUALITY JOYSTICKS & ACCESSORIES	
Amiga-Link Serial Cable	£12.99
Comp Pro 5000	£12.99
Comp Pro Extra (clear, auto)	£13.99
Super Prof (autofire, suction)	£13.99
Disk Drive Cleaning Kit	£5.99
Disk Drive alignment system	£35.99
A500 Dust Cover	£4.95
Mouse Mat	£5.95
100 Capacity Lockable Disk Box	£8.99
10 x 3.5" DSDD DISKS+labels	£6.95

Please send Cheques Postal Orders to:
HAMMERSOFT, (DEPT A.U.I.)
47 MILL ROAD, HETHERSETT,
NORWICH, NORFOLK NR9 3DS

Titles available on Request!
ORDERS ENQUIRIES
TEL (0603) 812416

*= Available on Realease
Prices include VAT & 1ST CLASS POSTAGE IN U.K. (European please add £2.00per item) Return of Post Serviceon Stock Items

Access, Visa, Eurocard & Mastercard Accepted. Cheques Subject to clearance

MENTOR

Hartmut Schumacher tells you all about "IconMaster" from TBAG disk #32.

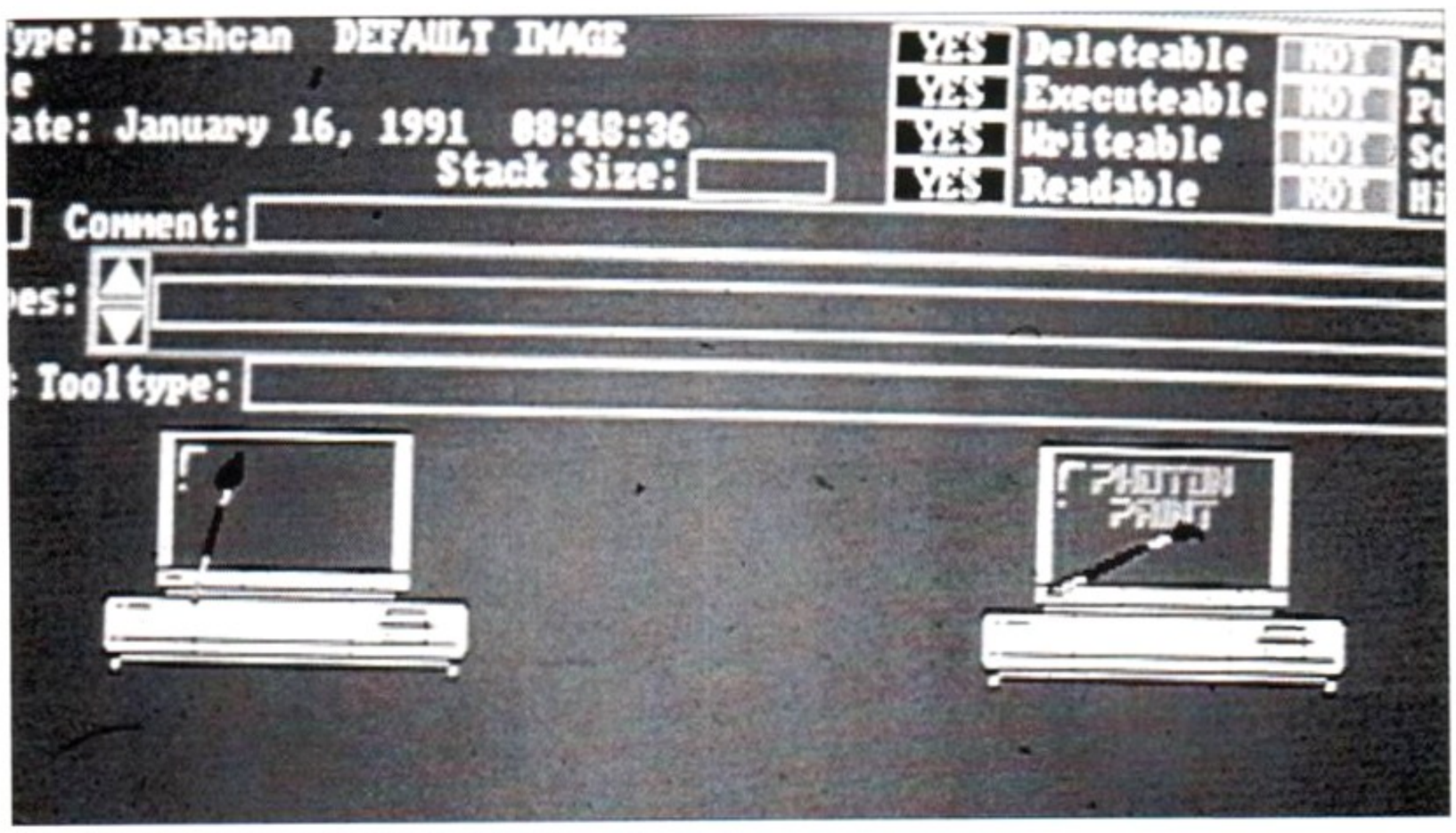
Iconmaster

Create Icons the Comfortable Way

Sooner or later every Amiga user feels the urge to create his (or her) own Workbench icons - especially those icons that change their appearance when you click on them.

There are many commercial and public domain programs you could use for this purpose: "IconEd", "IconMagic", "IconPaint", "Image-Ed" to name just a few.

The draw tools of these programs, however, are in most cases not very comfortable, to say the least. But since nearly everyone seems to have access to "Deluxe Paint", why not use this great paint program (or any other) to create pictures and then convert them into icons?



Picture 1: "IconMaster" converts IFF brushes into ".info" files.

The Shareware Solution

"IconMaster", programmed by John Scheib, can load the first two bitplanes of any IFF picture (except HAM pictures). And, of course, it is able to load the ordinary ".info" files.

"Animated" icons can be created by loading one brush as the primary image and another brush as the secondary image of an icon. These two images may be swapped. You can also copy the first to the second image or delete the secondary image.

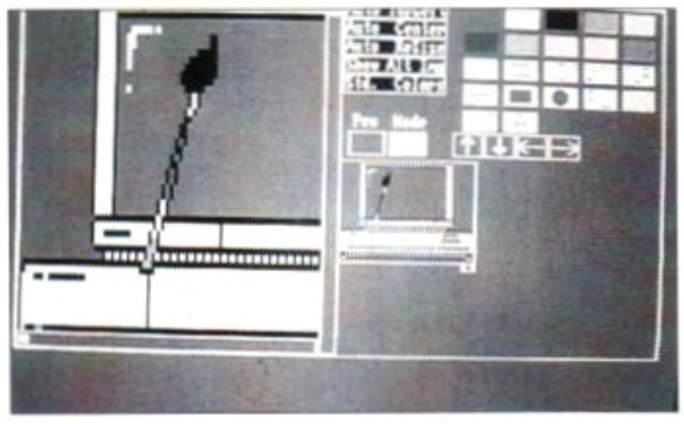
If you lack imagination, there are six default images for the different icon types.

Before you save the images as an icon, you can chose the icon type (disk, drawer, tool, project, or trash), add a comment and tool types, and finally decide which protection bits (deleteable, executable, et cetera) are to be set (see picture 2).

You can also save the finished image as an IFF brush to use it in a paint program.

Draw functions

Even if you really don't have a decent paint program, "IconMaster" doesn't disappoint you: The menu item "Edit Image" opens the "IconMaster Draw Window" (which is, in fact, a screen). There you find all the necessary draw tools such as freehand, line, box (filled and unfilled), circle (filled and unfilled), fill, brush, text, undo, and clear (see picture 2). A help window - accessed via the help key - shows you the keyboard shortcuts of these functions.



Picture 2: The "IconMaster Draw Window" offers all necessary paint tools.

A menu offers the possibilities to swap the colours 0 to 3. This is very handy if you want to convert icons from the Workbench 1.3 (or lower) to icons which look all right on an Workbench 2.0. (On the Workbench 2.0 the colours 1 and 2 have been swapped.)

You can also save the finished image as an IFF brush to use it in a paint program.

For a few dollars more

"IconMaster" is shareware. After a trial period John Scheib expects a fee of $10 (about £6). For $25 (about £13) you receive an improved version of "IconMaster" which can handle up to sixteen colours.

But even this version from the TBAG disk #32 is a great help, if you want to give your Workbench a more individual look or to create icons for your own programs.

Quick Info:
Program name: IconMaster
Author of program:
JohnScheib
Type of program:
Brush-to-icon-converterPrice:
£5.30

EDUCATIONAL SECTION

We Have Over 70 Top Class Educational Programs For The Amiga & Atari ST.

All Ages Covered From 3 To Adult.

Contact Us Now For Your **Free Catalogue**

Designasarus - Fun With Dinosaurs! Print, Create, & Survive like the dinosaurs in their own ecosystem. Highly recommended. Ages 5+ £29.95

The Talking Animator - Let the kids have some fun creating animations using this simple but highly stimulating program. Some features require 1MB. Age 6+. £34.95

EXCLUSIVE RANGE!

ESP Software has just released its own range of high quality Educational titles. More details with catalogue.

PROFESSIONAL SECTION

BUSINESS		**Imagine**	179.95
Advantage	74.95	Modeller 3D	59.95
Arena Accounts	119.95	Pagerender 3D	77.95
B Graphics	99.95	Pixel 3D	64.95
Gold Disk Office	129.95	**Sculpt 3DXL**	89.95
Maxiplan Plus	99.95	Sculpt 4D Jr	84.95
Microfiche Filer Plus	109.95	**Sculpt Animate 4D ***	299.95
Securities Analyst	49.95	Scuplt 3D Designs	23.95
Service Ind. Accs.	239.95	Turbo Silver	94.95
Superbase Prof. 3	169.95	Videoscape 3D *	109.95
C.A.D.		**Vista**	49.95
Intro CAD	39.95	**D.T.P.**	
Intro CAD Plus	79.95	**Outline Fonts**	89.95
Ultra Design	219.95	Pagestream Fonts	29.95
X CAD Designer 2 *	77.00	**Pagestream V2.1 ***	139.95
X CAD Prof. 3D *	Call	**Pro Draw V2**	89.95
DRAWING / GRAPHICS		Pro Page Templates	33.95
3D Professional V2	249.95	Pro Page Ultraforms	24.95
Animate 3D	92.95	**Pro Page V2 ***	179.95
Cando	99.95	**MUSIC**	
Design 3D *	59.95	**Audiomaster III**	69.95
Disney Anim. Studio	79.95	Bars & Pipes	174.95
Elan Performer 2	89.95	Copyist Professional	174.95
Fletcher Fonts	15.00	K.C.S V3	159.95
Headlines II (Fonts)*	49.95	Future Sound	89.95
Synthia II	69.95		
UTILITIES			
Amiga Vision	79.95		
Diskmaster	34.95		
Disk Mechanic	44.95		
Power Windows V2.5	49.95		
XCOPY Professional	34.95		
VIDEO			
Art Department	69.95		
Broadcast Titler V2	179.95		
Frame Grabber 256 *	569.95		
Pro Fills	28.95		
Pro Video Plus Fonts	79.95		
Pro Video Plus Post	189.95		
TV Show Professional	54.95		
TV Text Professional	89.95		
Title Page	124.95		
Video Effects 3D	114.95		
Video Titler 3D	74.95		
Viva *	179.95		
WORD PROCESSORS			
Pen Pal	79.00		
Pro Write V3.1	99.95		
Word Perfect 4.1	149.95		
Word Perfect Library	84.95		

*** 4Mb * 4Mb * 4Mb * 4Mb * 4Mb * 4Mb * 4Mb ***

BaseBoard 4.0 fits in the A501 slot. Increases A500 memory to 4.5Mb in steps of 512K. *NO SOLDERING*. Full 1 year Warranty. Clock Included.

ICD2080 ADRAM BOARD for 1500 or 2000 range. Add 2Mb to 8Mb. Prices from £229 to £499

Incredible Prices

Unpopulated	£89.95
512K Populated	£114.95
IMb Populated	£139.95
1.5Mb Populated	£159.95
2Mb Populated	£179.95
2.5Mb Populated	£199.95
3Mb Populated	£219.95
3.5Mb Populated	£234.95
4Mb Populated	£249.95

The above list of Professional Software is only a selection of the range available. Please phone for a full price list or individual quotes.
All prices are inclusive VAT & UK Post. E. & O.E. *=1Mb+

Educational & Serious Program Specialists

☎ (0702) 600557
24 Hour Service
Access & Visa Accepted
FAX (0702) 613747

ESP SOFTWARE
32C Southchurch Road
Southend-on-Sea
Essex SS1 2ND.

Your computer is the only teacher which YOU CONTROL!

Whatever your age, whatever your subject - let your computer help you learn.

Subjects include ...

French, German, Spanish, Italian, English
History, Geography, Science, General Knowledge, Football, First Aid, Sport, England, Scotland, Natural History, Junior **Spelling and Arithmetic**

Available for most popular home & business computers

Kosmos are specialist producers of Educational Software designed to help you enjoy learning from your computer. Our programs even allow you to add your own lesson material.

Write or telephone for a FREE 20-page BROCHURE
of our Educational & Leisure software
Please state your computer type

Kosmos Software Ltd, FREEPOST (no stamp needed)
DUNSTABLE, Beds. LU5 6BR
Telephone 05255 3942 or 5406

Access VISA

NEED OUTPUT? NEED INPUT?

PROFESSIONAL GRAPHICS & DTP SERVICES FOR THE AMIGA USER.

Outputting of your Amiga files to our LASER PRINTERS at 300 dpi or to our LINOTRONIC 300 at 1200, 1600 or 2500 dpi, onto paper or film.

Scanning of colour photos, illustrations, logos, etc. at between 30 and 300dpi, and send you an IFF file to run in DPAINT, etc, or output them as 24 bit files on our LINOTRONIC.

We can handle files in most Amiga formats including:- IFF,HAM,EPSF,ASCII, PROPAGE, PRODRAW, DPAINT PAGESTREAM, PAGESETTER, etc.

Call for free advice on any D.T.P. or GRAPHICS problem (Hardware or Software).

the **DTP BUREAU**

843 WESTERN BOULEVARD
NOTTINGHAM. NG8 5EG
TELEPHONE
0602 420528

CALL FOR INFORMATION AND DEMO DISK

The PC Emulator Support Club Introduce

ATonce

The New and Faster Emulator For the Amiga A500

A 266 8Mhz processor - Norton factor of 6 plus - CGA, Hercules, Olivetti and Toshiba graphic emulations - Task, Switching between PC and Amiga modes - Sound - COM1/COM2 - LPT1 - Hard disk support and much much more.

All this for Only £185

ATonce with half Mb upgrade	£210
ATonce with 2nd floppy drive	£240
ATonce with Half Mb upgrade and 2nd floppy	£270
ATonce with MS DOS3.3	£220
ATonce with 20Mb Hard disk	£459
Amiga/AT PACK - A500 - 1Mb - ATonce installed	£565
Amiga/AT Super - 20mb drive - 1Mb 520 - ATonce	£849

LOGITECH MOUSE £9.99

When purchasing any of the above ATonce offers

LOGI-MOUSE	£ 29.50	KCS POWERBOARD	£229.00
FLOPPY DRIVES	£ 60.00	MS DOS 3.3	£ 39.00
20Mb HARD DISK	£285.00	Half Mb RAM + clock	£ 34.99
40 Mb HARD DISK	£P.O.A.	Shareware from	£ 2.50

NOT JUST A CLUB

FREE ADVICE LINE
PC PD/SHAREWARE
MEMORY UPGRADES
A500s and MUCH MORE

P C M SUPPORT CLUB
133a Parrock Street
Gravesend Kent DA12 1EZ
Cheques payable to FCT (UK)
SALES AND ADVICE LINE
0622 677173

JOIN THE CLUB

BEFORE YOU BUY - RING THE CLUB - ALL OFFERS SUBJECT TO AVAILABILITY

THE PC M SUPPORT CLUB AND YOU

The PC M Support Club was first formed to back the emulator ATonce, but soon became involved in all emulators that allow users to run PC software on their Amigas and STs.

Many have already made use of the free advice line which is open to all.

PROBLEM SOLVING

Having problems with your Bridgeboard, KCS Board, ATonce or the software emulator Transformer? Then give us a call, we may be able to help.

Thinking of buying a PC emulator? Once again give us a call and we will help you choose the right one for you.

YOU TO CHOOSE

The KSC board is fitted in the trapdoor of the A500 an comes with a half megabyte upgrade, clock and MSDOS v4.01. It is and XT that runs approx three times faster than an IBM XT running at 4.7Mhz.

The ATonce AT emulator uses an Intel 80286 and fits in place of the 68000 chip inside the A500. It supports memory upgrades that have already been installed and runs about 6 times faster than an IBM XT running at 4.7Mhz.

BECOME A MEMBER

Full Club Membership is £15 per annum and you will receive an introductory pack which includeS PC Shareware, the latest Newsletter and Club discount price list.

Although the helpline at this time is available to all, soon non-members will only be able to use it on Saturday mornings.

We cannot enter into problem solving correspondence with non-members for obvious reasons.

ADVICE STILL FREE

You do not have to buy your emulator from us to get free advice and Full Club Membership is available to ALL.

MORE FROM YOUR RETAILER

Many retailers are able to collect your subscription. if yours is unable to do so at this time, get them to give us a call. We shall be only too pleased to send them details.

JOIN THE CLUB

When calling ask for Ken or Andy on 0622 677173.

E.S.D

DUE TO VAT INCREASE PLEASE ADD 2.5% TO ALL PRICES

VISA

East Yorkshire/N.Humberside's leading Amiga mail order

ACCOUNTS		The Art Depot	55.97
Arena Accounts	119.00	C-Light	36.97
Small Business Acc. +	169.47	CAN-DO	95.77
Small Business Acc. extra	79.81	Comic Setter	39.69
Sytstem 3	39.79	C/Setter clip art (each)	14.91
Personal Finance Mgr	22.85	DeLuxe Paint III	57.86
BOOKS.		DeLuxe Video III	72.96
Large range please phone. e.g.		DigPaint 3	57.90
Amiga Dos In+Out (Abacus)	16.61	DigView Gold	125.83
Amiga C for Beginners (Ab)	16.61	Director (The)	46.82
Amiga Desk Top Video (Ab)	16.61	Director Toolkit	25.75
Amiga Machine Lang. (Ab)	14.00	Fantavision	32.47
Amia Basic In+Out (Ab)	14.00	Movie Setter	41.43
Mapping the Amiga (Compu)	18.95	Photon Paint V3	Phone
Amiga H/W Ref Manual (A/W)	19.93	Photon Cell Anim	79.96
C Prog Lang 2nd ed (K&R)	22.97	Pixmate	38.96
C.A.D.		Pro Video Plus	184.21
Aegis Draw 2000	156.96	Sculpt Animate 4D	319.97
Intro C.A.D.	44.96	Sculpt Animate 4D Jnr	82.85
Boardmaster	72.22	Turbo Silver	99.80
Professional Draw V2	99.82	TV*Text (Prof. $98.79)	57.86
X.C.A.D. Pro (2 MB)	338.25	Vista	48.76
DATABASES & SPREADSHEETS		Video Effects 3D	117.87
K-Data	34.95	Zeotrope	78.64
K-Spread 3	66.95	Design Disks, ClipArt disks, Font disks, etc. Avail	Phone
Prodata (Amor)	54.97	**HARDWARE**	
MicroFiche Filer	55.70	1/2 Mb+Clock (Microbotic)	42.95
D.T.P. & W.P.		1084SD Monitor+Leads	246.98
Pagestream V2	145.68	A590 H/Drive	276.50
Pagesetter II	49.49	Amiga A500's from	314.00
Pen Pal	98.92	Amiga 1500 to 3000's	Phone
Protext V4.3	67.86	(Full range of Amiga expansion cards available).	
Protext V5	99.79	**P.C. EMULATORS**	
Scribble (Platinum)	41.80	At-Once (AT Emulator)	172.47
Professional Page V2	178.79	KCS PC Powerboard	215.61
Transwrite	34.96	(Large range of P.C. software available)	
Word Perfect	169.91	**PROGRAMMING**	
GRAPHICS & VIDEO		A/C Fortran	217.30
Anim. Studio (Disney) PAL	72.90	AMOS	36.59
Module 2 Std	77.96	Arg. Assembler	43.96
PROGRAMMING UTILITIES		Aztec C Professional	99.33
K-Gadget	22.46	Devpac Assembler	40.97
AREXX Macro lang. (V1.51)	32.98	Hi-Soft Basic	55.97
Cygnus Ed. Pro. V2	49.97	Lattice C	162.98
Hi-Soft Basic Extend	14.97	Module 2 Std	77.96
Power Windows 2.5	51.54	**PROGRAMMING UTILITIES**	
UTILITIES		K-Gadget	22.46
Amiga DOS Express	23.04	AREXX Macro lang. (V1.51)	32.98
BBC Emulator (New version)	33.74	Cygnus Ed. Pro. V2	49.97
CLI Mate	29.88	Hi-Soft Basic Extend	14.97
DOS 2 DOS (New version)	33.80	Power Windows 2.5	51.54
GROSS DOSS V.4	28.43	**UTILITIES**	
Interchange	39.80	Amiga DOS Express	23.04
I/Change Modules (each)	16.70	BBC Emulator (New version)	33.74
MAC 2 DOS	72.47	CLI Mate	29.88
X-Copy Pro inc H/Ware	34.44	DOS 2 DOS (New version)	33.80
EDUCATIONAL SOFTWARE		GROSS DOSS V.4	28.43
Large range available. Please phone/write. for separate price list		Interchange	39.80
STRATEGY & FLIGHT SIMS		I/Change Modules (each)	16.70
B.A.T.	21.95	MAC 2 DOS	72.47
Chaos strikes back	19.95	X-Copy Pro inc H/Ware	34.44
Damocles	17.50	**EDUCATIONAL SOFTWARE**	
F19 Stealth Fighter	21.95	Large range available. Please phone/write. for separate price list	
Flight Sim II	24.95	**STRATEGY & FLIGHT SIMS**	
Operation combat	19.95	B.A.T.	21.95
Powermonger	21.95	Chaos strikes back	19.95
Speedball 2	19.95	Damocles	17.50
Ultima V	22.95	F19 Stealth Fighter	21.95
Wargame construction set	21.95	Flight Sim II	24.95
		Operation combat	19.95
		Powermonger	21.95
		Speedball 2	19.95
		Ultima V	22.95
		Wargame construction set	21.95

Note: Large range of Joysticks disk boxes/dust covers, mouse mats, etc available. e.g. 3½" DS/DD unbranded disks £5.00p for 10. £22.50 for 50

Most items of software have a 20-30% discount off the R.R.P. This is just a small example of our AMIGA related range. (Printers, Modems, Genlocks etc., all at discount prices)

Re-Ink Ribbon re-inking spray available @ £11.65 per can

Phone for prices of, ICD products/Vortex hard disks/Porter range of hard drives for the A500 (20 to 120Mb)/ Upgrades/Help & advice, in fact, anything to do with the Amiga.

Payment. By Phone: Quote your Access/Visa no. & expiry date.
By Post: send Cheques/Postal Orders or Access/Visa details to:

Enchanter Software Design
8, Dykes Close, Hessle
N. Humberside, HU13 0BW

Enquiries/Orders Tel: (0482) 644254 (9am to 7pm)
Terms: Postage/VAT inc. Most items normally

WHO ELSE CAN OFFER YOU THESE PRICES

3.5 DS/DD	0.33p	5.25 DS/DD	0.23p
3.5 DS/DH	0.65p	5.25 DS/DD includes labels w.p.s. and envelopes	0.44p
includes labels			

ALL ABOVE DISKS ARE 100% CERTIFIED AND GUARANTEED

LOCKABLE DISK BOXES

3.5 x 40 CAP	3.75
3.5 x 80 CAP	4.25
3.5 x 100 CAP	5.75
3.5 x 120 CAP	6.25
5.25 x 50 CAP	3.95
5.25 x 100 CAP	4.45

Comes with dividers and two keys

COMPUTER ACCESSORIES

Mouse Mats	1.95
Mouse Pocket	1.95
Printer Stand	7.95
PC AT Dust cover	5.95
PC XT Dust cover	5.95
80col Prt/cover	3.95
132col Prt/cover	3.95
3.5 cleaning kit	1.95
5.25 cleaning kit	1.95
3.5 Lib cases	0.95
5.25 Lib cases	0.95

DELIVERY CHARGE

3-5 day	3.50
Next day	12.00

HIGH QUALITY RIBBONS

Amstrad PCW 8512	3.50
AMSTRAD PCW 9512	2.50
Amstrad DMP 4000	3.75
Brother M1109	2.55
Citizen 120D	3.00
Citizen Swift 24	3.75
Epson LX800	2.60
Epson LX80	2.45
Panasonic KXP1081	3.20
Panasonic KXP1124	3.20
Star LC10	2.25
Star LC10 Colour	6.45

CHEQUES, P.O. ORDERS TO:

ABBCO (Sussex) Ltd. Unit 2. Park Farm
Hundred Acre Lane, Wivelsfield Green
Nr Haywards Heath
West Sussex RH16 7RU

VISA **Tel: 0273 890022**
Fax: 0273 890981

ALL ABOVE PRICES INCLUDE V.A.T. E&OE PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

FREE PD?
RING FOR FREE INFO PACK!
WHAT HAVE YOU GOT TO LOSE!

FREEPHONE **0800 252 623**
Or (051-924 0200)
(24 HOURS)

Diner's Club International · Access · American Express · VISA

Or Post Free To:
UNBEATABLE PRICES,
FREEPOST, LIVERPOOL, L23 0XH

MENTOR

The Workbench

Part One

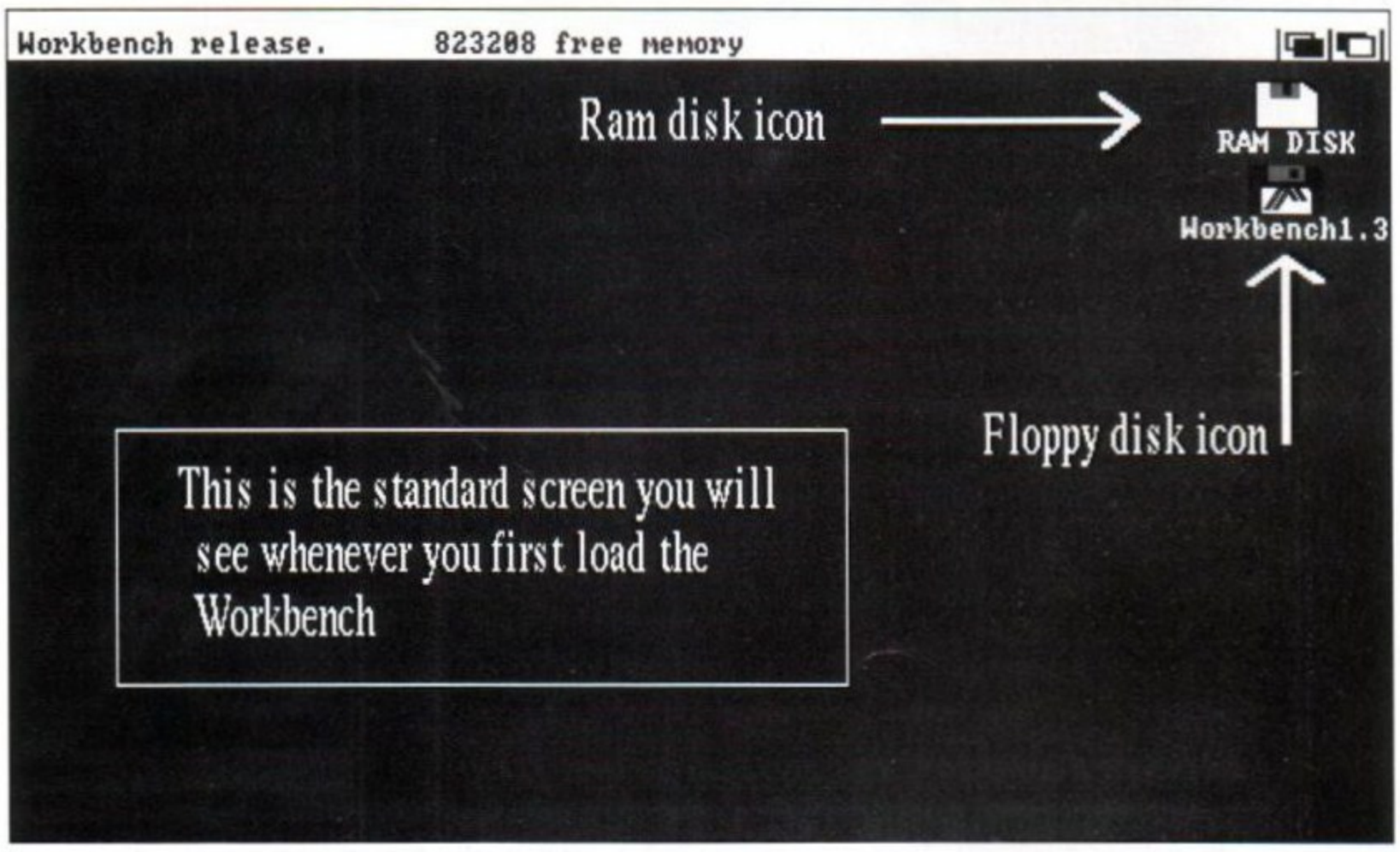
To do a job properly, you need a workbench. The workbench might be in a laboratory, and so used to conduct experiments on. It might be in a garage, used to perform maintenance on car engines. It might be in an artist's studio. It might be in a kitchen, an office or a craftman's workshop. Wherever it is, all these workbenches have one thing in common: they are covered in tools.

The Amiga Workbench is no exception. It is a place where you can experiment, draw pictures, write novels, maintain your programs and create works of art. It's your way of controlling and using your computer, without having to resort to typing lines and lines and user-hostile, instantly forgetable, utter gobbledegook. It's a human-machine interface.

You might think 'interface' is too grand or techie a word for it, but I'm afraid it's only the start of things to come. As computers become more and more compilcated, this sort of 'front end' is the only way we'll be able to communicate with them. Better get used to it now!

Amiga Workbench was designed to be both powerful and simple to use. Although technically called a GUI WIMP system, these delightful terms of jargon mean nothing than the use of a mouse to move a pointer around the screen, accompanied by clicking some buttons. It's really that simple. The hardest part is mastering the 'double-click', and once you can do that, you can do anything.

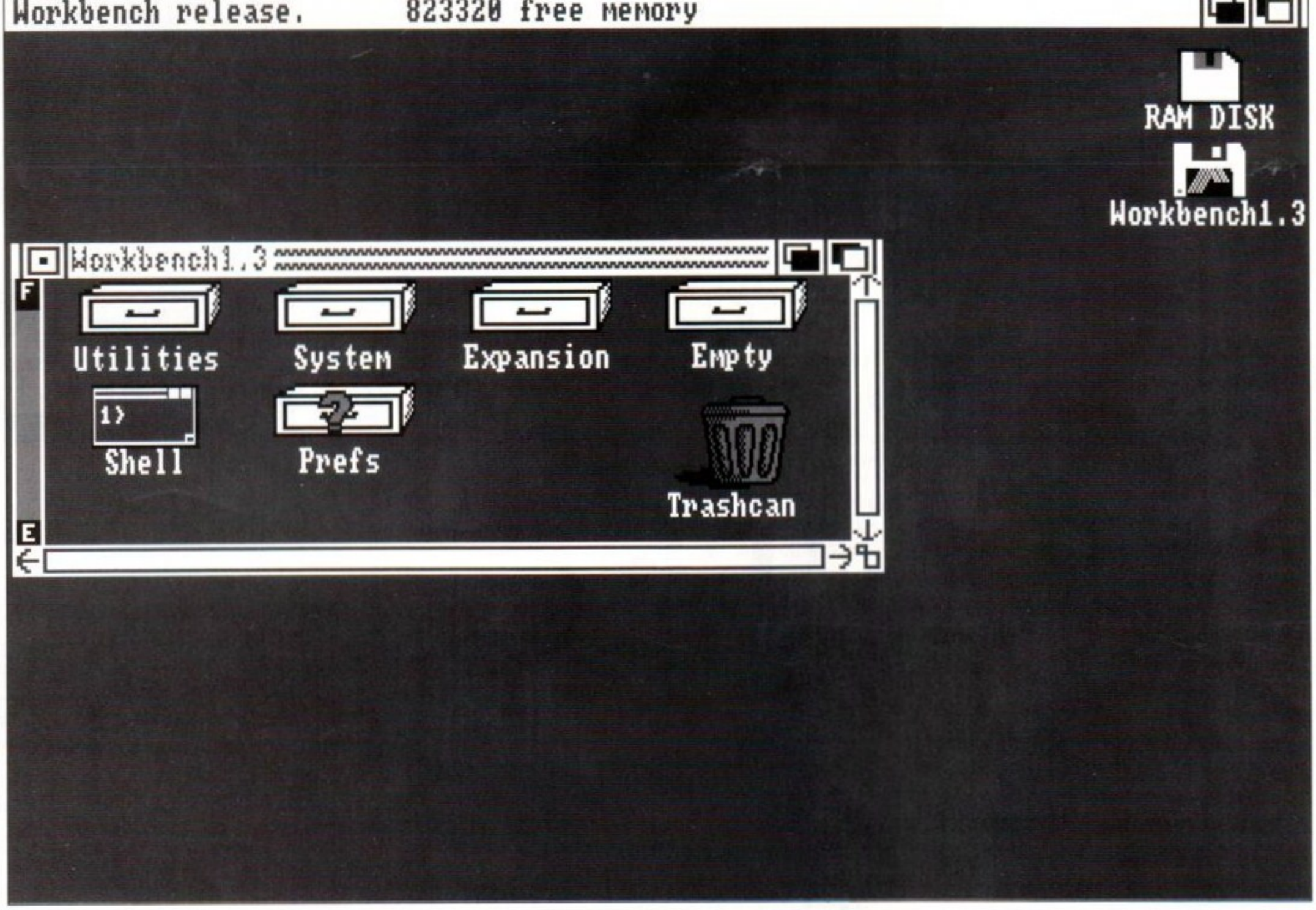
On all current versions of the Amiga, Workbench is supplied on a floppy disk. The obvious argument against this is the long delay between loading and actually being able to use it. Would it not have been better to build Workbench permanently into the machine, and so having it always present at switch on? Probably not, because being supplied on disk means that it is 'future proofed' to a high degree. If a new version comes along, there is a good chance that you will be able to use it on your computer. This is what happened when version 1.2 of the Workbench was replaced by version 1.3 several years ago. All the 1.2 users could nip out to their local computer shops and buy version 1.3 complete with a new manual, for less than the price of a new game. They then had a whole new upgrade to their machine in its operating system. If Workbench had been stored permanently in the Amiga, this would have been impossible, or at least, very expensive.



JOHN KENNEDY STARTS YOU OFF IN THE RIGHT WAY

Everyone should be using version 1.3 of the Workbench by now, as several bugs in 1.2 have been fixed. The manual which comes with 1.3 (entitled the Guide to Enhancer Software) may be daunting to the new user, but forms a useful reference work, so don't throw it away.

Special note for A3000 owners: You are lucky enough to have Workbench version 2. There many special features which are available only from version 2, although most of what is detailed here should still make sense. ▶



Note: please don't confuse Workbench with Kickstart. Kickstart is always built into every Amiga 500, 1500 and 2000, and the version number appears whenever the machine is switched on without a disk in the drive. All machines bought recently will be Kickstart 1.3.

To load Workbench, as you probably know by now, you must place the Workbench disk into the drive when the normal 'hand-holding-a-disk' picture appears. After a few seconds of activity (which seem to stretch to years the more you do it) the screen will clear to a pleasant blue colour with two small squares on the top left of the picture. (figure 1) This is the standard Workbench, and although it mightn't look it, it is covered in tools.

First things first. The small squares on the left are 'icons', and they are a pictorial representation of the floppy disks available to the system. "Hold on!" you may say, "I only put one floppy disk into machine, and yet there are two disk icons!". Well spotted. The icon labelled 'ram' is not actually a floppy disk at all, but a 'ram disk' - a piece of computer memory which is behaving as though it were a disk. The main advantage of a ram disk is its speed: There are no moving parts, so data can be stored and retrieved very quickly. The main disadvantage is that whenever you switch off the Amiga, the contents of the ram disk are lost. It's all swings and roundabouts, isn't it?

We can look at the contents of the floppy disk (or the ram disk) by double-clicking on the relevant icon with the mouse pointer. If you double-click (quickly press the left button twice) when the pointer is over the icon, it will change colour and a new 'window' will appear on the screen. Inside this window will appear a new collection of icons, representing the programs that are on the disk. (figure 1) Several of the icons look like drawers (not the type which are white and frilly but the type like a small box with a handle). Inside these drawers are more programs which you can examine by opening them in the same way you opened the disk: Point and click. Try opening the drawer marked 'utilities', by double-clicking on it (figure 3).

"The main disadvantage is that whenever you switch off the Amiga, the contents of the ram disk are lost. It's all swings and roundabouts, isn't it?"

You can 'drag' the icons to new locations by clicking on them once, and then moving the mouse WHILE STILL HOLDING DOWN THE LEFT MOUSE BUTTON. The icon can be placed elsewhere in the window, or even moved outside it. This is how programs and files can be copied from one place to another: just drag them to where you want them to be.

If an icon isn't a drawer, it must be something else, mustn't it? Look at the contents of the Utilities drawer. See the icon called clock? It's not a drawer, it's a Tool and it does something useful: It tells you the time. Well, it will tell you the time, but the time might not be correct. If you haved fitted a ram expansion with a real-time clock module there is a good chance that the time is correct. If it isn't, we can fix it later. If you haven't got a ram expansion with a clock - or have a ram expansion that doesn't actually have a clock - the Amiga will always make a guess at the right time, and nearly always get it wrong.

But we're getting away from the point. The clock icon is a tool, and to use it you just double-click on it. Try it. Hey Presto! A clock appears. Because the Amiga is a state-of-the-art multitasking machine, you can leave the clock to tick away and still get on with something else. If you want to move it around the screen you can do so by using the DRAG BAR (figure 4). Position the pointer over the drag bar and hold down the left mouse button. Now you can position the clock to wherever you want. If you want to change its size, use the RESIZING GADGET in exactly the same way: Hold down the mouse button whilst the pointer is above the gadget and move the mouse.

In case you were wondering, 'gadget'

MENTOR

HINTS

Some people have great problems mastering the 'click' and the 'double-click'. It's not difficult to do, it just takes a delicate touch. Try not to tap the mouse button, rather press it lighty but firmly. If have been brought up using mechanical type-writers you may still be in the habit of pressing down rather hard. There is no need to do this on either the Amiga's keys or the buttons on the mouse. The noise will only annoy anyone sitting nearby (or the neighbours, if you do it do it hard enough!)

isn't just a term I have invented. A gadget is a small switch which you activate by clicking on with the mouse pointer. Most windows will have some gadgets in their outlines, so you can control their size and position.

The gadgets on the top right of the clock's window are the DEPTH GADGETS. When the clock's window is in front of another window, and so obscuring whatecver is underneath, click on the left-hand gadget to move the clock's window to the back. Likewise, when another window is obscuring the clock's window, click on the right-hand gadget to bring to the window to the front.

However, let's switch the clock off for the moment. Closing down a tool such as the clock is normally done by clicking on the CLOSE GADGET. The close gadget is at the top left and looks like a little square with a dot in it. Once you have clicked on it (no need to double-click), the clock will disappear.

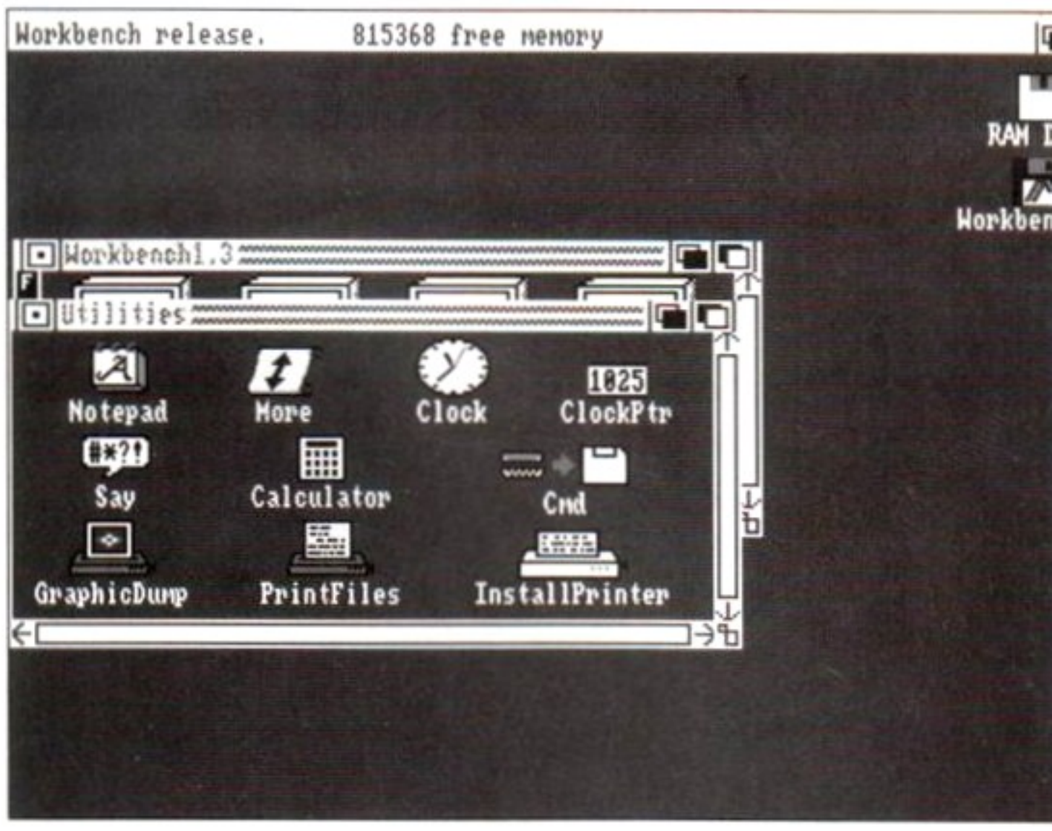
"Because the Amiga is a state-of-the-art multitasking machine, you can leave the clock to tick away and still get on with something else."

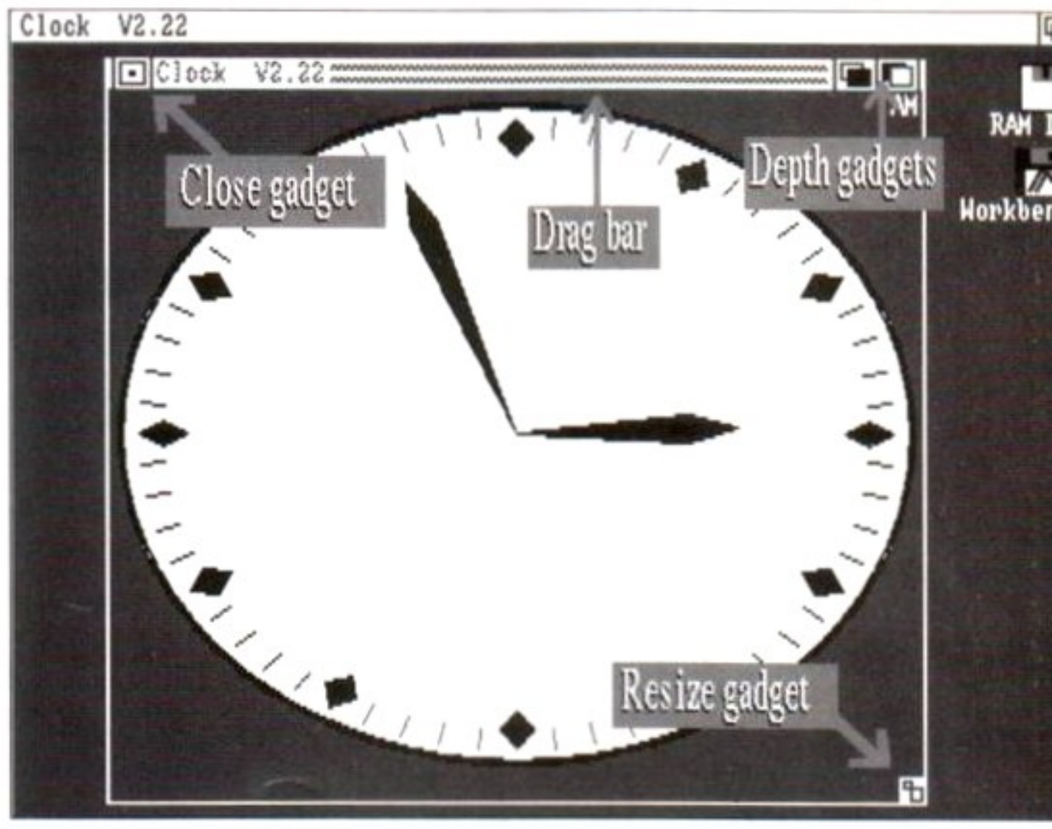
Trouble Shooting

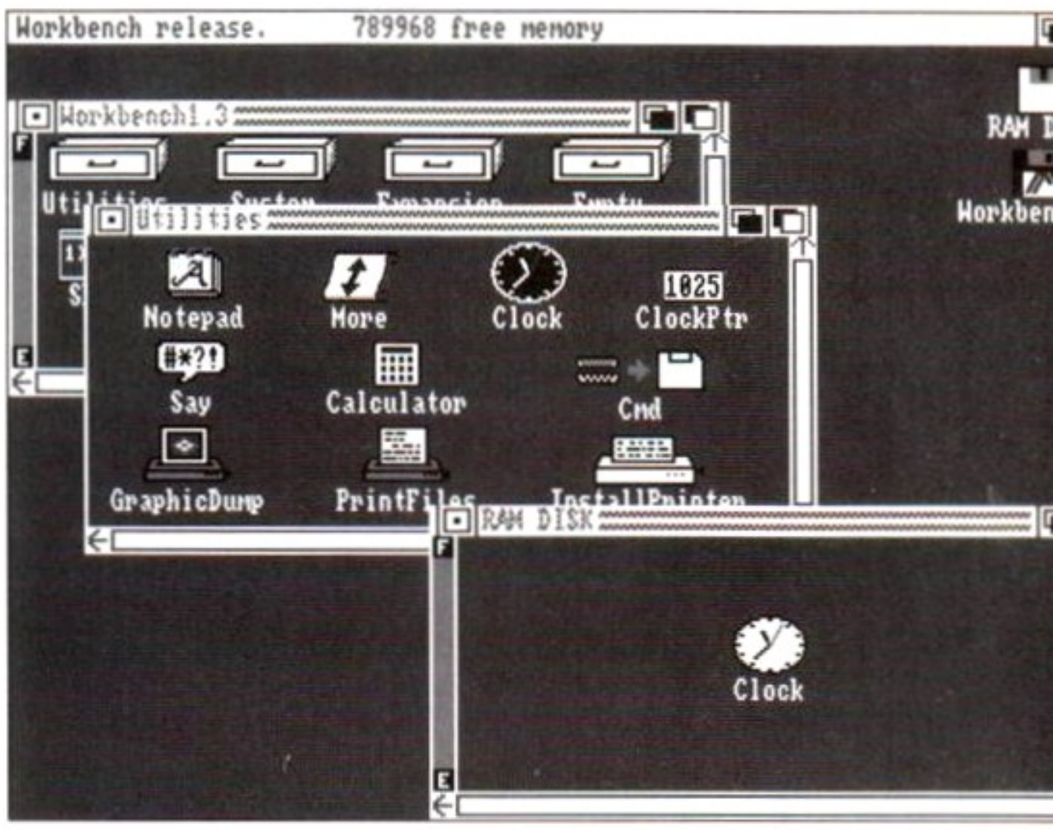
Q. I just can't get the Workbench to load. Everytime I put the disk into the drive, the picture of a hand holding a disk re-appears. What am I doing wrong?

A. Check that the disk you are inserting at the hand-holding-a-disk screen is in fact the disk marked Workbench, and not the one marked Extras. If you still have no success, the disk you are trying to use must have become corrupted, and you will need a new one. You should always make a copy of your Workbench disk, and work from the copy alone. If you don't know how to copy a disk, wait until next month and you'll find out.

Let's try copying the clock tool. First open the ram disk icon (double-click, remember) and make sure the clock icon is on the screen somewhere too. (Not the clock inside it's window, just the icon from the Utilities drawer). Now select the clock icon by clicking once on it, and not letting go of the button. Drag the icon into the ram disk's window by moving the mouse, and then let go of the button. The mouse pointer will change to a little Zzzz cloud to let you know something is happening. When it returns to an arrow shape there should now be TWO clock icons: one in the Workbench disk window, and one in the ram disk window. (figure 5) We have copied a file!For your further entertainment, try double-clicking on the clock icon from the ram disk window. The clock face should pop-up quite quickly because this time the data for the program has not been loaded from disk.







SECTOR 16

Sector 16 160 Hollow Way Cowley Oxford
Tel: 0865 774472/64102

Datel Cartridges £57

ST/Amiga Fanzine
£1.75 + 25p P&P. Issue 10 with 2 cover disks + FREE PD. Catalogue

Amiga P.D. Software
Only 99pence inc p&p please send SAE for FREE 30 page catalogue

Picture Digitizing
£3.50 per disk (6 pictures)
ST/AMIGA
send S.A.E. for more details

Sound Sampling
£2.50 per disk (10 samples)
ST/AMIGA
send S.A.E for more details

1/2 Meg + 2 PD Disks £37 with clock

Please make Cheques / P.O.'s payable to ANDREW HAMILTON and SIMON GLEED

512K RAM EXPANSIONS NOW IN STOCK

IRELAND'S NO.1

PERFECT

PUBLIC DOMAIN SOFTWARE

BUY TEN GET FIVE FREE

200 CLASSICAL MUSIC	**460** 202 UTILITIES
366 LEARN & PLAY (2 DISKS)	**466** VIZ CALENDER
435 NOISETRACKER v2.0	**474** BATMAN THE MOVIE
440 DEMO MANIA 4	**485** A-GENE v3.0 (1 MEG)
447 PERFECT UTILITIES NO.1	**490** C MANUAL (3 DISKS)
450 C-LIGHT RAY TRACING PACKAGE	**494** AMAZING TUNES 2 (3 DISKS)

FREE CATALOGUE DISK WHEN YOU SEND BLANK DISK AND S.A.E. OR SEND £1.50

£2.00 PER DISK ASK ABOUT OUR SPECIAL PACKS

CHEQUES / P.O.'S PAYABLE TO COLM BYRNE,
25 KILBARRON DRIVE, COOLOCK, DUBLIN 5, IRELAND. PH.483743

HART MICRO

COMPUTER CONSUMABLE SPECIALIST

3.5 Bulk DS DD Disks	£0.34
3.5 Bulk HD Disks	£0.80
50 3.5 Disk labels	£0.99
3.5 Disk Cleaner	£1.99
3.5 40 Cap Lockable Disk Box	£4.50
3.5 80 Cap Lockable Disk Box	£5.50
3.5 80 Cap Banx	£10.99
Nakasha Upgrade Mouse	£23.99
Mouse Mat	£2.99
Mouse Pocket	£2.45
4 Player Games Lead	£4.99
Joy/Mouse ext Lead	£4.99
Joy/Mouse ext Lead	£4.99
Joystick Splitter Lead	£4.99
Monitor Plinth	£23.99
Seal 'N' Type Thru Keyboard cover	£12.99
Dust Cover	£3.99
Quick Shot Python	£9.99
Quick Shot Maverick	£13.99
Quick Shot Flightgrip	£7.99
Quick Shot Starfighter Remote Control	£32.99

* ALL PRICES INCLUDE VAT, POSTAGE & PACKING *

11 Stonald Ave, Whittlesey, Peterborough,
Sales Hotline: (0733) 350242
OPEN 9am to 7pm

VISA

AMIGA 500 TUTORIAL VIDEO

Everything you need to know about the Workbench Environment

This Video runs for over 2 hours showing in Superb Detail how to connect and use your AMIGA.
Duplicate. Rename. Format. Menus. Windows.
Preferences. Saving. Loading and many other topics.

With a Unique Index to get straight to the topic

Send your cheque for only £12.00 incl. P/P
Payable to: Pennylane Video
42 Leopard Drive, Pennyland,
Milton Keynes, Bucks, MK15 8AD
Tel: Milton Keynes (0908) 677176
Digitising Service also available

AMIGA REPAIRS & SPARES

SPARES:

8371 Fat Agnus	£49.00	6570-036	£19.00
8372 Fatter Agnus	£62.00	Rom V1.2	£32.00
5719 Gary	£24.00	Rom V1.3	£32.00
8364 Paula	£40.00	41256 DRAM	£3.00
8362 Denise	£29.00	414256 DRAM	£7.50
8373 Denise	£38.00	68000 MPU	£24.00
8520 CIA	£17.00	MSM 6242 Clock	£12.00
5721 Buster	£16.00		

Many other spares available

ACCESSORIES

Amiga 500 Screen Gems Pack	£370.00	A500 Internal Drive	£75.00
Cumana CAX354 3.5"	£80.00	A2000 Internal drive	£70.00
External Drive 3.5"	£70.00	A500 PSU	£50.00
½ Meg RAM + Clock	£33.00	Amiga Mouse	£40.00
½ Meg RAM	£30.00	Boot selector	£20.00
1-5 Meg RAM	£100.00	Kickstart selector	£23.00

All prices include postage and packing
Fixed price A500 Repairs £40.00 – (Does not cover keyboard or drive)
3 months warranty on all repairs

ACE Repairs, Dept A.U.I., Outways Farm, Pelynt, Looe,
Cornwall PL13 2NW
☎ (0503) 20282

Access VISA

Tel:
0533 440041
Fax:
0533 440650

ALTERNATIVE IMAGE

6 Lothair Road
Aylestone
Leicester
LE2 7QB

THE BIG ALTERNATIVE SCROLLER

20 Fonts ● *Choose from a variety of typeface styles.*
4 Defineable colours ● *Up to 4 colours (chosen from 4096) can be displayed on screen.*
Drop shadow ● *BAS has the capacity to create drop shadows in any font.*
High resolution with full overscan ● *Crisp text right up to the screen edge.*
Horizontal and Vertical scrolling ● *Your text can enter your screen from right to left or scroll from bottom to top .*
9 Speeds ● *Change speeds instantly whilst scrolling text*

Minimum requirements - a standard A500 with 1MB of RAM.

A VHS tape demonstrating the scroller genlocked over live video footage is available at a cost of £5.00 - refundable on return of tape or on purchase of...

THE BIG ALTERNATIVE SCROLLER
£50.00 (incl. VAT) plus £1.00 p+p

Bureau service

Have your own Amiga images outputted to 35mm slide.
All resolutions except overscan and halfbrite
- send for disc with safe areas and examples.

Please ring to discuss requirements.

UNMOUNTED PRICE
1.....£5.00
2-10.....£4.00
11-20.....£3.00
20+.....£2.00

Prices incl. VAT & 1st class postage in U.K
(Glass mounts 30p extra per slide)

We also demonstrate and supply SIMPATICA hardware and software
- please enquire for bureau service and purchase price.

Special offer **to Amiga User subscribers -**

THE BIG ALTERNATIVE SCROLLER
£45.00 (incl. VAT) plus £1.00 p+p

Send back the demo scroller disc with your name, address and payment

- we'll enter you in the magazine's draw -

and you'll get the above discount on your Big Alternative Scroller.

QUESTIONS AND ANSWERS CLUB

Got an Amiga? Then you've got Questions. No matter how wild the Question we will Answer it Individually, even providing specially prepared Software when necessary, because Q.A.C. is your Club and is geared to your personal needs.

For an annual membership fee of £30.00 members receive upto 24 P.D. disks (all programs chosen by you from a P.D.Library of nearly 2000 disks). This includes postage and packaging Both ways. Associate members welcome, please specify.

For further details from us send a (9x4) SAE or a Blank disk with a 33p stamp (Ask a Question) to:-

Q.A.C.
Deal Cottage,
Bridges, Luxulyan,
Cornwall PL30 5EF.

CHE COMPUTERS

AMIGA A500
1 MEG SCREEN
GEMS PACK
ONLY
£369.49

7 Clive Mews
Canton,
Cardiff, CF5 1HY
Tel/Fax (0222) 220500

AMIGA DEALS

AMIGA 500 STANDARD PACK
★ A500 computer ★ 512k RAM ★ 1Mb disk drive ★
★ mouse ★ modulator★
★ power supply ★ operation manuals ★
★ workbench disks, etc. ★
only £330.95

AMIGA1500	POA
AMIGA 2000 Rev. B 48Mb Autobooting Hard Disk	POA
AMIGA 3000	POA

A2000 EXPANSION BOARDS AND PERIPHERALS

Amiga A2010 1Mb 31/2" Floppy Drive for use as second internal drive, inc mounting screws & blocks	127.95
Amiga A2024 Mono Monitor - 14" high resolution paperwhite monitor, includes cable	579.95
Amiga A2032 Pal Composite Video Card - provides professional colour composite video output	85.50
Amiga A2058/2 8Mb RAM Exp Board - 2Mb populated RAM, 6Mb unpopulated RAM, internal board	525.95
Amiga A2058/2 2Mb D-RAM Chip Set - for use with the A2058 memory expansion card	220.95
Amiga A2058/6 6Mb D-RAM Chip Set - for use with the A2058 memory expansion card	599.95
Amiga A2088 PC-XT Bridgeboard - 8088/4.77 Mhz, 512K RAM, MS-DOS 3.3, 360Kb 51/4" drive	425.95
Amiga A2090/2092 20Mb Amiga Format Hard Disk Drive - inc cables and software, non-autobooting	349.95
Amiga A2090A/2092 20Mb Amiga Format Disk Drive - includes cables & software, autobooting	510.50
Amiga A2090A/2094 40Mb Amiga Format Hard Disk Drive - includes cables & software, autobooting	829.95
Amiga A2286 PC-AT Bridgeboard - 80286/8Mhz, 1Mb RAM, MS-DOS 3.3, 1.2Mb 51/4" disk drive	599.95
Amiga A2300 Genlock Unit - merges computer graphics over an external video source	210.50
Amiga A2350 Professional Video Adaptor - video interfacing (Genlock), real-time frame grabbing	629.95
Amiga A2620 68020 Co-processor Card - 68020 & 68881 running at 14.3Mhz, 2Mb 32-bit DRAM	1099.95
Amiga A2620U Unix Card - comes with AT+T Unix version 5.3 and 2Mb RAM	1429.95
Amiga A5060/2092 20Mb MS-DOS/Amiga H/Drive - MS-DOS/Amiga partionable - req PC bridgeboard	310.50
Cumana Internal 1Mb 31/2" Floppy Disk Drive - includes mounting screws and blocks. CA1354	78.22
Flicker Fixer - destroys interface mode flicker, requires multi-sync monitor to display output	340.00
GVP 2000 46Mb Hard Card - for A2000 - hard disk drive with space for 2Mb RAM to be added	570.95
Microbotics 8 UP RAM Expansion Bridgeboard with 0Mb RAM Populated - internal board	145.00
Microbotics 8 UP RAM Expansion Bridgeboard with 2Mb RAM Populated - internal board	290.00
Microbotics 8 UP RAM Expansion Bridgeboard with 4Mb RAM Populated - internal board	440.00
Microbotics 8 UP RAM Expansion Bridgeboard with 6Mb RAM Populated - internal board	580.00
Microbotics 8 UP RAM Expansion Bridgeboard with 8Mb RAM populated - internal board	720.00
Microbotics Hard Frame 40Mb Hard Card - uses Quantum 19ms hard disk drive	530.00

A500 PERIPHERALS

Commodore 1Mb 31/2" Single Disk Drive - A1010 - thru port - power from Amiga - colour co-ordinated	85.95
Cumana 1Mb 31/2" Single Disk Drive - CAX 354 - enable/disable switch - thru port - power from Amiga	79.99
Power Drive 1Mb 31/2" Single Drive - slimline - enable/disable switch - thru port - power from Amiga	69.99
Cumana 1Mb 51/4" Single Drive - CAX 1000S - enable/disable switch - no thru port, power from Amiga	115.95
Amiga 20Mb Hard Drive - A590, autoboot under 1.3 inc sockets for 2Mb RAM (not supplied). A500 only	289.95
Vortex 40Mb Hard Drive - autoboot under 1.2 or 1.3 comes formatted & partitioned, utilities. A500/1000	525.50
Cherry A3 Graphics Tablet - 546mmx445mm size, 0.1mm res. with puck & software, magnetic pad	499.95
Summasketch Plus for the Amiga	495.95

PRINTERS: DOT MATRIX

Commodore MPS1230 - 9-pin - 80col - 120cps (draft) - 25cps (NLQ) - F/T - 4K buffer-para/64 serial-lead	149.95
Commodore MPS1550C Colour Printer - supports parallel and serial - includes leads	229.95
Epson LX400 - 9-pin - 80col - 180cps (draft) - 30cps (NLQ) - F/T - 3K buffer - parallel	149.50
Epson LX850 - 9-pin - 80col - 200cps (draft) - 25cps (NLQ) - F/T - 4K buffer - parallel - replaces LX800	299.95
Epson LQ-550 - 24-pin - 80col - 180cps (draft) - 60cps (LP) - F/T - 8K buffer - parallel	399.95
Micro P MP165++ - 9-pin - 80col - 190cps (draft) - 32cps (NLQ) - F/T - 4K buffer - parallel	220.50
Olivetti DM105-S Col - 9-pin - 80col - 150cps (dft) - 30cps (NLQ) - F/T - parallel - 1 yr on-site maint'nce	249.95
Citizen MSP15E Printer - 132col - 9-pin - 200cps (draft) - 50cps (NLQ) - T - 8K buffer - parallel/serial - 2 year guarantee	259.95
Citizen 120D+ Printer - 80col - 9-pin - 144cps (draft) - 25cps (NLQ) - F/T - 4K bufer - parallel interface - 2 yr guarantee	169.95
Citizen 120D+ Printer - 80col - 9-pin - 144cps (draft) - 25cps (NLQ) - F/T - 4K buffer - serial interface - 2 yr guarantee	179.95
Citizen 124D Printer - 80col - 24-pin - 120cps (draft) - 40cps (NLQ) - F/T - 8K buffer - parallel interface - 2 yr guar'tee	209.95
Citizen Swift 9 Printer - 80col - 9-pin - 192cps (draft) - 40cps (NLQ) - F/T - 8K buffer - parallel i/face - 2 yr guarantee	179.95
Citizen Swift 24 Printer - 80col - 24-pin- 192cps (draft) - 64cps (NLQ) - F/T - 8K buffer - parallel i/face - 2 yr guarantee	299.95
Citizen ProDot 9 Printer - 80col - 9-pin - 300cps (draft) - 60cps (NLQ) - F/T - 8K buffer - parallel i/face - 2 yr guarantee	299.95
Citizen ProDot 9X Printer - 136col - 9-pin - 300cps (draft) - 60cps (NLQ) - F/T - 8K buffer - parallel i/face - 2 yr guar'tee	349.95
Citizen ProDot 24 Printer - 80col - 24-pin - 200cps (draft) - 66cps (NLQ) - F/T - 24K buffer - serial/parallel - 2 yr guar'tee	359.95

ALL PRICES INCLUDE VAT AND DELIVERY

UK GAMES CHART

	Game	Company	
1.	Powermonger	Electronic Arts	16.99
2.	Speedball II	Imageworks	16.99
3.	F-18 Stealth Fighter	Microprose	19.99
4.	Lemmings	Psygnosis	16.99
5.	Turrican II	Anco/Rainbow Arts	16.99
6.	Indy 500	Electronics Arts	16.99
7.	Final Whistle	Anco	10.49
8.	Golden Axe	Virgin	16.99
9.	Mig-29 Fulorum	Domark	16.99
10	Teenage Mutant Hero Turtles	Imageworks	16.99

Name (Mr, Mrs, Ms) .....
Address .....
.....
..... Postcode .....
Signature ..... date .....

PLEASE SEND ME	PRODUCT	PRICE	QUANTITY	TOTAL
			Carriage	00.00

FIELD REPORT

All about ICPUG

13 years ago there were very few home computer users. But ICPUG was already an influence. Janet Bickerstaff explains why it still is . . .

ICPUG is the Independent Commodore Products Users Group. It was formed in 1978 with the title of IPUG (Independent PET Users Group) when one Norman Fox of Hertfordshire had a letter published in Electronics Today International (ETI) asking if anyone who owned or used PET computers was interested in forming a group totally independent of Commodore Business Machines. The object was to share their knowledge of the machines and to further the production of the appropriate software. (By the way PET stands for Personal Electronic Transactor — not a cute furry bug! And it was the first desktop personal computer — well before the IBM PC!).

In March 1982 it was decided to change the name of the group to ICPUG in recognition of the fact that the PET was not the only Commodore computer around. As well as the 22 column VIC there was a rumour of a 40 column VIC, which was replaced by news of a machine called the Commodore 64. With the coming of the C64, ICPUG blossomed and groups were formed all over the country. The membership of the National group topped the 4000 mark.

A further change took place in 1986 when it was decided to form the Group into a co-operative and it is registered as such with the Registrar of Friendly Societies. The Chairman is my husband, John Bickerstaff, who is also Chairman of the ICPUG South East Group.

ICPUG is now in its thirteenth year and is the largest Commodore computer users group in the country. Other groups have come and gone but ICPUG goes from strength to strength thanks to a valiant band of volunteers who give generously of their time and energy. Unlike some other groups, which are really commercial marketing operations, ICPUG is a genuine association of computer users working together for mutual benefit and it is co-ordinated by a voluntary national committee. Because the end result is so professional, members sometimes forget that no-one is paid for the work which they do!

Benefits of membership include access to the free software library, technical assistance, and discounts on hardware and software.

100 PAGE JOURNAL

The ICPUG Journal, edited by Tim Arnot, is published six times a year, and has in the region of 100 pages per issue. It is widely regarded as the most authoritative journal on Commodore machines in the world, providing extensive coverage on the full range of computers including the Amiga, C64 and PC, not forgetting the earlier C128, C16, Plus4, and VIC20 and, of course, the PET.

It is written by volunteers and no payment is made for articles published — the honour is sufficient — and the standard is indeed high. There are no games reviews — these are well-covered by thepopular magazines. However the Journal does contain reviews of hardware and software, news of the latest developments and applications and many invaluable hints and tips on problem-solving. There is a regular contribution from our correspondent in Texas who keeps members up to date with news from the States. Her article is E-mailed shortly before the Journal goes to print to ensure that the very latest news is included.

FREE PUBLIC DOMAIN SOFTWARE

One of the most popular features of ICPUG is the FREE SOFTWARE LIBRARY. Not only does this include over 700 Public Domain disks for the Amiga, but there are also public domain disks or tapes available for all other Commodore computers, even the VIC20 and the PET700.

As well as over 700 Public Domain disks for the Amiga, the other machines are well-covered. The C64 library has around 80 disks crammed with everything from Education,

Jim Butterfield addresses ICPUG South East.

ICPUG stand at 16 Bit Computer Fair.

Games and Graphics to nineteen disks of Utilities. In addition there are nine Ham Radio disks available in the C64 library. The PC library is available in 360k, 720k and 1.2mb formats.

REGIONAL GROUPS

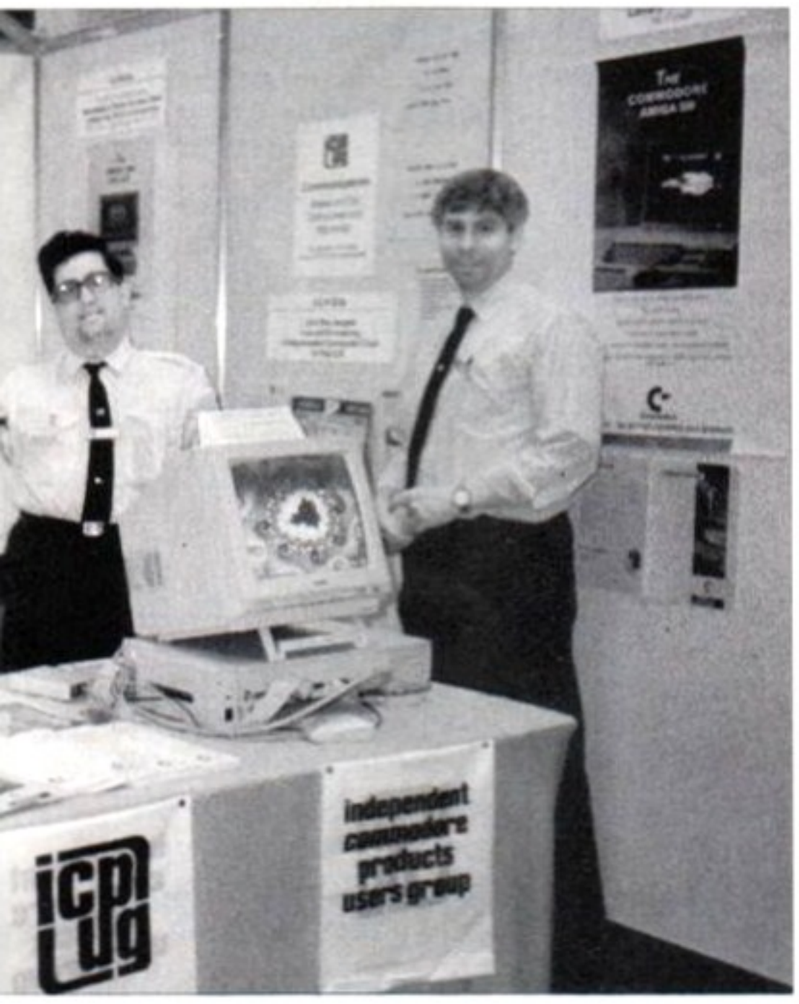
Another feature of ICPUG is the regional groups. These are autonomous and vary from a group of friends meeting regularly in someone's home, to a larger group such as the ICPUG South East and the ICPUG South West groups, where many people attend the regular sessions.

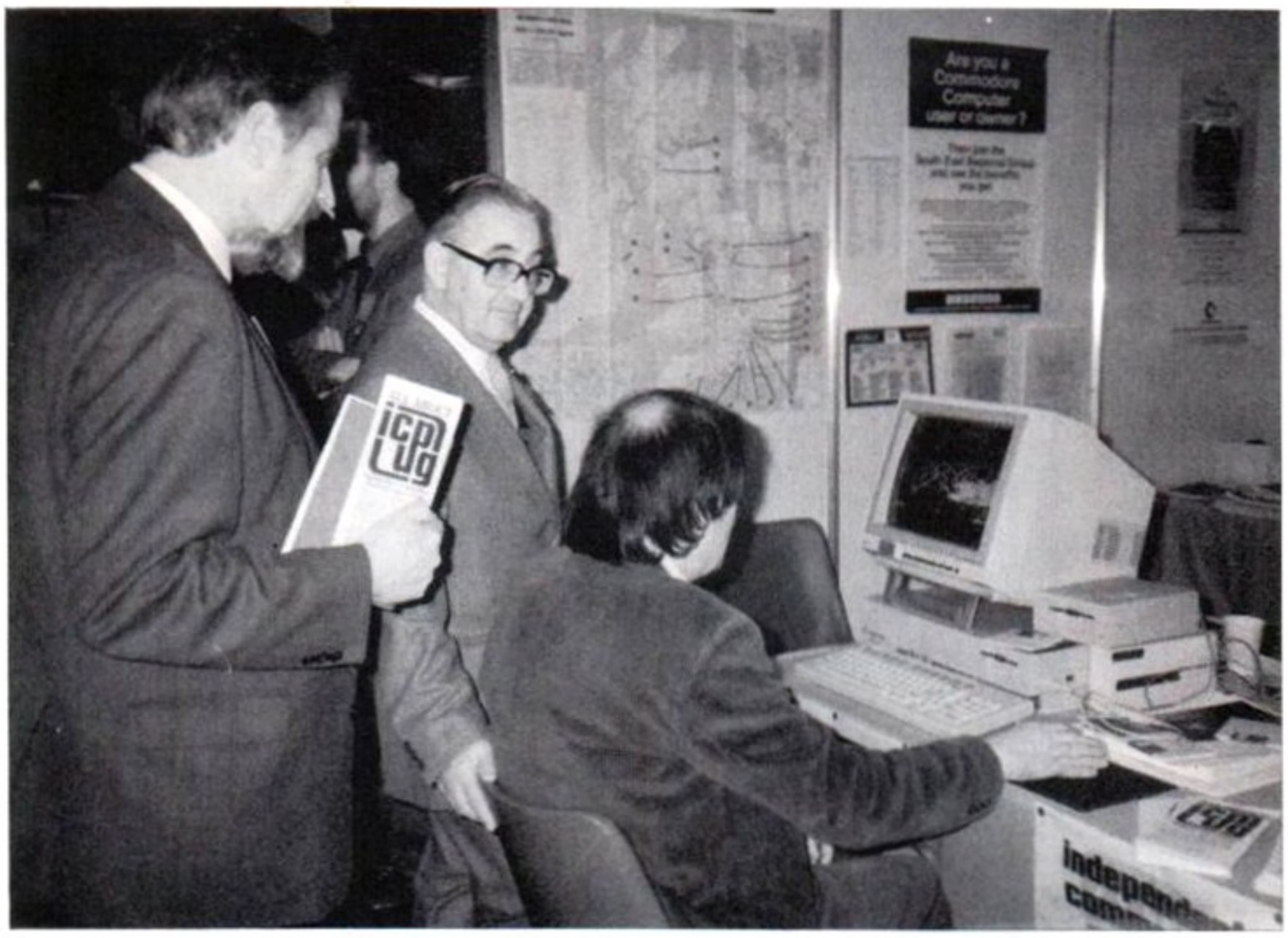
ICPUG South East is the Group which I help to run and it was formed in July 1980. We meet regularly at Biggin Hill Library in Kent on every Thursday evening except the first Thursday of the month. One night a month is a lecture evening when we have a guest speaker or a special presentation. The other nights are Open Nights when members are encouraged to bring their own machines and help is available for beginners or those with problems. The one thing that you will not see at an ICPUG South East meeting is professional copiers — software piracy is totally banned. We have a special copying program written by one of our programmers which will only permit the copying of public domain software!

Recent guest speakers at ICPUG South East have included Nigel Jones and Sharon Rodrigo from Commodore's Developers' Support team,and Phil South who gave us a music demonstration using MIDI and his Korg synthesiser.Another lively group meets at Watford, and they too have recently had a visit from the Commodore team. Other groups near London are Mid-Thames and Stevenage clubs, whilst amongst the northern ones are the Macclesfield club and the Amiga group at Buxton — both run by Peter Richardson.

WEEKEND CONFERENCES

Following a holiday with Peter Miles at the Queen's Armes Hotel in Charmouth in 1987,





ICPUG stand at Commodore Show.

President, Mick Ryan, cuts cake at ICPUG South East 10th Birthday Party.

John and I decided that it was an ideal place for a weekend of Computers and Gourmet Food for ICPUG South East. The first event took place that October, and was repeated the following April. We are now planning our fifth weekend there for ICPUG South East - sorry it is fully booked!

It was after one of our visits that the ICPUG South West Group was formed and now meets at the hotel on the second Sunday of the month. Peter Miles is an Amiga registered developer as well as being ICPUG's Amiga Public Domain Software organiser (and running a hotel!). He ran an ICPUG "Con-Dev" (rather than Dev-Con) at the hotel last October when Commodore's technical team met with ICPUG registered developers (including some famous faces from the industry) to discuss the Amiga 3000, amongst other things.

TECHNICAL HELP

The technical help aspect of ICPUG is handled in three ways. Firstly written questions are sent to Bavin Clarke (with s.a.e. etc.) and he acts at Technical Co-Ordinator, passing the letters on to various experts on our database who have volunteered to assist with problems. Another way of getting technical help is by telephoning our Technical Advisor one evening. Best of all is to join a local group. At a recent meeting of ICPUG South East a dead PC was completely dismantled and the dust blown out, all the chips and boards reseated, and it was repaired, while at the same time another team were re-aligning the disk drive on an Amiga 500!

DISCOUNTS

There are discounts available to members for both hardware and software and my husband gets many phone calls requesting advice on best buys and compatibility. As another registered Commodore developer he is also able to advise on software for the Amiga 3000.

COMMUNICATIONS

ICPUG has its own areas on PRESTEL and COMPUNET and these can be accessed by anyone who subscribes to these services and has a modem and suitable software. Parts of the ICPUG areas are open to all, but only ICPUG members can enter the ICPUG closed user group areas. ICPUG has its own area on the CIX (Compulink Information Exchange) bulletin board which covers all Commodore machines, and has areas on several other BBs, many of which are run by ICPUG members.

FUTURE

ICPUG are watching with anticipation and excitement as Commodore enters a new era with the CDTV. Some members have already seen it in action when Commodore has visited regional groups and the prospects are mind-bending. Just imagine 550MB of information on a CD disk instead of 1-1.5MB on a floppy! The CDTV can play music on its own, or music with graphics and also run interactive software programs. CD ROM drives are available now and were shown at the recent BETT show at the Barbican in London. A Commodore PC40III had been fitted with a CD ROM drive and was displaying educational software. The possibilities are great for the future and ICPUG will be there.

For ICPUG membership details please contact Jack A. Cohen, Membership Secretary, ICPUG, PO Box 1309, London N3 2UT. Telephone 081-346 0050 after 6 pm.For details of the ICPUG South East Group please contact John Bickerstaff, 45 Brookscroft, Linton Glade, Croydon, CR0 9NA. Telephone 081-651 5436 after 8.30 pm.

MENTOR

Laser Printers Part 1

In the start of this informative series, Martin Witton explores the history of lasers and the story behind how the laser printer works

Not so very long ago, Laser printers were considered out of the question for most users, because of their size and cost.The small number of firms who invested in the earliest models were those which had specialist needs or roles on a network, or where desk top publishing justified the expense.

In a relatively short space of time, laser printers can now be found for personal use or at the top end of the market, fast, flexible machines which can meet the needs of an entire office on a local area network. The advantages of a quiet, compact printer which can meet the needs of any user, deserve closer scrutiny.So What Is A Laser?

The term laser is an abbreviation for "Light amplification by stimulated emmission of radiation".

Unlike the sun, conventional bulbs or candles, which spread their light in all directions, the laser is spatially coherent light that travels exclusively in a single direction.

It all started in 1960 when an American called Theodore Maiman, following up on the work of Charles Townsend, demonstrated a laser with `harnessed' light. This first laser device consisted of a ten centimetre long cylindrical ruby as the core, around which a flash bulb was wrapped in a spiral. This unusual bulb emitted a particularly bright light, like a flash of lightning, into the ruby rod for only a tiny fraction of a thousandth of a second. Fractions of a second later, a red high-energy light beam shot out from the ruby rod - the first `laser' light.The energy of this first `laser gun' was very low so the discovery attracted little attention.

Further development based on other beam generating media such as rare gases, crystals, semiconductors and various chemical substances, very soon resulted in tremendous improvements in performance and most importantly, the achievement of continuous operation.

Prodedures and areas of application

Laser beams are today used in an increasing number of applications. Examples can be found in manufacturing industry, medicine, measurement technology and research and development, as well as in entertainment electronics, (compact discs) and in communications technology. The width of the light beam used in each case depends on the application; from the high power needed to melt a diamond, where the generated heat reaches several million degrees, to the low energy required for scanning a video disc.

CO2 lasers are used where powerful applications are required, for instance, in processing materials such as in metal stone cutting for welding, drilling, and surface preparation. The CO2 laser is also increasingly used in the technology of medicine.

Excimer lasers with rare gas and halogen mixtures find employment in chemistry, medicine, microelectronics and micro-material processing. As the beam of the excimer laser does not generate any heat in the area of application, it is well suited to cutting sensitive materials. This type of laser is also used for taking accurate measurements. Our distance from the Moon has been measured accurately to within 50cm and this equipment proved equally valuable in measuring the ozone layer.

Solid state lasers are ideally suited for precise and fine detail work where

"As it passes the drum, particles of toner are transferred from the drum to the surface of the paper."

power is of less importance. They are used for spot welding with accuracy down to a millimetre, or for engraving on dies.

Ionic lasers are mainly used in research and development, and in medical technology.

He-Ne lasers (Helium-neon lasers) with highly visible beams are used for light shows at fairs or in discotheques. Other uses for these lasers, with invisible beams, are scanner checkouts in supermarkets where product codes (also called bar or line codes) of packaged goods are scanned and recorded. This technology is also widely used in the printing industry.

Laser diodes operate predominately in the less powerful milliwatt range, and are widely used in communications systems. They are mainly used for optical image storage, even on compact discs; for digital storage of text, graphics, speech and music, and for their retrieval and reproduction.

How do laser printers work?

The theory behind the laser printer is that of an electronically controlled invisible beam of light writing letters, numbers and graphics uniformly as `bit' patterns onto a rotating drum. The materials used on the drum consist of harmless organic compounds.The action of `writing' with a laser on the previously negatively charged, highly resistive surface of the drum is to allow the negative charge, at the point the laser hits the drum, to escape to ground. As the drum surface passes the developer surface, the negatively charged developer allows toner to move to the areas on the drum that have been `written' on by the laser and hence lost their negative charge.

As the printing continues, the pattern is positively charged and as it passes the drum, particles of toner are transferred from the drum to the surface of the paper. They are melted and bonded firmly to the surface as it passes between a press and heat roller.

In this way, individual characters or shapes are transferred with astounding speed and precision first to the drum as electrostatic images, and then to the paper as a high quality printed impression.

To create a printed line, the individual characters are separated into a high-resolution grid. The standard resolution

Individual characters or shapes are transferred with astounding speed

of modern laser printers - the number of pixels forming a printing grid - is 300 x 300 pixels per square inch. This is about 120 pixels per centimetre. One square centimetre is made up of around 14,400 pixels, which are either discharged onto the drum to create the image to be printed or left in their original negative state. To compose one A4 page, approximately 8 million pixels must be built up on the drum prior to printing out.

The laser beams are deflected horizontally from a polygonal (multi-surface) mirror onto the corresponding predetermined spot on the drum. As the mirror is divided into separate surfaces, so the laser beam is split. The mirror rotates at up to 7,600 revolutions per minute. In this way, 80 million pulses per minute can be guided onto the drum. When printing is finished, the drum is purged by a strong light and the remaining toner is removed.

In Part II *AUI* delves deeper into the operation of laser printers.

33 Chapel Green Road
Hindley
Wigan
WN2 3LL
INTERNATIONAL

P.C.S. INTERNATIONAL

Tel: +44 942 521577
Tel/Fax: 0942 521577

THE NORTHWEST BIGGEST PD LIBRARY

AMOS PD AND LICENSEWARE
97: Dynamite Dick +
98: Music 24
99: Benson Demo I
100: Amos Demo II
101: Auto Player 1MB
102: Chainsaw Death 1MB
103: Pick-Up-A-Puzzle 1MB
104: Pick-Up-A-Puzzle Data Disc
105: Picture It 1MB Needs 106
106: Picture It Disc 2 Need2 105
107: Amos Programs
108: Music Player
109: Weird Science Demo II: Birds of Pray
110: Cross Fire 1MB
112: Panthorus Mega Demo I (A0 1MB
113: Panthorus Mega Demo I (B)
115: Balloonacy 1MB
118: Fun School 3 Sprites 1MB
120: Amos Music Player 1MB
121: Nik Williams Broadcast Computer
124: Bob Maniacs
125: Benson Demon II 1MB
126: Dreamers Disc Mag
129: Music Disc I MB
130: The Wooden Ball 1MB
131: Armageddon Demo 1MB
133: Mandelbrot Generator
135: Simon Says & Space Maths 1MB
137: Tile Trial 1MB

LICENSEWARE
LPD1: Colouring Book
LPD2: Arc Angel's Maths
LPD4: Thingamajig
LPD5: Jumble Bungle 1MB
LPD6: Pukadu
LPD7: 4 Way Lynx
LPD8: Work and Play 1MB
LPD9: Assembler
LPD10: The Word Factory
LPD11: Go-Getter

FRED FISH 160-450
TBAG 1-38
AMIOUS 1-26
SD-DISKS
AND OUR VERY
OWN P.C.S. DEMOSS 1-187

PCS 3: Sun Slideshow II
PCS 4: Everlution Demo
PCS 5: Internal Vandetta
PCS 7: Network Demo 3 A
PCS 8: Network Demo 3 B
PCS10: Moonwalker Demo
PCS11: Horror Video Demo
PCS12: Network Demo 2 A 1MB
PCS13: Network Demo 2 B 1MB
PCS14: Music Animations
PCS15: Animator 1MB
PCS16: Batman Demo
PCS17: B.K.C.D 1 Demo A 1MB
PCS18: B.K.C.D. 1 Demo B 1MB
PCS20: Bruce Lee Demo
PCS21: Probe Demo
PCS22: Magician and Jogger Demo 1MB
PCS23: Red Sector Demo A
PCS24: Red Sector Demo B
PCS84: R.A.F. Mega Demo 1 A
PCS885: Predators Mega Demo A
PCS887: Predators Mega Demo B
PCS133: Magnetic Fields Collection

LICENSEWARE/SHAREWARE
This collection will always be listed in numerical order unless we get inundated with programs of the same quality.
PD1: Colouring boxes
PD2: Arc Angel's Maths
PD3: Kremlin Mega Demo 1-2 disks
PD4: Thinamjig
PD5: Jungle Bungle
PD6: Pukadu
PD7: 4 Way Lynx

PAYMENTS
ADP disks cost £2.35 UK. £2.85 Europe and £3.00 Rest of the World.
AMOS LICENCEWARE £3.00. PRICES Inc. P&P. Major credit cards accepted with orders over £10. Catalogue disk £1.00 or free with all orders.

AMOS CREDIT CARD HOTLINE 0942 521577

P C S INTERNATIONAL

ark

SWITCHABLE VOICE/ FAX LINE **TEL: 0983 79496** OPEN 10am – 7pm MON – SAT

VISA

ACCOUNTS
Arena Integrated Ac £119.95
Cashbook Combination £55.95
EasyLedgers Integrtd £149.95
Home Accounts £24.95
Personal Finance Mgr £28.95
Service Industry Acc £299.95
SBA Xtra £81.95
System 3 Integrated £40.95

BOOKS 34 Lines Stocked
68000 Asm Lan Prgrmg £21.95
Assembly Lang Prgrmg £14.95
Amiga Basic In/Out £18.95
Amiga C Beginners £18.45
Amiga For Beginners £12.95
AmigaDOS Inside & Out £18.45
Desktop Video Guide £18.45
Disk Drives In/Out £27.95
Hardware Ref Manual £21.95
Incs & Docs: ROM Mnl £28.95
Kids And The Amiga £14.95
Libs & Devs: ROM Mnl £29.95
Mapping the Amiga £22.95
System Programs Guide £32.95

CABLES 100 Lines Stocked
D23S Socket & Hood £4.95
D25 Gender Changers £7.95
D23S-D15P NEC MS 3D £13.95
D25P-D25P 25W 2M £11.95
D25P-C36P 2M Printer £6.95
DIN5P-DIN5P MIDI £4.95
Null Modem Cable £11.95
Switch Box D25S X 2 £24.95

COMMUNICATIONS
A Talk 3 £71.95
K Comm 2 £25.95

COMPUTER AIDED DESIGN
Board Master 1 5MB £81.95
Design 3D £61.95
ProNet/Board Bundle £142.95
Professional Draw 2 £101.95
X CAD Designer £81.95

DATABASE MANAGERS
Bible Reader £45.95
InfoFile £45.95
Mailshot Plus £38.95
Prodata £56.95
Superbase Personal 2 £51.95
Superbase Personal £35.95
Superbase Pro £168.95

DESKTOP PUBLISHING
Clip Art PD £17.95
G.O. Type (Various) £33.95
Outline Fonts £101.95
PageSetter 2 £51.95
Pagestream 2 £137.95
Pro Clips Strctrd Art £25.95
Pro Page 2 1.5MB £194.95
Structured Clip Art £37.95

DUST COVERS 7 Lines Stocked
Monitors 1084S/8833 £8.95
Amiga 500 £5.95

EDUCATION
Distant Suns £51.95
Fun School 3 (< 5) £18.95
Mega Maths A Level £24.95
Micro English (GCSE) £24.95
Micro French (GCSE) £24.95
Micro Maths (GCSE) £24.95
My Paint £20.95
Primary Maths £24.95

EDITORS
CygnusEd Pro 2 £61.95

GRAPHICS
Animagic Effects £61.95
Animation Studio £81.95
C Light Ray Tracing £33.95
Comic Setter £40.95
Deluxe Paint 3 £59.95
Deluxe Print 2 £40.95
Deluxe Photolab £56.95
Deluxe Video 3 £71.95
Digi Paint 3 £54.95
FantaVision £35.95
Pixmate £40.95
Real 3D (New Version) Query
Scene Generator £35.95
Sculpt 4D Junior £86.95
Sculpt Animate 4D 2MB £337.95

HARDWARE
1.3 Kickstart ROM £30.95
3.5" External Drive £61.95
3.5" Int 2000 Drive £61.95
512K A500 RAM/Clock £30.95
A590 With 2MB RAM £356.95
A590 20MB Hard Drive £285.95
Amiga 1500 & S/W £695.95
Amiga 1500 £644.95
Amiga 1500 Mon & S/W £951.95
Amiga 3000 16/40 £2049.95
Citizen 124D 24 Pin £204.95
Citizen Swift 9 £204.95
Citizen Swift 24 £295.95
Citizen Swift 24X £387.95
Fatter Agnus £61.95
Naksha Mouse £35.95
Podscat Gfx Tablet £204.95
RAM Chip 256K CMOS £6.95
Sharp Colour Scanner £614.95

PACKAGES
Appetizer £30.95
Graphics Starter Kit £56.95
Office By Gold Disk £102.95
Starter Kit £51.95
The Works Platinum £78.95

MULTIMEDIA
AmigaVision £104.95
Hyperbook £59.95

PROGRAMMING
AMOS Basic £37.95
Benchmark Modula 2 £133.95
Devpac 2 £44.95
GFA Basic Compiler £25.95
GFA Basic Interp £41.95
Hisoft Bas Compiler £58.95
Lattice C 5.1 £163.95
Pascal PD £2.95
Resource Disassembler £66.95

RIBBONS 10 Lines Stocked
CBM MPS1230 (6) £4.23
CBM MPS1500 (6) £5.17
CBM MPS1500 Clr. (3) £12.22
Citizen 120D (6) £3.29

SOUND
AMAS Sound Sampler £76.95
Deluxe Music £56.95
MasterSound £35.95
MIDI Plug Interface £25.95
Music X 1.1 £112.95
Music X Junior £66.95
Quartet £41.95
Sonix 2 £51.95
Sound Trap 3 £30.95
Tiger Cub £61.95

SPREADSHEETS
Advantage £76.95
DGCalc £30.95
Superplan £51.95

UTILITIES
Amikit For Beginners £30.95
ARexx £33.95
B.A.D. Optimiser £33.95
BBC Emulator £35.95
Byte 'N Back £20.95
CrossDOS £29.95
Directory Manager £35.95
Disk Master 1.4 £40.95
Doctor Ami £40.95
DOS 2 DOS £30.95
Enhancer 1.3 £15.95
Fast File Transfer £35.95
GB Route Planner £30.95
Mavis Beacon Typing £25.95
Quarterback Tools £61.95
Weather Watcher £25.95
X Copy Professional £38.95
Your Family Tree 2 £66.95

VIDEO
Broadcast Titler 2MB £184.95
Digi View Gold 4 £99.95
Hitachi Camera/Lens £204.95
Minigen Genlock £102.95
Scala Presentations £184.95
Video Titler £87.95
Vidi Amiga Solution £123.95

WORDPROCESSORS
Excellence 2 £94.95
KidsType £25.95
Kindwords 2 £36.95
Micro Text £20.95
PenPal £92.95
Protext 5 £102.95
Scribble Platinum £43.95
TransWrite £33.95
Wordperfect £164.95

Richard & Angela Howe: Applied Research Kernel
Corve Farmhouse, Chale Green, Ventnor, PO38 2LA, U.K.

POST UK £0. Software <1Kg Europe £5/item, World £12/item
CHEQUES London Sterling to A.R.K. please (may clear)
DESPATCH From stock 24 hours, from supplier 48 hours
EXPORT & BFPO Remove U.K. V.A.T (=Price/1.175)
V.A.T. Prices include U.K. V.A.T. at 17½%
PHONE Monday to Saturday 10am to 7.00pm
PRICES Are subject to change

Visitors are always welcome by appointment

PAZAZ!

The one stop Amiga shop in Scotland

Everything for your Amiga at real sexy prices! midi/modems/video/scanners/ printers/monitors/disk drives/ram/software/books etc

Amiga 500, 1500/2000 & A3000 at very competitive prices

We can supply the Amiga A590 Hard disk fitted with up to 2Mb Ram for your A500 or We can also supply and fit hard cards/disks to your Amiga 1500/ 2000/3000. Ring us for the best prices on Ram boards and chips for any Amiga configuration.

Have a look at the first Amiga CD Rom Drive. Newly imported from Xetec in Kansas. Supplied with a CD containing over 500Mb of PD software. Send a disk + 50p or £1 for our latest PD list.

Pazaz!, 14 Douglas Street, Dunfermline, Fife, SCOTLAND KY12 7EB. TEL/FAX 0383 620102 – Access/Visa welcome

How to use... A Modem

BBS Board	Times Online	Phone Number
Allaiance BBS	7.00pm - 7.00am	061-339 0337
Amiga Conection	7.00pm - 7.00am	081-503 0593
YUKONHO	24hrs	0232-768163
CIX	24hrs	081-399 5252
Treasure Island	24hrs	0992-447273

Q. What is a modem?

A. A modem is a piece of computer hardware which is connected between the Amiga and a standard telephone wall socket. It permits the Amiga to transmit and receive information using the telephone network.

Q. How does it work?

A. The Modem converts the serial electronic signals which the computer understands into audio tones which can be transmitted down the telephone lines. The name comes from a contraction of the term MODulator/DEModulator, because the modem modulates (changes or alters) a simple fixed tone (the carrier).

Q. What can Modems be used for?

A. Lots of things. How does playing Populus with someone in Canada grab you? Or getting Public Domain software for free, even before a library gets it?

Q. Not bad, but that's not all they are used for surely?

A. You're quite right. Most of the time they are used to connect computers to Bulletin Board Systems (BBSs).

Q. What is a BBS?

A. A BBS is an electronic message board, running on a computer system (called the host system) and connected to the telephone service via another modem. Most BBSs are run by home users as a hobby, although commercial systems do exist. All boards have mailing systems to enable you to chat to other computer users. Most also have large databases of public domain software which you can download for free.

Q. Aren't Bulletin Board's expensive to use?

A. Not necessarily. Nearly everyone has a bulletin board (BBS) within their local dialling zone. Most of the BBSs run by hobbyists are free to use and great fun. If you stick to an hour or two a week, and use the cheap rate for your calls, you probably won't notice the extra amount on your phone bill. Commercial systems on the other hand, will charge you so many pence a minute PLUS you normal line charge.

Q. Is it legal? Is it safe? Is it hacking?

A. If you use a British Telecom approved modem, it is perfectly legal to connect and use your Amiga in this way. As long as you use your common sense neither your Amiga or the country's phone network will be damaged. Hacking is a phrase normally used to describe the illegal access of private or government run computer systems. There are more than enough public access systems to keep you occupied.

Q. How much is a modem?

A. You can buy a modem second hand for about fifty pounds, although you might end up with one that operated at a very slow speed - such as 300 baud. The faster the better, because the less time you spend waiting for software to download, the smaller your telephone bill. Try and get a modem which operates at least at 2400 baud, preferably 9600 baud. New modems will cost from one hundred pounds upwards.

Q. What's all this baud jargon then?

A. As with all aspects of computers, comms (communications) has its own collection of jargon. Here is a list:

BAUD - bits per second, a measure of the speed of a modem. The higher the better.

Carrier - the tone which is modulated by the modem in order to transmit information.

MNP - a form of electronic error correction/compression. Usually accompanied by a level number, for example "my new modem has MNP level five". It is a Good Thing to have.

RS232 - the standard for serial communications which most (if not all) modems use.

Terminal - when you are using your Amiga to communicate to the host system, it is acting as little more than a dumb terminal. Don't feel bad about it. If it upsets you that much, ask as Sysop about SkyPix.

Sysop - short for 'system operator', or the poor fool who spends his time and money running a BBS for you to use. Be nice to Sysops: You may get extra privileges on the board.

XMODEM/YMODEM/ZMODEM - All protocols for downloading and uploading programs. You can't download programs like text for several good reasons. These protocols will bundle the software together into packets, and send them one at a time, checking for errors all the while.

Archiving - most software is stored on BBSs in a compressed format called an archive. This makes sense because it (a) takes up less space on the host system and therefore leaves room for more and (b) takes less time to download, and therefore saves you money.

V21 - 300 baud
V22 - 1200 baud
V22bis - 2400 baud
V23 - 1200 one way, 75 the other. Prestel uses this mode.

Q. What do I need apart from a Modem to get started?

A. Apart from a modem, all you need is a suitable cable to connect it to your Amiga, and some terminal software. Most terminal software is public domain or shareware. Look out for Access!, which is a good package to get started with. Ask your favourite PD Library for a copy.

Q. What do I do next?

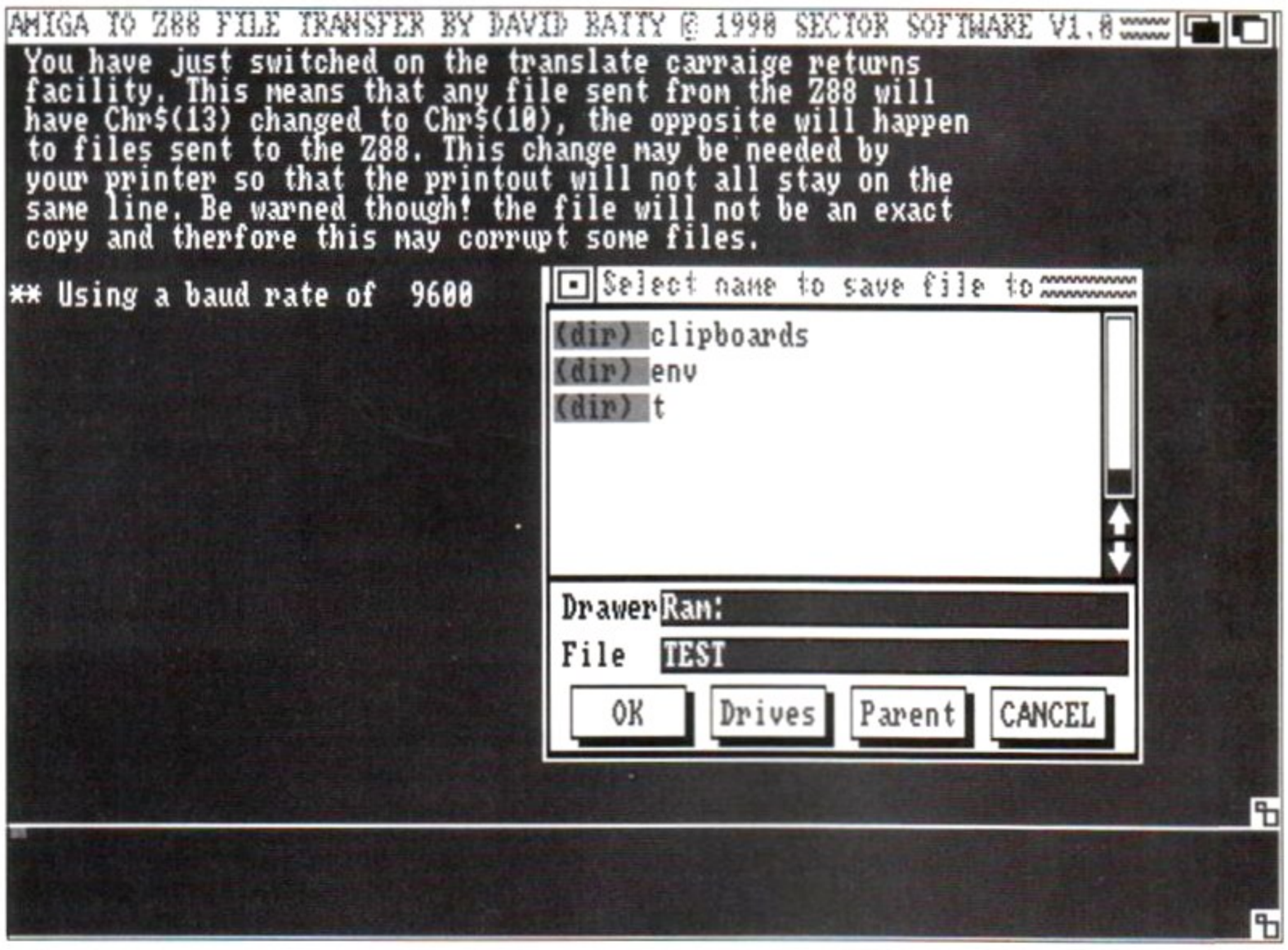
A. Buy (or borrow) a modem. Make sure it has a nice green British Telecom approved sticker on it, or you will be breaking the law. Connect it your Amiga, and connect the lead to the standard telephone wall socket. Run your comms software, pick a BBS and call it up.

Q. Know any good BBSs to try?

A. Of course. Above is a short list.

Z88 Link

John Kennedy links his Amiga Z88 . . .
or is that the other way round . . .



With a standard RS232 connector and built-in terminal software, transferring data to and from other computers is not a major problem.

You may not be aware of the fact, but there is a portable Amiga. It's been available for several years now, and lots of people have one. They are black A4 sized, have a large mono LCD screen and cost about two hundred pounds. Why haven't you heard about them? Well, you musn't have been listening. What are they called? The Amiga A4000? A5000? No - they're called the Cambridge Computer Z88.

Think about it. If there were a portable Amiga (as produced by Commodore, anyway) who would use it? A sizable percentage of potential users would be looking for nothing more that an easy way to enter and store text. Journalists, for example. Students. Businesspersons. OK, so it would be nice to while away the train journey playing Powermonger, but the essential item is only to enter and store text reliably. Being able to play games on a portable machine with a colour display and 3.5 inch disk drive would be too expensive to contemplate.This is where the Z88 fits in. If you haven't seen one, you are missing out. There are small, light and very, very portable. Not only are they good little Word Processors, but they are fully functional Z80-based computers, with built-in BASIC, diary, alarm clock, spreadsheet and database software.

You can plug over a megabyte of ram into them, and they can last 20 hours on a set of four HP7 batteries. A potential minus is the inclusion of a typically Sir Clive Sinclair rubber keyboard, but if the E key on this one was a bit mor snsitiv I could liv with it happily.The joyous news is that they also have an industry standard RS232 connector. Joyous, for it means that you can connect the Z88 to just about anything. Even an Amiga. In theory at least, all you need is a standard Comms program to capture the text as it's squirted over. The only drawbacks to this method is that it is a bit fiddly and won't take full advantage of some Z88 features.A far better approach is to use a custom written piece of software, such as Z88/Amiga Link from Sector Software of Lancashire. This package comes complete with the correct cable to connect to the Z88 and Amiga serial ports, plus a disk with an Amiga program on it.To use it, you boot from the Amiga disk (or install the contents onto your hard drive) and then start sending the data from the Z88's own Import/Export control panel.

"The software was witty enough to remark "You have not been charged for this call"

If something goes wrong, it's only a matter of trying again until you get it right. I had some minor disagreements with an Amiga in the office renowned for being 'odd', but no problems with any other machine I tried. In fact, when I tried the 'odd' Amiga the next day, it worked perfectly. I could only put it down to poor air quality. At the time, the software was witty enough to remark "You have not been charged for this call".Although the Amiga program is relatively simple (and written in HiSoft BASIC) it does the job. So what more could you want? If you need to compute on the move, don't even consider some horribly over-priced and over-weight PC compatible. The Cambridge Computer's Z88 is the ideal match for the Amiga: they're both ahead of their time.

Product: Z88/Amiga Link (inc.cable)
Price: £25
Contact: Sector Software, Unit 13, Centurian Way Industrial Estate, Farington Leyland, Lancashire, PR5 2GU

Disk Cat only 75p Refundable

PD REBALS

Disk Cat only 75p Refundable

BRITAIN'S BEST VALUE AMIGA PD LIBRARY

Over 1600 PD Titles on Catalogue

* = 1 meg (2) = 2 disks etc.

R1 Star Trek * Strategic
R2 Star Trek * (3) 2 drives
R3 Star Trek (2) 'New Version'
R4 Star Trek (2) 'Very Good'
R5 Flashbier 'Boulderdash Clonk'
R6 Holy Grail * 'Test Adventure'
R7 Golden Fleece 'Text Adventure'
R21 Wordwright 'The PD Wordprocessor'
R23 Viscalc 'Spreadsheet'
R24 Rim * 'Database'
R26 Flexbase 'Simple Database'
R28 Bank 'Finance Pack'
R29 Jazzbench
R30 QuickBase
R35 CLI Tutorial
R31 Ultimate Virus Killer
R34 Icon Magic
R38 Trooper Fonts (3) 'PD Fonts'
R39 C Manual (3)
R40 Utility Disk Set (10)
R43 Soundtracker
R44 Soundtracker Instruments (10)
R46 Bart Simpson (3)
R47 Amazing Tunes 2 * (3)
R50 Crusaders Bacteria Demo
R54 Games Music Creator
R56 C Bit 90 Demo 'Brilliant'
R58 Budbrain 1 (2) 'Over 18 only'
R59 Budbrain 2
R64 Kylie Demo (2)
R75 Madonna Slideshow (3)
R76 Crusaders Genesis
R77 Knightbreed Slides
R79 Total Recall Slideshow
R80 Dope Intromaker
R85 Demolisher Utility
R86 Clipart Set (5)
R87 Boot Chamption
R88 Boot Writer
R89 Education 1 Age 6+
R90 Education 2 Age 11+
R91 ST Emulator
R92 Messy Dos
R93 Red Devil Crunche
R95 Vision Mega Demo
R96 Red Devil Utility
R97 N Comm "Modem"
R98 Powerpacker 2.3
R99 USA vs Iraq Demo

BEST DEALS AROUND

Deal 1 1–9 Disks = £1.75
Deal 2 10+ Disks = £1.25
Deal 3 20+ Disks = 90p
Deal 4 Buy 10 Disks and get FREE 10 cap
Deal 5 No Minimum Order
Deal 6 No Post & Packing
Deal 7 No VAT to add
Deal 8 Order by 3pm and we dispatch same day
Deal 9 Order 3 Disks get FREE catalogue
Deal 10 Come to shop

OPEN 9.30 am 6.00 pm 6 DAYS
Overseas orders please add £1.25
SHOP NOW OPEN

Make cheques & POs payable to:
PD REBALS, 52 Long Street, Devizes, Wilts
Tel: 0380 727419

PICTUREWARE©

For The Commodore Amiga IS HERE!!!

©N.J.N. Williams 1991

ONLY AVAILABLE FROM
NIK WILLIAMS BROADCAST COMPUTER PICTURE LIBRARY
0792 470503

Unbelievable quality
Amazing value!!
Incredible fun!!
Available in
4096 Colour HAM
&
32 Colour IFF
Please specify when ordering
FOR FULL DETAILS
PLEASE SEND SAE

One disk £4.99
Two+ disks £4.50 each
Up to five disks £1P&P
Six+ disks *post free*

Give your Paint Package a treat! A stunning photograph to work from!! Put life into your DTP/DTV: wonder at the quality, let your imagination run wild!!!

See before you buy!!! . Catalogue disk No.1 is 90p & 50p P&P and forms part of our 3 disk demo set which is £3 post paid. Please specify IFF or HAM demonstration disks. Single demo disks also 90p & 50p P&P.

On Pictureware© Catalogue Disk One Are:-

People Disks 1&2
Children Disks 1&2
African Famine Disks 1&2
The Nude Disks 1&2
Edwardian Photo's Disks 1&2
Art In Photography Disks 1&2
African Animals Disks 1&2
Silverback Gorilla Disks 1&2
Views of Vietnam Disks 1&2
African Pygmies Disks 1&2
Motorbikes Disks 1&2
Film Crew On Location Disks 1&2

We can accept
Access
Visa
Cheques
Postal Orders

During Pictureware's© development we've created pictures in all sizes and formats. We're providing them for your fun and entertainment on SPECIALLY PRE-FORMATTED FLOPPIES. £9 for 10 disks, post free! No guarantees on this exceptional offer, if you like the pictures use them, if not delete them (much quicker than a disk format), and use the disks as blank floppies!!!

FREE OFFER!!! With every order of six Pictureware© disks we are giving away FIVE FREE SPECIALLY PRE-FORMATTED FLOPPIES!!!! (Worth 90p each!!)
(Offer closes end of June 1991)

"YOUR GRAPHICS WILL NEVER BE THE SAME!!!"

Orders by post to:- Nik Williams Broadcast, Aspect House, 21 Brynmill Crescent, Brynmill, Swansea, SA2 0AL.
Please allow 21- 28 days for delivery, 'phone for urgent orders.

24Hr Credit Card Phone/FAX Hotline 0792 645946
(When ordering by telephone please wait for FAX tone to finish, at which point you'll be connected to our telephone system.)

AMIGANUTS UNITED

169 DALE VALLEY ROAD, HOLLYBROOK, SOUTHAMPTON SO1 6QX 0703 785680

OFFICIAL UK DISTRIBUTORS OF THE T.BAG DISKS AND THE LATEST ISSUES ARE ALWAYS FROM US FIRST

Mon - Fri 10am to 6pm

326: POWERPACKER by Nico Francois. Excellent crunch util. £1.50
445: SHOWBIZ ANIM by Robert Corns (runs for 5 mins) 1 MEG) £1.50
453: MINIBLAST by Anders Bjerin (Multi-tasking game) £1.50
463: Tobias Richters BILLIARD / RED LOTUS & JET ANIMATIONS £1.50
468: FRAXIONS FORGOTTEN REALMS SLIDESHOW 90 (HAM PICS) £1.50
484: TERRA MUSIC 12 Toons. (THE BEATLES RE-MIX IS GREAT) £1.50
515: NEWTEK DEMO REEL III (7 Mins of Animation/sound efx!!) £3.00
538: SPRITER. Design your own animated sprites £2.00
539: JAZZBENCH. This is an improved Workbench replacement. £1.50
551: SLEEPY. ANIMATE THOSE SLEEPY ICONS! (CHARITY WARE) £1.50
559: ROT. A 3 dimensional object generator £2.00
562: LAUREL & HARDY "TRAIL OF THE LONESOME PINE" (2 DRIVES) £3.00
565: PYTHONS "LUMBERJACK SONG" (TWO DRIVES REQUIRED) £3.00
577: 8 USEFUL UTILITIES FOR THE HARD DRIVE USER £1.50
580: NCOMM V1.9 EXCELLENT PROG FOR THE MODEM USER £1.50
596: 200, (YES 200), UTILITIES BY GARY OF PENDLE EUROPA £1.50
599: PONTOON. A nice version by Chris Labrum £1.50
600: FRAXIONS HORROR SHOW ANIMATION DEMO DISK £1.50
612: GAMES COMPILATION. MONTANA-KINGS-TOWERS + 5 OTHERS £1.50
618: REFLECTIONS 11. 3/4 of an hour music by the master. £1.50
627: RAISIN, MARS AND DELUX (3), ANIMATIONS + T.V. intro £1.50
647: HORROR DEMO V1.2 GOOD HORROR PICS. ADULTS ONLY £2.00
657: COMICAL SEASIDE CARTOON SLIDESHOW BY UTOPIA £1.50
668: "LES GRADOS" PIC-SHOW. VERY unusual pictures £1.50
674: SYSTEM 5 COMPILATION. A demo, intro and three games £1.50
724: 6 GOOD DEMOS + A GAME. THE QUESTOR COWBOY ANIM IS GOOD £1.50
728: UTILS The Famous BOOT-SHOP, BOOTKIT, and others £2.50
756: PSUEDO-COP GAME. (LIKE ROBOCOP). good, but not easy. £2.00
762: THE BEGINNING. A WELL PRESENTED DEMO + OTHERS. (1 MEG) £2.00
967: STEREO 3d DEMOS BY EXIT. (GREAT! BUT NEEDS 3d GLASSES). £2.00
1018: THINKAHEAD A REAL MIND BOGGLING GAME FROM THE CLONES £2.00
398: GHOSTPOOL and SPIGOT Animations by Dr Gandalf. (1 MEG) £1.50
521: ALL NEW STAR TREK, With AUTHORISED English Instructions £4.00
576: EDUCATION packed with progs for the children. £2.00
581: SID. Finding the CLI a slog? Then you need this prog! £2.00
639: C MANUAL by Anders Bjerin. 3 disks. 200 pages of advice. £5.00
640: 8 GAMES Including the TRAIN SET. A MUST for the kids £2.00
649: BUDBRAIN TWO DISK MEGADEMO, (FOR ADULTS ONLY). £3.00
658: ANIMBRIDGE (alter animfiles) + Update of SKYPAINT/SKYPLAY £2.00
700: D-COPY V1.EXCELLENT copier program. Full instructions. £2.50
758: BOOT-BENCH. THIS ONE IS FULL OF BOOTING UTILITIES. £2.00
741: NorthC V1.3 (2 DISKS) IF YOU ARE INTO C, THIS IS A MUST! £5.00
499: LOGICLAB. DESIGN YOUR OWN ELECTRICAL CIRCUITS £2.00
790: STARTREKKER MUSIC UTIL + DISKMASTER V3 & OTHER UTILS £2.00
899 MAKE-WORDS, MATCH-WORDS & MATCH ANAGRAMS. BY M. MEANY £2.00
812: STAR TREK U.S. Version. GOOD! (1 MEG MIN) (2 Drives) £4.00
839: C-LIGHT RAY TRACING PACKAGE. A MUST FOR THE ARTIST! £2.50
848: KEFRENS excellent POWERMENU Font Designers. A MUST! £2.50
901: AMI-FX issue 2. A MUST for fractal fans. (3 disks, 1MEG) £4.50
910 PAIR-IT. an excellent educational game for the kids. £2.00
906: DYNAMITE DICK. Dig for treasure avoid the bats! GOOD £2.00
907: SNAKES & LADDERS GAME. This is a MUST for ALL ages £2.00
922: BAD BIRD ANIM BY Dr Gandalph (1MEG – EXCELLENT) £1.50
929: DAWN MEGADEMO II FROM AUSTRALIA. THIS IS GOOD £1.50
933: A-GENE GENEOLOGY THIS IS THE NEW V3 (1 MEG MIN) £2.50
939: FRAXIONS NEW MEGADEMO "THE WALL" IT'S GOOD £1.50
942: SYNERGY WELL PRESENTED SCULPT 4D PICTURES £1.50
950: THE EVIL DEAD BY POSSESED. CAN YOU KILL THE ZOMBIES £1.50
969: FILLET THE FISH. THIS IS AN AMUSING ANIMATION £1.50
832: TEXTPLUS 2.0E ABSOLUTELY THE BEST PD WORDPRO PROGRAM £2.00
976: THE LAUREL & HARDY SHOW, (2 DISKS, 1 MEG ANIM BY BRAZZLE) £3.00
1021: AT THE MOVIES ANIMATION WITH SOUND EFX. (1 MEG) £1.50

THE LISTING BELOW IS FROM OUR LICENWARE PROGRAMS ** FOR WHICH THE AUTHORS RECEIVE A PERCENTAGE ** THEY ARE ONLY AVAILABLE FROM US

705: AMIBASE PROFESSIONAL. (by Keith Grant), DATABASE PROG. £2.00 (1 MEG AMIBASE PROFESSIONAL II COMING SOON, WATCH THIS SPACE FOR DETAILS)
876: QUIZMASTER THINK YOU KNOW IT ALL? WELL NOW YOU CAN PROVE IT. SAVE AND RE-LOAD FACILITY (1-4 players) EXCELLENT £3.00
877: 1 ACROSS 2 DOWN. A FULLY FLEDGED CROSSWORD PROGRAM. IT COMES ON TWO DISKS FOR ONLY £5.00 CROSSWORD DATA DISCS 2 & 3 NOW READY £2.00 each.
INTO CODING? – WANT TO LEARN? THE AMIGA CODERS CLUB IS FOR YOU! ACC 1/4 COMPRESSED ISSUES OF AN EXCELLENT SERIES FOR CODERS, EVEN IF YOU ARE NEW TO THE AMY, GET THIS IF YOU WANT TO LEARN ASSEMBLY, USING DEVPAC ETC THIS INTRODUCTION TO THE WORLD OF ASSEMBLY IS ONLY £1.50
THE AMIGA CODERS CLUB DISKS ARE PACKED WITH SOURCE, HINTS TIPS FROM MANY OF THE WELL KNOWN CODERS THAT ARE ON THE AMIGA SCENE TODAY.
ISSUES 5-6-7-8-9-10 NOW AVAILABLE , PLEASE NOTE, EXCLUDING THE COMPRESSED INTRODUCTORY ISSUE, AMIGA CODERS CLUB DISKS ARE £3.00 PER ISSUE

HERE ARE SOME REAL GOODIES
PLEASE NOTE THAT SOME OF THESE PROGRAMS ARE COPYRIGHTED TO US

988: MOD PROCESSOR V1.8 Make Picture and/or Music Progs, adjust picture etc. It even loads crunched modules!! EXCELLENT £3.50. 971: THE NEW MASTER VIRUS KILLER V2. It recognised and kills 105 of the pests + other features. (With Hand Drive Protect) £2.50. 973: MED V3 BY TEIJO KINNUEN IS HERE! The very latest version of this commercial quality music prog. BRILLIANT! (1 MEG BEST) £3.00. 973S: PROGRAMMERS CAN GET THEIR HANDS ON THE COMPLETE SOURCE OF MED V3 TO SEE JUST HOW TEIJO PUT THIS ONE TOGETHER. BARGAIN! £2.00
974: FOR THOSE AMY USERS THAT HAVE AN INTEREST IN RELIGIOUS MATTERS. THE COMPLETE NEW TESTAMENT IS ON THIS DISK! £2.00. 990: AMIGA C CLUB MANUAL V2 IS NOW READY. LOADS MORE INFO, SOURCE AND HELP FROM ANDERS BJERIN. THIS NEW MANUAL IS ON 4 DISKS £6.00. 996: THE LATEST AND EASIEST SETKEYS PROG TO REDEFINE YOUR KEYMAPS. PLUS A HOST OF OTHER UTILITIES FOR ICON DESIGN ETC £2.00. 1010: MAGNETIC FIELDS NEW DEMO COMPILATION. THIS INCLUDES THE NEW COMA DEMO AND THE WELL PRESENTED BOBBY THE BALL DEMO £1.50. 1015: THE RED DEVIL DEMO CREATOR. THIS REQUIRES SOME EXPERTISE OF THE AMIGA AND NEEDS 1 MEG. (WILL NOT WORK ON FATTER AGNUS!) £2.00.

COMING SOON!! THE FANTASTIC OCTAMED. A TRULY PROFESSIONAL MIDI COMPATABLE MUSIC PROGRAM WITH A FULL EIGHT CHANNELS!!!

ALL PRICES ARE INCLUSIVE OF POST AND PACKING

FREE DISKS + FREE PROGS + FREE MEMBERSHIP – OVER A THOUSAND DETAILED PROGS PLUS SOME GAMES TO PLAY, ON THE MAIN CATALOGUE DISK. ONLY £1.00
PLEASE NOTE! WE DO NOT ACCEPT CREDIT CARD ORDERS
THE 1991 UPDATE TO OUR CATALOGUE IS NOW READY FOR £1.00 (The update contains only the LATEST additions to the library)
(NOTE! AFTER IT'S INITIAL PURCHASE, THE 1991 UPDATE CATALOGUE WILL BE RE-COPIED, FREE! IF YOU RETURN IT WITH AN ORDER FOR £15 OR MORE)

TEST DRIVE

Amiga 500 1.5Mb RAM Expansion Board

Why have a 1 Meg Amiga when for a little extra cost it can be 2 Meg? Pat Kelly finds installing a 1.5Mb Expansion RAM Board into his A500 is as easy as one, two, three...

Who will buy my 0.5Mb expansion board with battery backed up clock", came the attempt around the offices after I fitted this 1.5Mb expansion board. The statement was so long that it started as out in an "Oliver" musical theme and ended in a Town-crier oyez, oyez!

As you may have guessed I was a might happy as I had planned to give myself half an hour to complete the project - opening up the A500 is always fraught with hidden problems. In practice, it took me 15 minutes to open the A500, fit the 1.5MB expansion, and reassemble the Amiga - and during that time I had to find a screwdriver!

The Gary chip is placed on the IC holder board.

It wasn't all that long ago that 0.5Mb was proclaimed as the maximum amount of expansion memory that sould be added to the A500 via the bottom expansion slot (the trapdoor). Things are moving fast in the Amiga world and it is now possible to add 1.5 Megabytes with a simple internal modification and Kickstart V1.3.

The A500 1.5Mb RAM expansion board looks similar to a half Megabyte board except that it has an additional 2-core cable link to a connected IC socket, mounted on a glass-fibre board, on which the Amiga's GARY custom chip is mounted during installation. There is an in-built battery backed-up clock and an enable/disable switch. The required chips are of 128k capacity, and the board has three 512k banks - each containing 4 of these chips. The board can be purchased bare (with no expansion RAM) and up to three 512k banks added when required.

The A500 cover can be prised of after the six retaining screws are removed (this will invalidate the Amiga's 1 year manufaturer's warranty, so is a no-no for new owners - unless they wish to take the risk). In some Amigas the screws are the awkward Torx standard, but a small flatbed screwdriver will facilitate the removal and re-fitting of these pentagonal screwheads. After the Amiga is opened up the keyboard is detached from its mounts and its connector removed. The A5 four-page fitting manual not only gives complete Amiga disassembly and fitting instructions, but also reminds the DIY fitter of the correct orientation of the connector.

The main expansion PCB is plugged into the expansion slot leaving the IC socket to be connected to the Gary chip. This connection involves the removal of the GARY - this should be attempted by carefully prising the chip from side-to-side until it eventually works itself loose. The Gary chip is placed on the IC holder board. Care is required here, if the instructions are not followed and the Gary chip is fitted the wrong way round - a common fault of conventional chip design - the chip, and possibly the Amiga, will become damaged. The expansion's IC board, complete with Gary newly installed is now plugged into the vacant Gary IC socket on the main Amiga PCB.

The Amiga is assembled as easily as it was to disassemble and left me wondering why it had even taken as long as fifteen minutes to complete this simple operation. Lack of practice, I reckon.

Apart from the fitting of an expansion RAM module the only other consideration that prospective buyers have is the question of compatability. If the module contains some sort of internal modifications what will this do for compatability? The answer is that the board does not modify the internal workings of the Amiga, but takes some extra information from it and thus the hardware operations are unaffected. In other words, the RAM is legal and will not substantially effect any application, or game to the extent of causing them to fail to work because of it.

The now 2Mb Amiga A500 will not execute programs which fail to recognise expansion RAM and those utilities which do not run on 1Mb A500s because of memory configuration will not run on this system. The expansion's enable/disable switch is located under the trapdoor and is within easy access.

I am constantly amazed at what some designers and manufacturers have produced and this is one of those products. Highly recommended.

Price: £89.95 (fully populated)
Contact: Evesham Micros
Tel: 0386 765500

Eight Megabytes And That's Your Lot!

All these different methods of connecting extra memory to the Amiga may lead to some confusion - it is quite possible to add in excess of 10Mb using different combinations of peripherals.

However, the maximum expansion RAM which can be added to the Amiga legally is 8Mb. If any supplier offers more then they are breaking Commodore's address bus protocols, or Commodore have changed their protocols, which they may have to do quite soon for their power Amigas.

For the A500, there are various modules on the market which allow 8Mb to be plugged into the expansion port on the left side of the machine. An extra 2Mb can be added if you link a hard drive onto this memory expansion module. There is an expansion connector underneath the machine from which an extra 1.5Mb can be added. If you have the full 8Mb already then adding extra Megabytes will not improve the memory capability of your machine.

Although your excess memory will come to no harm it will be placed in an address location which the Amiga cannot access and therefore cannot use.

FACTS

The 1.5Mb Expansion RAM will only work with Amigas with Kickstart V1.3 or greater

The Amiga must be opened up to enable fitting of the board - an action which will invalidate the 1-year manufaturer's warranty

The Gary chip must be prised out of its connector and placed on the expansion's link board. The board is then refitted in the Gary slot on the Amiga's main PCB

The whole operation should take no longer than 15 miutes to complete, but care must be taken throughout

The product comes complete with an A5 4-page leaflet containing instructions and a step-by-step assembly guide.

TEST DRIVE

Evesham Replacement Power Supply

The A500's power supply could be hard pushed to supply power to additional expansion units. Pat Kelly plugs his A500 into a replacement PSU...

The A500's power supply unit (PSU) supplies the Amiga with 60 Watts of power while the Amiga 1500 and Amiga 2000 power supply is rated at some 200 Watts. The difference between the varying specifications is due to the fact that the A500 is a base machine, the costs for it were kept low, and the user of an A500 was not envisaged to expand it past the 0.5Mb memory upgrade and a second disk drive standard. The A500 power supply can supply these upgrades adequately, but if you add a hard drive and 2Mb RAM expansion to the shopping list and, more likely than not, the upgrade will include an additional power supply unit to drive it. For example, take Commodore's official A590 hard drive which is supplied with its own external PSU. The A500's PSU supplies power to the A590 through the expansion interface. However, this supply line has very little power left to feed the drive after the power to drive the A500 and ancillary equipment is deducted. Therefore a second PSU is supplied to deliver the additional necessary power.

An A500 expanded with an 8Mb Cortex RAM Expansion and an A590 hard drive requires three seperate power supplies, although all units are connected to internal power lines. The Amiga 1500/2000 can support any expansion unit's extra power requirement because it has a higher power supply rating. If the A500 had a similar power rating as the Amiga 1500/2000 the extra power supplies required to drive most ancillary equipment would not be required. Exceptions to this would be hardware such as VIDI which requires an external supply as it is not connected to a suitable interface supplying the power it requires.

It is quiet likely that although a higher power rating PSU is desired, one will only be required when the original becomes faulty. Some Amiga users will experience PSU difficulties without actually realising it. A personal experience that I encountered was that my A500 was not outputing audio correctly. After swapping the Amiga, the monitor, and the leads with working components the failure was traced, surprisingly, to a faulty delivered with a new PSU. One of AUI's readers had a brand new A500 delivered with a new PSU. Up came the famous pointing hand but nothing else. The supplier assumed the A500 to be faulty and it, though not the PSU, was replaced. Same result! The reader and supplier began to assume a faulty batch of A500s. After much scratching of heads the PSU was found to be faulty. What had fooled both supplier and reader was that there was just enough power to start the machine, but not enough to run it!

The Replacement PSU from Evesham Micros is rated at an increased, but not mamoth, 96 Watts. The A500 Replacement PSU has no real cosmetic difference over the official A500 PSU and the only variation is in the useful extra 36 Watts of power it supplies – which will obviously offer more power to any expansion that you may have. However, it will not drive an A500 with heavy power consuming expansions, but it will drive more than the original Commodore PSU. It is certainly a well-constructed and neat-looking piece of equipment and if you have any doubts about your own PSU is a very good replacement.

Price £39.99
Contact: Eversham Micros
Tel: 0386 765500

By placing a regular order with your newsagent you can be sure of receiving ***Amiga User International*** every month. Complete this coupon and pass it on to your newsagent.

Dear NEWSAGENT,
Please reserve/home deliver ..... copies of ***Amiga User International*** every month for:

Mr/Mrs/Miss .....

Address .....

.....

Telephone No .....

Amiga User International is published on the 1st Thursday of every month. Any distribution queries to: **Comag Magazine Marketing, Tavistock Road, West Drayton, Middlesex VB7 7QE. Telephone: 00895 444055**

TEST DRIVE

Zy-Fi Stereo Amp

Who in their right mind would buy a £300 digital stereo system, and channel it through a tinny mono speaker? Well, thousands of Amiga owners have done just that. One solution to the problem is to hook your machine up to a hi-fi, if you have one nearby your computer set-up. The other solution is to get hold of an amp and a couple of speakers, such as Zydec's Zy-Fi system for example.

For your money, you get a couple of speakers of unspecified wattage, measuring 24 x 12 x 9 cm. An external power supply is included. If you are short on mains terminals, you can switch to battery power. A single volume knob controls both speakers.

"Even at fairly high volume levels, the Zy-Fi doesn't allow the treble to drown the mid and bass"

As you would expect, there are no complaints in the treble department. High hats and snares are reproduced with all the crisp clarity of the original samples. The Zy-Fi's rivals tend to lack a decent punch when it comes to pumping out bass sounds. However, even at fairly high volume levels, the Zy-Fi doesn't allow the treble to drown the mid and bass. While other systems distort with the volume turned up to a worthwhile level, Zydec's speakers stand their ground.

Although it can't hope to rival the sound quality and "oomph" value of a proper hi-fi system, the Zy-Fi is the next best thing, and a good deal cheaper! Whether you are into Amiga music, demos, or just want to get more from your games, the Zy-Fi amp comes very highly recommended. **T.H.**

Price £39.95

Contact:
Evesham Micros
Unit 9
St Richards Road
Evesham
Worcs WR11 6XJ
Tel: 0782 744324

SENLAC SOFTWARE PD

WE ARE NOW OPEN TO PERSONAL CALLERS AT OUR NEW PREMISES
UNIT 6 WEST HILL ARCADE GEORGE STREET HASTINGS EAST SUSSEX TN34 3AN
TELEPHONE HOTLINE 0424 445498 FAX: 0424 755093

Lookee! Senlac are offering You the Following Great PD Packs
all on BRANDED TDK Disks for only 7.00 including Post & Packing
CHOOSE FIVE DISKS FROM ANY OF THE FOLLOWING

DEMOS	ANIMATION	UTILITIES	MUSIC
BUDBRAIN (2)	CLOTHES PEG	ACU 24	PROTRACKER
BUDBRAIN I	FLEET MANOUVRE	DISKSALV	ST-01
HORIZON	DRY DOCK	SID V1.6	DE-MOB 3
ZING	LATENIGHT	PENDLE	G.M.C
ANIMOTION	STEALTHY 11	DIGITECH 13	CRUSADERS

OTHERS	GAMES	PROGGING	GFX-ART
MCAD V1.25	ZERG	PASCAL COMP	FANTASY 1
CALIG DEMO	PD CHESS +	C MANUAL	JOE II SLIDES
C-LIGHT	GAMES GALLORE 1	NORTHC V1.02	ROGER DEAN
TURBOSILVER OBJ	GAMES GALLORE 2	MODULA 2 +	NASA 11
VIZ SLIDES			
REFLECTIONS SLIDE SHOW			
MEG FORCE			
STAR TREK V1.85			
VSCAN V4.90			
BIG BROTHER			

OFFER OPEN TO UK ONLY

DTP	VIDEO
CLIPART 1	VIDEO PROGS 1
CLIPART 2	VIDEO PROGS 11
CLIPART 3	TV/GFX 1
FONTS	TV/GFX 11

We Reserve the Right to change Titles and Alter our Pricing Policy without
Prior Notice. Blank Disk & Return Postage Brings you our Full Listings E.O.E.E.

Hi Senlac Can You Please send Me

.....

.....

.....

.....

My Name .....

Address .....

.....

Town .....

County .....

Post Code .....

You Can Contact Me On .....

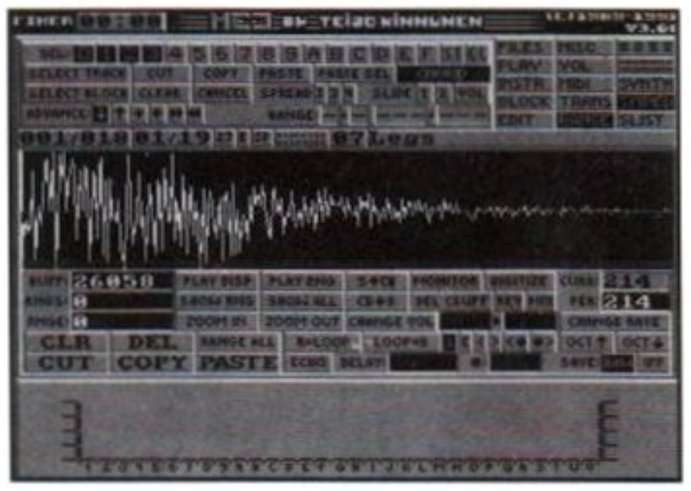
I Enclose Cheque/Postal Order .....

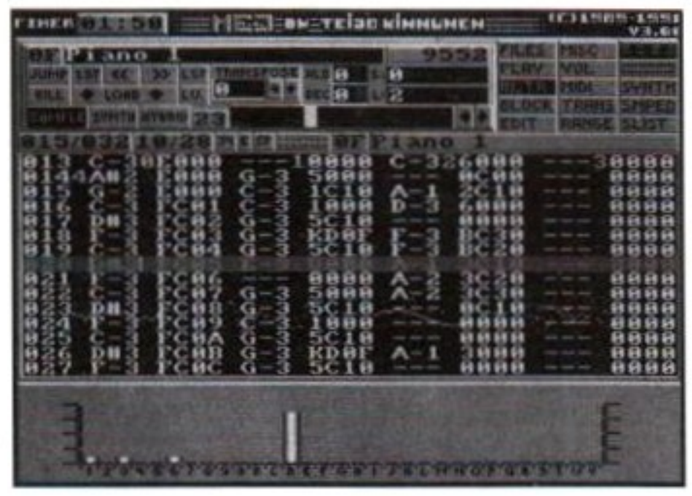
.....

SENLAC SCULPT 4D OBJECT DISK £9.99

TEST DRIVE

MED V3





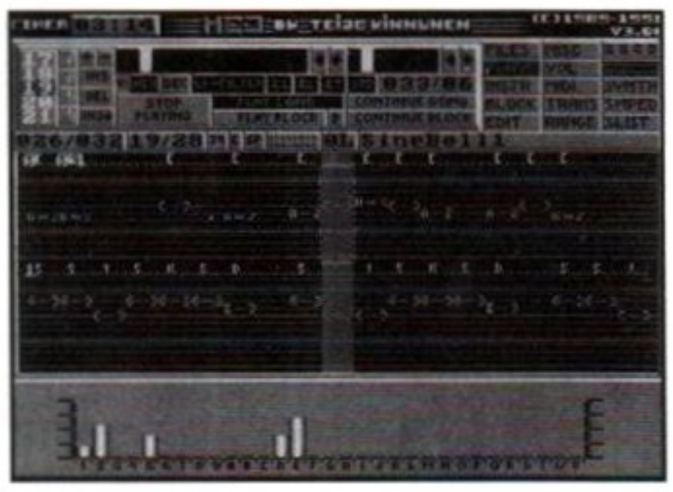
Despite what the experts will tell you, you don't have to lay out big money for a worthwhile MIDI setup, says Tony Horgan - and finds a PD program that proves it!

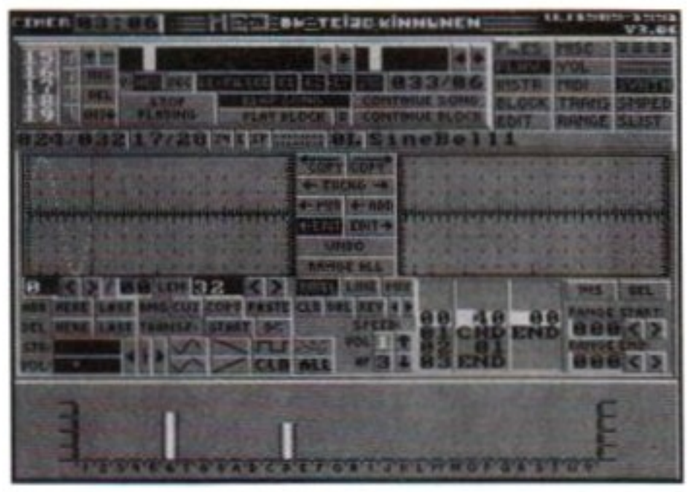
With the prices of RAM expansions and samplers continually falling, there's never been a better time to get into the musical side of the Amiga. Even if you don't know your Arsenal from your elbow when it comes to music, with a bit of imagination you can still come up with some worthwhile sounds. MED (Music Editor), is virtually free, and is an ideal starting block for anyone interested in computer music.

MED began as a fairly simple clone of Soundtracker, the standard PD music tool used by Amiga programmers worldwide. In line with Soundtracker, MED allows the sequencing of four channels of samples. MED's superior file handling and multi-tasking abilities make it favourite from the start. Anything created with Soundtracker or Noisetracker can be loaded in for modification, so compatibility is no problem. MED also acts as a 16 track midi sequencer, which can control a midi device and play samples through the Amiga simultaneously.

The comprehensive volume controls allow you to adjust the volumes of each sample, and each of the 16 tracks independently. The Amiga keyboard is used to play and record separate pieces, but if you have a midi keyboard, you can use that instead, even if you're only using Amiga samples for the music itself.

So what's new in the latest version? A fair bit, actually. There is a built-in sampler (you will need a sampler cartridge for this, of course), which is very handy, as it avoids you having to switch from one program to the other if you fancy grabbing a new sample. It also makes looping the samples a lot easier, which can now be done by highlighting a section of the pixelised waveform. Whilst in the sample editor section, you can reverse the sound, tweak the volume and add variable degrees of echo.





Chords can now be recorded in real-time, consisting of up to 16 notes if you are using midi.

You can now use synthesised sounds created by the computer. Creating them yourself can be a bit of a headache, but there are some including on the disk which can be modified to suit your needs. You are unlikely to come up with any sounds to rival even the most basic synth, but they do have the advantage of using far less memory than samples.

Chords can now be recorded in real-time, consisting of up to 16 notes if you are using midi. The midi side has a few new features too, including the ability to record note velocities from touch-sensitive keyboards, and sustain lengths can also be automatically recorded if you like.

Other aspects that were previously rather awkward have now been tidied up. No more mind-bending maths is involved in creating volume and pitch slides. It is now just a matter of "point and click", and the computer makes all the calculations for you. The file-handler has been updated, but ex-Soundtracker users will be pleased to see that there's still the option to use preset lists.

Songs can be saved out and easily replayed through CLI, Workbench, or included in your own programs.

You would be lucky to get all of these features, with this degree of user-friendliness in a commercial package. With "professional" music software selling for three-figure sums, MED V3 is absolutely amazing value for money. So, despite what the "experts" will tell you, you don't have to lay out big money for a worthwhile midi set-up. A sampler isn't vital, as there are plenty of sample disks available from PD libraries. Even if you are only vaguely interested in the world of samplers and synths, you can't go wrong. Get a copy ASAP.

Price: £3.50
Contact: Amiganuts United
169 Dale Valley Road
Hollybrook
Southampton
SO1 6QX
Tel: 0703 785680

AUI SPELL

USER PORT

Paul Overaa takes a look at the ADT library package used by *AUI*-SPELL's tree searching code...

PART V

During last month's code you no doubt saw the references to routines such as CreateStack(), PushStack() and so on. But there were no such stack routines present in the listing! Why not? It's because I used an existing already compiled module to provide the stack handling facilities. This month, I thought it would be worth spending some time explaining how this is done.

Firstly, however, a few words about 'abstraction' are in order. Abstraction refers to the process which allows details to be discarded in order that the main features of interest can be considered. We continually abstract in everyday conversation and, notwithstanding the relatively manageable obstacle of 'specialist jargon', the result of using well-defined terms to represent complex operations is usually a simplication of the overall communication process. In other words, it may sound awkward but it leaves no room for confusion — or should do.

In the computing world, subprogram units, such as C's functions, are abstractions of a different kind. Here, complex operations can be described and used by simply using a name and a few parameters. The result — we can create effective building blocks for solving problems.

These ideas work for data items as well and, in fact, data types such as floating point numbers provide us with similar 'abstraction orientated' benefits. At machine-code level, floating point numbers are just a collection of bytes grouped together but C's floating point number data type allows such numbers to be added, subtracted, multiplied and so forth without having to worry about the internal representations.

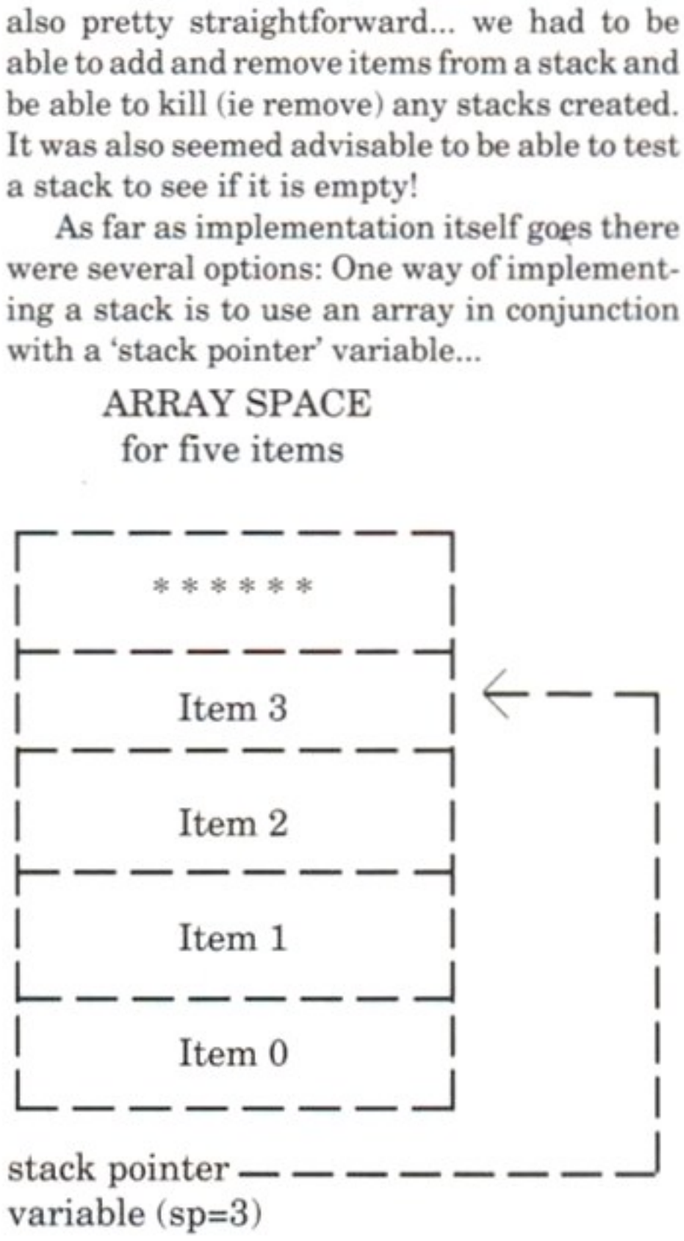
As we start working with more complex data items, especially things like lists and trees, then most high-level languages offer less help. In fact if you want to use such data structures you have either to write or obtain some suitable routine and both of these paths invariably lead you into the world of the Abstract Data Type or ADT.

The ADT approach is simple and it is based upon carefully defining the important properties of the abstract data structure and identifying the allowable operations. The result - a rigorous ADT definition which, together with a well-defined interface definition becomes a 'data structure' building block to be used in the same way that inherent data types, such as integers and floating point numbers, are use.

The data type used within last month's *AUI*-SPELL tree searching code was a fairly simple ADT - the stack. A stack is a group of objects logically arranged in a Last-In-First-Out (LIFO) order.

The type of stack operations needed was also pretty straightforward... we had to be able to add and remove items from a stack and be able to kill (ie remove) any stacks created. It was also seemed advisable to be able to test a stack to see if it is empty!

As far as implementation itself goes there were several options: One way of implementing a stack is to use an array in conjunction with a 'stack pointer' variable...



This is quite efficient, very easy to implement, and perfectly adequate for many applications. An array and its related stack pointer variable can be linked together using a C structure...

```
#define SIZE 5

struct stack {

        int stack_pointer;
        int items[SIZE];
};
```

which then allows the use of declarations of the type...

```
struct stack s;
```

Slightly more flexible arrangements, using unions, can allow dissimilar objects to be stored on the same stack but this is not a practice to be encouraged unless there is an over-riding reason for creating mixed object stacks. Similarly, the use of pre-processor modifiable, unit types such as...

```
struct stack {
        int         stack_pointer;
        STACKTYPE items[SIZE];
} ;
```

coupled with #define based modifiable STACKTYPE definitions, are frequently suggested as C solutions for generic ADT stack building. These forms of schemes are fine as far as they go, but they are essentially all 'define at compile time' static solutions which can produce a number of problems in practice. As far as array based implentations are concerned stack overflow is, of course, another danger which needs to be considered.

When I wrote my stack ADT code I had a number of specific requirements in mind: it was to be possible to use any number of different stacks handling any number of different object types, have different types of stacks in existence at different times, use the module in any number of programs without having to recompile it and not be limited to working within a fixed memory space, save that of the limit of the system itself. Last but not least, I wanted a module which could easily be ported to different machines... so ANSI C was the obvious choice here!

I opted for a linked-list dynamic memory allocation approach using calloc()/free() calls to provide space for the items being stored on the stack. Within the stack module described this month the routines are based on two types of structures which represent firstly the list headers (stack descriptors) and secondly the stack items themselves.

The descriptor structure contains a pointer to the first item on a linked list of stack items and a value representing the size of the objects being placed on the stack...

```
struct StackDescriptor {
        struct StackItem *FirstItem;

        UBYTE  ItemSize;
};
```

The stack item structure contains two fields... a 'next item' pointer, and a reference to the first byte of some unspecified data item...

```
struct StackItem    {

        struct StackItem *NextItem;

        UBYTE  Data[1]; /* actually user defined amount of data */

};
```

I mentioned the ADT interface routines last month: Here are the operations which I have chosen to implement...

s=CreateStack(t)	This initializes a stack suitable for storing items of type t specified by the applications program and returns a pointer s to the stack's descriptor.
e=PushStack(s,x)	This stores item x on stack s and returns an error flag e that is TRUE if an error has occured.
e=PopStack(s,x)	This retrieves an item from stack s and places it in variable x. Errors are signified by the returned error flag e being TRUE.
KillStack(s)	This unloads and then deletes the stack s.No return value.
f=StackEmpty(s)	This tests stack s to see if it is empty and returns a flag f as TRUE if there are no items on the stack.

These calls are actually macros which have been designed to create a friendlier ADT interface to the user. The definitions are held in the header file - this has to be included (using #include) in the applications program which is to use the stack ADT. Once compiled the module itself however provides a transparent unit which can be linked into any program which needs a stack data structure.

Here then are the stack header and code details which allowed me to build those tree searching routines discussed in AUI-SPELL part IV...

```
/*
_____________________________________________________
_____________________________ */
/* Source: Stack ADT header
*/
/* _____________________________________________________
_____________________________ */
typedef void STACK;
/* These macros are used to create a slightly more
friendly interface to the user. They just remove the
need for explicit size of(), casting and address taking
operations in the applications code... */
#define CreateStack(t) CreateStk(sizeof(t))
#define PushStack(s,x) PushStk(s,(UBYTE *)&(x))
#define PopStack(s,x)  PopStk(s,(UBYTE *)&(x))
#define KillStack(s)   KillStk(s)
#define StackEmpty(s)  StkEmpty(s)

/* These are the prototypes for the underlying stack
access routines which do the real work... */
STACK     *CreateStk(ULONG unit_size);
void      KillStk(STACK *descriptor_p);
BOOL      PushStk(STACK *descriptor_p, UBYTE
*data_item);
BOOL      PopStk(STACK *descriptor_p, UBYTE
*data_item);
BOOL      StackEmpty(STACK *descriptor_p);
/* _____________________________________________________
_____________________________ */
/*
_____________________________________________________
_____________________________ */
/* SourceCode:        Stack ADT routines
*/
/*
_____________________________________________________
_____________________________ */
/* Notes: These routines allow a program to use a
true dynamic stack data          structure without the
knowing anything about how it's done. */
/* _____________________________________________________
_____________________________ */
#include <types.h>
#include <stack_adt.h>

struct StackItem {
        struct StackItem *NextItem;
        UBYTE  Data[1]; /* actually user defined
amount of data */
};

struct StackDescriptor {
        struct StackItem *FirstItem;
        UBYTE  ItemSize;};
/*
_____________________________________________________
_____________________________ */

STACK *CreateStk(ULONG unit_size)
{
struct StackDescriptor *stack_descriptor_p;
if (stack_descriptor_p=(struct StackDescriptor *)
        calloc(1,sizeof(struct StackDescriptor)))
        {
        stack_descriptor_p->ItemSize=unit_size;
        }
return((STACK *)stack_descriptor_p);
}
/*
_____________________________________________________
_____________________________ */
void KillStk(STACK *descriptor_p)
{
UBYTE *dead_block_p; struct StackDescriptor
*stack_descriptor_p;
stack_descriptor_p=(struct StackDescriptor
*)descriptor_p;
while (stack_descriptor_p->FirstItem)
        {
        dead_block_p=(UBYTE *)
        stack_descriptor_p->FirstItem;
stack_descriptor_p->FirstItem=stack_descriptor_p-
>FirstItem->NextItem;
        free(dead_block_p);
        }
free(stack_descriptor_p);
}/*
_____________________________________________________
_____________________________ */
BOOL PushStk(STACK *descriptor_p, UBYTE
*data_item){BOOL error_flag=TRUE; COUNT i; struct
StackItem *new_item_p;
struct StackDescriptor *stack_descriptor_p;
stack_descriptor_p=(struct StackDescriptor
*)descriptor_p;
if (new_item_p=(struct StackItem *)
        calloc(1, sizeof(struct StackItem
*)+stack_descriptor_p->ItemSize))
        {
        new_item_p-
>NextItem=stack_descriptor_p->FirstItem;
        stack_descriptor_p-
>FirstItem=new_item_p;
        for (i=0;i<stack_descriptor_p-
>ItemSize;i++)
        {
        new_item_p->Data[i]=*data_item++;
        }
        error_flag=FALSE;
        }
return(error_flag);
}
/*
_____________________________________________________
_____________________________ */
BOOL PopStk(STACK *descriptor_p, UBYTE
*data_item)
{
BOOL error_flag=TRUE; COUNT i; UBYTE
*dead_block_p;
struct StackDescriptor *stack_descriptor_p;
stack_descriptor_p=(struct StackDescriptor
*)descriptor_p;
if (stack_descriptor_p->FirstItem)
        {
        for (i=0; i<stack_descriptor_p->ItemSize;
i++)
        {
*data_item++=stack_descriptor_p->FirstItem->Data[i];
        }
        dead_block_p=(UBYTE
*)stack_descriptor_p->FirstItem;
        stack_descriptor_p-
>FirstItem=stack_descriptor_p->FirstItem->NextItem;
        free(dead_block_p); error_flag=FALSE;
        }
return(error_flag);
}
/*
_____________________________________________________
_____________________________ */
BOOL StkEmpty(STACK *descriptor_p)
{
BOOL empty_flag=TRUE; struct StackDescriptor
*stack_descriptor_p;
stack_descriptor_p=(struct StackDescriptor
*)descriptor_p;
if (stack_descriptor_p->FirstItem) {empty_flag=FALSE;}
return(empty_flag);
}
/*
_____________________________________________________
_____________________________ */
```

P.A.O.

MHK PRODUCTIONS

SAVE MONEY ORDER NOW

A - 10 Tank Killer	23.99	M1 Tank Platoon	20.99
Colossus Chess 4	18.99	Mig - 29	22.99
Eagles Riders	18.99	Nebulus 2	17.99
Eco Phantoms	18.99	North and South	17.90
Eliminator	4.99	Pang	18.99
Epic	17.99	Predator 2	17.99
F - 16 Falcon	22.99	Powermonger	20.70
F - 19 Stealth	19.99	Pro Tennis Tour	17.99
F - 29 Retaliator	18.99	Risk	16.99
Feud	4.99	Rick Dangerous 2	17.99
Flight Command	22.99	Robocop 2	17.70
Future Tank	4.99	Sherman M4	17.90
Gladiators	4.99	Speedball 2	17.75
Golden Axe	17.90	Strider 2	17.90
Gold of the Aztecs	17.99	Super Off Road	17.85
Horror Zombies	17.99	Teenage Turtles	19.99
Italia 1990	4.99	Tennis Cup	17.99
Karate Kid 2	3.99	Total Recall	17.99
Keep The Theef	8.99	Tournament Golf	17.99
Kick Off 2	16.99	Turrican 2	17.99
King Quest III pack	26.99	Tower of Babel	18.99
Last Ninja 2	7.99	UN Squadron	17.99
Line of Fire	17.99	War Machine	4.99

This is just a selection. Please, ask for more details.
P & P inc. UK on orders over £5.00. Europe add £2.00 per item.

Please send Cheque/PO to:
MHK PRODUCTIONS
3 FURLONG ROAD, LONDON N7 8LA
Tel: 071 607 0882

NEW AGE COMPUTING

AMIGA PUBLIC DOMAIN

A whole range of entertainment based software!
From just £1 a disk.
Ask for a catalogue NOW!

Computer LYNX

Exclusive Amiga Disk Magazine

Featuring *NEWS-REVIEWS-DEMOS-UTILS INTERVIEWS AND MORE!* ***All for only £1.50***
Subscribe for 14 issues - just £20 including P&P!

Naksha mice	**£22.00**	Q-Tec mice	**£21.50**
Vinyl mouse pads	**£1.99**	Foam mouse mats	**£2.99**
3.5" Disk cleaners	**£1.99**	3.5" labels (1000)	**£7.00**
Universal printer stand (fits ANY printer)			**£6.99**
A500 dust covers (other models available)			**£3.99**
0.5 meg Memory expansions (without clock)			**£23.99**
0.5 meg Memory expansions (with clock)			**£25.99**
Mountain Breeze Computer Ionisers (no static)			**£29.95**
40 cap 3.5" box	**£3.99**	80 cap 3.5" box	**£4.99**
150 capacity POSSO disk drawers		JUST	**£16.50**

DS/DD Bulk disks (& labels) 1-100: 33p - 101+: 31p ea.
A590 memory chips 1 MByte **£24** 2 MByte **£46**

Add £1 to orders under £10 P&P, £1.50 on orders above.
Cheques/Postal Orders payable to "NEW AGE COMPUTING"

DEPT AU6, 187 PERRYSFIELD RD, CHESHUNT, HERTS, EN8 0TL.
UK Tel: (0992) 465366. International: +44 (0)992 465366

AUTHORISED DEALER FOR * AMIGA * STAR *

AMIGA (UK MODELS ONLY)

AMIGA 1500 B2000 + 1084SD + Twin Floppies + The Works! Plat DPaint 3/Battle Chess/Sim City/Populus/Their Finest Hour	£938.00
As above without monitor	£679.00
WHY NOT ENHANCE YOUR A1500 WITH ONE OR MORE OF THE FOLLOWING:-	
Supra 48/80Mb Autoboot Drive Card	£319/399
SUPRA DRIVES INCLUDE EXPRESS COPY BACKUP & CLIMATE S/w	
XT Bridgeboard + 5.25" Drive + MSDOS 4.01	£199.00
AT Bridgeboard + 5.25" Drive + MSDOS 4.01	£639.00
Supra 8Mb RAM Board Pop 2Mb	£179.00
Supra 8Mb RAM Board Pop 4/6/8Mb	£279/379/479
Hi-Res Video Card (Flicker Fixer)	£219.00
A500 SCREEN GEMS Pack INCLUDING 512K RAM/CLOCK	£379.00
A500 Base Pack	£319.00
Commodore 64C NIGHT MOVES Pack	£149.95

PRINTERS

Citizen 120D+	£135.00
Star LC-10	£159.00
Star LC-200 Colour	£209.00
Star LC24-10	£209.00
Star LC24-200	£259.00
Star LC24-200 Colour	£299.00
Star XB24-10 24 pin INC COLOUR OPTION	£399.00
Okimate 20 Ribbons/Heads/Paper	PHONE

MONITORS

Commodore 1084S Stereo	£259.00
Philips 8833-II Stereo Colour	£249.00
Quadram Hi-Res Multi-Scan	PHONE

DISK DRIVES

A590 Autoboot 20Mb	£289.00
A2000 Internal 3.5"	p&p £2 £69.95
A500 Replacement Internal 3.5"	p&p £2 £69.95
High Quality Amiga Ext 3.5" Metal Cased	p&p £2 £59.95

MISCELLANEOUS

KCS PC Board for A500 inc MSDOS 4.01	p&p £2 £219.00
A500 RAM/Clock 512Kb with Disable Sw	free p&p £39.00
RAM Chips for A590/2091 per 512Kb	free p&p £22.50
A500 Compatible Power Supply	free p&p £49.00
Kickstart V1.3 ROM for A500/2000	free p&p £29.00
1Mb Fat Angus 8372A	free p&p £75.00
CIA Chip 8520	free p&p £16.00
Vidi-Amiga PAL Frame Grabber inc filters	free p&p £129.00
RGB Composite Video Splitter	free p&p £69.95
Surge Protector 4-Way Block/13A Plug	p&p £2 £16.95/12.95

ALL PRICES INCLUDE 17.5% VAT CARRIAGE £5 (EXPRESS £10)
Prices subject to change without notice E&OE

Delta Pi Software Ltd

8 Ruswarp Lane, WHITBY, N. Yorks. YO21 1ND.
TEL/FAX: 0947 600065 (9am - 7pm)

EMPDL

AMIGA/ST PD. LIBRARY. OPEN 6 DAYS 9AM —9PM

EMPDL STARTER PACK. *A 3 disk collection of the most useful utilities. Includes Word Processor, Text Editor, Database, Spreadsheet, etc.*
EMPDL BUSINESS PACK. *A 4 disk collection of utilities with the small business user in mind. Includes Accounts/Stock control etc.*
HOME MANAGEMENT PACK. *A 2 disk set of the most useful utilities for home use*
TV GRAPHICS. *A 2 disk set of backgrounds and fonts for video enthusiasts.*
VIDEO APPLICATIONS. *A 2 disk set of video utilities to accompany TV Graphics.*
SMOVIE. *A utility to display a text file on video in many ways.*
FLEXI BASE. *The most versatile database around.*
DADDYKINS 7. *Disk Salvage DF0-DF1. Plus virus checkers and boot utilities.*
DADDYKINS 8. *Probably the only word processor disk you will ever need.*
MASTER VIRUS KILLER. *The latest and easiest to use Virus killer.*
LEARN AND PLAY. *A 2 disk set for the younger members of the family.*
STAR TREK. TOBIAS RICHTER VERSION. *The very best version available.*
AMERICAN STAR TREK. *Excellent: but needs 1Meg and 2 drives.*
CHECKERS. *The draughts game plus much more.*
DRAGONS CAVE. *A brillaint 1/2 Meg game using the "Dungeon Master" graphics.*
FISH GAMES SET. *A 5 disk collection of the best games from Fred Fish.*
TBAG GAMES. *1 disk with 8 of the best games from the TBAG collection.*
BILLY THE KID. *1 Meg 20 minute animation.*
CHAOS ROCK. *Brillian 1 Meg demo from Brazzle Atkins.*
CHAOS IN MOTION. *Fantastic 2 disk demo from Black Dog Productions.*
KYLIE MINOGUE. *A 2 disk demo of Kylie's best liked records.*
STUDIO MUSIC. *Now a 13 disk set for the all in price of £20.00*
ANARCHY SYSTEM VIOLATION. *The latest and best demo from Anarchy.*
THRASH DEMO. *A very good demo for all the Thrash fans.*

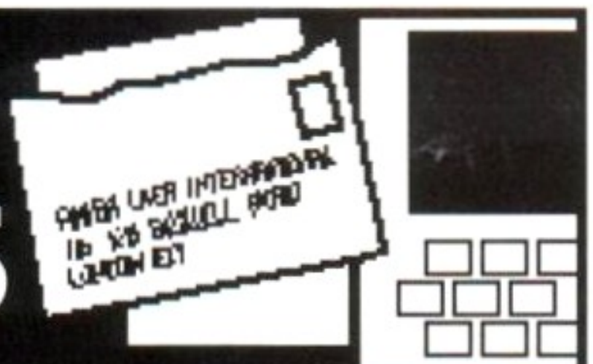
All our disks are virus free and depatched by first class post on the day of receipt at the inclusive price of £2.50 per disk.

Send now for our disk based catalogue giving details of over 2000 disks, including licenceware, stating clearly the make of computer.

CHEQUES & PO's PAYABLE TO

EMPDL
54 WATNALL ROAD, HUCKNALL
NOTTINGHAM NG15 7LE
0602 630071

AMIGA ANSWERS



Andy Eskelson searches out the answers to your tough technical questions

Dear ***AUI***,

I currently own an A500, with an extra half meg of ram fitted in the trapdoor, and external disk dive.

Until now I have used the Amiga exclusively for games, but as I am now 14 I have recently chosen my GCSE option which include, BUSINESS STUDIES, incorporating W.P. data-bases graphics & spread sheets, C.D.T Design communication & technology, and a graphics design ART course.

I would be grateful for your advice on suitable upgrades, software, and peripherals to assist in these studies.

It has been suggested I start by obtaining a STAR LC200 printer,and PEN PAL wordprocessing Software, can you comment ?

L. Woodage,
Essex.

Dear L. Woodage,

The Star printer will be a big help to you, especially if you are going to produce reports and coursework on the Amiga. Another purchase you should think about is a hard disk. This will be very important to you as you progress with your graphics work. Any form of graphics takes up a lot of disk space, and it can be very tedious waiting for things to load and save. Commodore's A590 disk drive is very good and has the added bonus of having sockets inside for up to 2 megs of extra ram.

Software is a little more difficult, Pen Pal is fine as word processing goes, it depends on what you want to achieve. You can judge it from the review in this issue of ***AUI****. I have Scribble! for general work, as it is very simple and quick for me to use. I am finding that it has limitations, and I will be purchasing Protex soon. However, that is just a W.P. package, graphics are another question. Do you want to include graphics in your reports? There are several packages that will do that. You should look at Pagesetter 2, this really needs a hard disk to run effectively, but you can produce some very good work with it. Try to find someone who has a mixture of W.P. software and test it yourself. If you are not sure get something CHEAP and start to use it, once you find the limitations that are peculiar to you, you will be able to make a much better decision for your real purchase.*

Graphics software is very common for the Amiga; Dpaint, Photon, Photolab etc.. all are good, but get something that will work in HAM mode (Photon is good for this). The new version, Spectracolour, will be out shortly. Do you want to do animation? If so you will need to look at packages that do this.

Another type of graphics is the ray traced system. These produce stunning pictures, but take an age to calculate. An old package is Turbo Silver (the latest version is called 'Imagine'), but there are quite a few others about now.

If you are going to do business studies, what about databases, spreadsheets and the like? Well, there are so many from which to choose that you will make a few mistakes, the trick will be in limiting the mistakes to keep the cost down. Try to get hold of the Home Business pack of software, that has a mixture of software, database, spreadsheet, W.P. D.T.P. etc which will get you going. You can then decide on something better when you gain experience. Try LANs at Chadwell Heath, I did see a couple of packs in there when I last visited them, and it's not too far from Barking.

Dear ***AUI***,

Regarding the reply to Gary Byatt' s letter in the FEB issue, I think you have missed the point slightly when you answer his query about using the AMIGA + SCART leads to a TV.

A monitor - RGB or COMPOSITE will definitely beat a TV hands down regardless of its screen size or the repute of the manufacturer, UNLESS you are using certain configurations on your SCART connection.

The SCART Euroconnector leads carry many different signals , including COMPOSITE & ANALOGUE RGB , notably they also carry STEREO sound. The Amiga will produce monitor quality results on most TVs equipped with a SCART, if connected with an AMIGA to ANALOGUE RGB SCART lead. This lead should be readily available and means you can dump that lump called a modulator from the back of your beloved. I myself use an old THOMSON TV (6 yrs old) with superb results, and with its 21" screen my graphics work is made easier and far more impressive than the typical 14" monitor widely used.

I'm not saying BUY A TV NOT A MONITOR - TV's will generally cost more than a good monitor especially 21" up and will not have many useful features associated with monitors, like the ability to size the display with controls at the back.

If you already own a SCART equipped TV. you would be well advisedto fork out £10-l5 for the lead before you fork out any more for a separate monitor.That is, of course, if you don't mind missing NEIGHBOURS occasionally. . .

A monitor, basically, is just a TV with no tuner - the circuitry being devoid of any outside interference allows the purest possible signal to reach the screen, resulting in much sharper hues particularly red & blue and apparently sharper 'focused' images.

Aonghus de Barra,
Ranelagh Ireland

Dear Aonghus,

I do take your point about TVs, but if you pressed me hard I would ALWAYS come down in favor of the monitor, regardless of he situation. (Monitors are available in very large sizes and at very large prices, in fact far MORE expensive than a TV of the same size) Of course, TRY a TV with SCART, as you suggest, is sound advice. The main problem is the use to which you will put the monitor. For you, with graphics, have found that the LOW QUALITY of a TV is improved when you use a bigger screen. This happens because there are more coloured phosphor dots per line, and so the mixing of the colour is that much better.

If you use a wordprocessor frequently, keeping the screen at a comfortable distance is a big problem with big screens, and needs to be thought about.

A high quality monitor also uses the delta gun system, this was the first type of colour tube that was invented. Modern TVs use in line guns, and you can see this if you look at the tube with a magnifying glass, you will see a Red, Blue and Green stripe of phosphor. Horizontal lines tend to be OK but vertical lines often have a red or blue fringe to them. The delta tubes mix the colours equally well in both directions, but are more complex in their convergence systems.

The other thing to note is than many cheap monitors have the SAME tubes as small TVs. TV tubes are getting very good nowadays, but they do suffer as I have stated above. As you get better specification tubes, they also get smaller and smaller dots or thinner stripes. This improves the resolution, but there is a problem. When the dots are very small, the shadow mask, (a fine wire mesh) also has to have a lot of very small holes in it. This means that you will reach a stage where there is as much mask as there is dots, the effect of this is to cut down the light output and it can make the screen look dusty.

TVs have problems with interlaced displays, they will not take it. A multi-sync monitor and some sort of interlace device is required, and the results are VERY nice indeed.

Finally, if anyone has problems finding leads for almost any TV, it is worth contacting Trilogic (see adverts) they are VERY helpful.

AMIGA ANSWERS

Dear *AUI*

I need backing. My Software Development lecturer repeatedly attacks my native language ie. BASIC, referring to it as, I quote from the top of an assignment (his own words) .

"Many years ago in a dangerous wood lived a deformed, Hobbish language called BASIC which would strike terror into the minds of all right thinking programmers. . ."

He often lapses into such attacks but his major assault is directed towards the dreaded GOTO statement, which inspired the film classics:

Loop Wars.

GOTO Strikes Back.

and the ever popular: Return of the GOSUB.

I agree that BASIC is unstructured and not too hot at file handling but, does it deserve such a pounding? Look at PASCAL, which I am also able to program in, would anybody touch it with a barge-pole? I would rather trade in my AMIGA for a punch-card reader - Damm he's got me at it now, it must be contagious!

Incidentally, I am lapping up the info in your great C++ guide, I have a great love of C (it's good to be multi-lingual), more of the same please but, make sure you have protective gloves and a crucifix handy when handling the dreaded BASIC. Well, WHILE I = sitting in a chair at the computer-sorry I keep lapsing into BASIC- I have a couple of problems:

a) How do you print a file from CLI?

b) Is it possible to pipe the output of a DIR command to a fileand if so how?

c) Why are AmigaDOS books so expensive?

Thanks for reading and keep up the good work.

J.E.Callow

Dear J.E.Callow,

Statements like that remind me of a quip that one of my lecturers came out with...

"Those who can do, those who can't teach, and those who can't teach, lecture!"

Some people get very irrational about structured programming. What it boils down to is poor teaching in the first place, it is not the language that is unstructured, it is the programmers!.

As the power of computers has increased, it has become possible for a new generation of programmers to become lazy, I do not mean that in a nasty sense, rather, that due to the speed and power of computers it is possible to use high level languages with many built in safeguards, when the only way to get the same performance in the early days was to use machine code. This was full of jumps (GOTOs) and GOSUBs.

BASIC does not deserve the panning, it has introduced millions of people to programming, providing hours of fun, frustration and sleepless nights for its users. However, let's kill the GOTO problem once and for all.

There is one case where the GOTO is the only command that will do the job. That is in the case of error handling. If you program on a large machine and for some reason you get unexpected results, maybe due to an I/O error or something going astray in another part of the system, it is good manners to suspend your program and try to execute some sort of clean up routine. This is very important in multi-user and multi-tasking machines.

In general, GOSUBs can lead to quite messy code, whereas procedures make life much easier. My other opinion is that programs should be flowcharted/pseudo coded BEFORE the program is written, not after as so often happens. That would remove the need for a lot of the jumping about that is done. The coding stage of a software development should be fairly small and mechanical. If you have designed the program correctly you should have no real problems with the code.

PASCAL is just like BASIC, it is a teaching language and was never intended to be anything else. In fact, PASCAL has been superseded by MODULA 2, but you would not think so by the numbers of PASCAL compilers about!.

Your questions..

Printing from the CLI and the piping of the dir is handled in exactly the same way, by the redirection operator.

sounds complex... not at all

copy textfile >PRT:

copy textfile >df0:newfile

dir >PRT:

dir >df0:dirlist

the chevron > indicates the direction of data flow. The default is to CON: the operator console.

you can also use the copy command to list a file to the printer.

copy from df0:textfile to PRT:

copy from df0:textfile to PAR: (raw output without printer driver)

Computer specific books are expensive because of the limited market for them, and maybe because the publishers know they have a captive market.

Dear *AUI*,

I have an A500 with one meg of memory and a second disk drive. For a long time I have played games on my Amiga. I realise now how advanced and how much potential the Amiga has. I am 14 years old and have started my GCSEs. Obviously a word processing package and printer would be a great asset but I would like to get into the more serious side of the Amiga and use it to full advantage for my GCSEs. Can you please suggest any packages or ideas for me along these lines. I would be grateful if you could. By the way I think that ***AUI*** is a brilliant magazine and I always look forward to it. So thanks for a great read.

Kai Gibson,
Somerset

Dear Kai,

You have asked one of the most awkward questions possible, so firstly have a look at some of the previous letters, I have made a few comments to other readers.

There are many enhancements that you could buy. It very much depends on your own personal preferences. i.e. I like Scribble! as a W.P. because it is quite simple, and I get on with it very well. I also use Cygnus Ed for programming, and I will buy Protext shortly because I sometimes need the extra power that it offers. I would advise you to look at things in the PD libs, such as Textra just to get the feel for what you need. There are many printers about, but you could do a lot worse than one of the Star range. If you want a some colour, then the LC10C is a very nice printer, packed with features.

Other software.. well, as I have said in a previous letter, try to find a home business pack, that will give you quite a selection of programs, and you will be able to test them out at your own pace. They are not considered to be the best, but many people are happily using them. Once you start to find out their limitations you will probably know what you want.

Apart from that, there is all the drawing and graphics software, IntroCad by Progressive Peripherals is very good value, and produces some super printouts even on simple printers. Art programs like Photon, Delux etc are all worth looking at.

Lastly, you should consider a hard disk at some stage, probably when you get sick of waiting for your latest masterpiece to load.

Dear *AUI*,

I am the proud owner of an Amiga 500 (Kickstart 1.2) and I am intending to buy a 20 meg hard drive. (probably an A590). I understand that the A590 autoboots only from Kickstart 1.3, if this is correct does this mean that I will have to upgrade my Kickstart, or is it possible to purchase a hard drive that operates with Kickstart 1.2?. In addition, I would value your opinion on my intended choice of hard drive, is there one that you consider is better/and cheaper?. This is probably a really stupid question but I am confused and would appreciate your advice. Oh yes, keep up the good work - a truly excellent magazine.

Paul Bridgens,
Wiltshire.

Dear Paul,

Let me answer your last question first, any hard disk consists of two major components. The first is the hard drive and its interface (sometimes called its readers.

There are many enhancements that you could buy. It very much depends on your own personal preferences. i.e. I like Scribble! as a W.P. because it is quite simple, and I get on with it very well. I also use Cygnus Ed for programming, and I will buy Protext shortly because I sometimes need the extra power that it offers. I would advise you to look at things in the PD libs, such as Textra just to get the feel for what you need. There are many printers about, but you could do a lot worse than one of the Star range. If you want a some colour, then the LC10C is a very nice printer, packed with features.

Other software.. well, as I have said in a previous letter, try to find a home business pack, that will give you quite a selection of programs, and you will be able to test them out at your own pace. They

AMIGA ANSWERS

are not considered to be the best, but many people are happily using them. Once you start to find out their limitations you will probably know what you want.

Apart from that, there is all the drawing and graphics software, IntroCad by Progressive Peripherals is very good value, and produces some super printouts even on simple printers. Art programs like Photon, Delux etc are all worth looking at.

Lastly, you should consider a hard disk at some stage, probably when you get sick of waiting for your latest masterpiece to load.

Dear *AUI*,

I am the proud owner of an Amiga 500 (Kickstart 1.2) and I am intending to buy a 20 meg hard drive. (probably an A590). I understand that the A590 autoboots only from Kickstart 1.3, if this is correct does this mean that I will have to upgrade my Kickstart, or is it possible to purchase a hard drive that operates with Kickstart 1.2?. In addition, I would value your opinion on my intended choice of hard drive, is there one that you consider is better/and cheaper?. This is probably a really stupid question but I am confused and would appreciate your advice. Oh yes, keep up the good work - a truly excellent magazine.

Paul Bridgens,
Wiltshire.

Dear Paul,

Let me answer your last question first, any hard disk consists of two major components. The first is the hard drive and its interface (sometimes called its controller, but that is often confusing). The second part is the hard disk controller that connects the drive to the Amiga. All hard disks need both in order to work. This is where the confusion starts. The hard disk has the same features as a floppy, but it works faster. So you have to spin the disk, move the heads, read and write data, and quite a few other house keeping functions as well. All of this has to be controlled by the computer. In order to make life easy for the computer several standards have been developed, so that any computer that sends a certain type of command to the disk will know that a particular job will be done. The function on the controller built into the drive is to present to the computer one of these standard interfaces, and translate the commands into actual hardware operations.

The function of the controller that is connected to the computer is to enable the computer to connect to one of the standards interfaces. It is very much like having the correct plug and socket for the mains, if the computer is fitted with a 5 amp round pin plug, and you have 13 amp square pin sockets it will not fit. What you have to do is make one or the other compatible.

The interface on the A590 is SCSI (Small Computer Systems Interface). This is a good fast interface that can connect to various devices: hard disks, tape streamers etc. Connected to this on the inside is a 20 meg SCSI drive (note that the drive also has the SCSI interface). Some of the A590s had a fairly slow drive, slow in that the access time was a massive 60 thousandths of a second! (you can get drives with access times in the region of 20 thousandths of a second). For the normal run of the mill work, you are unlikely to need a fast drive. However, 20 megs is considered these days to be fairly small, so you might like to bear that in mind, it is possible to fit much larger drives into the A590, but at a price.

There are quite a few hard drives available for the A500, but I have no reservations about the A590 at all. Just to give you some idea, I have the A2091 (the A2000 version of the A590) and connected externally to that is a Seagate 80 meg, I also have on a different machine a Supradrive, and apart from the slow startup time of the Seagate drives (some Seagate drives do a lot of self tests when they are first powered up) I notice very little difference between the drives.

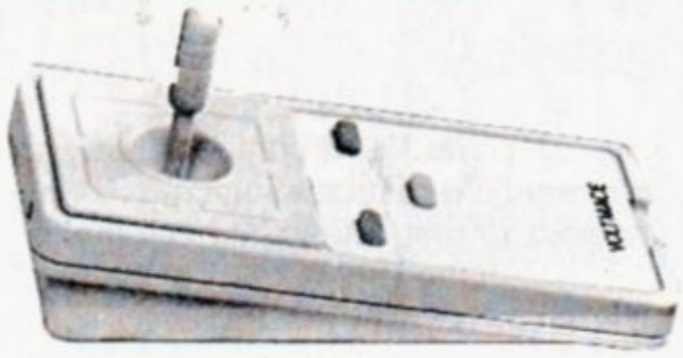
All of my drives are autobooting, but I did run for quite some time the old A2090 and Kickstart 1.2. You do NOT need to have an autobooting system in order to use the A590. What you do is set up a special Workbench disk that mounts the hard disk as soon as possible and then transfers over to it. I would recommend that you upgrade to 1.3 if possible. This will save a lot of bother, and you will be able to use the fast file system on the hard disk. I used to use WB 1.3 and Kickstart 1.2. My startup sequence looked like this:

```
;
setpatch
FastMemFirst
failat 25
binddrivers
mount newcon:
mount spock:
mount kirk:
mount sulu:
mount scotty:
failat 11
cd spock:
cd kirk:
cd sulu:
cd scotty:
execute sulu:pridisk/s/startup-sequence
loadwb delay
endcli > nil:
```

I had four partitions, named Spock:,Kirk:,Sulu: and Scotty: (yes I'm still a trekkie!). You need to mount the devices, by setting up a mountlist entry), the cd ensures that each device shows up as a disk icon, and then I jump the the main startup sequence in Sulu:. But as I said, upgrade if possible, as it saves a lot of bother.

Have you got handy hints'n'tips which can be passed on to other Amiga users? We always welcome them. Send in your submissions - we will be offering prizes to every reader's tip published. Please address your submission to:

Amiga Tips,
Amiga User International,
Maxwell Specialist Magazines,
116-120 Goswell Road,
London.
EC1V 7QD



DELTA 3A ANALOGUE JOYSTICK

NOW FOR DOMARK'S MIG-20 FULCRUM

The list of programs that will run analogue joysticks, grows at an increasing pace; Flight Sim II, F19 and now DOMARK MIG-29 FULCRUM and even PD software AIRWARS. Coming soon F15 II from joysticks in their arsenals ready for future inclusion in software. Now that analogue joystick owners are numberd in their thousands no-one can afford to leave out routines in relevant software.

DELTA 3A JOYSTICK (Analogue)	**£14.95**
DELTABASE A YOKE STYLE JOYSTICK (Analogue)	**£29.95**
ZOOMER ANALOGUE YOKE JOYSTICK	**£57.95**
AMI-CAT MOUSE ELIMINATOR JOYSTICK (Hand Held)	**£29.95**
F19 STEALTH FIGHTER	**£29.95**
MIG 29 FULCRUM	**£31.95**
FLIGHT SIM II (Sub Logic)	**£29.95**
SCENERY DISCS (Western, European, Hawian Odessy etc)	**£14.95**
ADD-ON DISC 3.5" DISC DRIVE (Through port & disable)	**£59.95**

GUARANTEED 3.5" DISCS **£4.00** FOR 5, **£6.00** FOR 10 INC P&P
PRINTER RIBBONS RE-INKED **£1.50** EACH. AIRWARS PD DISC **£1.50**

Delta 3A Joysticks are available through your dealer or can be purchased direct from us (All prices are fully inclusive)

VOLTMACE,
UNIT 9 BONDOR BUSINESS CENTRE, LONDON ROAD, BALDOCK, HERTS, SG7 6HN
TEL: 0462 894410
FAX: 0462 894460
Delta 3A overseas distributors required

Access VISA

IF AN ADVERT IS WRONG, WHO PUTS IT RIGHT?

We do.

The Advertising Standards Authority ensures advertisements meet with the strict Code of Advertising Practice. So if you question an advertiser, they have to answer to us.

To find out more about the ASA, please write to Advertising Standards Authority, Dept. X, Brook House, Torrington Place, London WC1E 7HN.

ASA

This space is donated in the interests of high standards in advertisements.

T.C COMPUTERS

OFFICIAL COMMODORE AMIGA & PC DEALER

12A BARNARDS WAY, CHARLTON HEIGHTS, WANTAGE, OXON, OX12 7EB.
TELEPHONE: WANTAGE (02357) 60177

AMIGA

AMIGA A500 Bare System	£329.00
AMIGA A500 Screen Gems	£369.00
AMIGA A500 1Mb Ram Screen Gems	£389.00
AMIGA A500 Class of the 90's (FIRST STEPS)	£559.00
AMIGA A500 Class ofthe 90's	£559.00
AMIGA 1500 without colour monitor	£689.00
AMIGA 1500 with software and Colour Monitor	£975.00
AMIGA 1500 with 40Mb Hard Disk	£1375.00
AMIGA 1500 with 40Mb HD & 8Mb Ram exp (0k)	£1475.00
AMIGA 3000 16MHz, 68030/68881, 40Mb HD	£ PHONE
AMIGA 3000 25MHz, 68030/68882, 40Mb HD	£
AMIGA 3000 25MHz, 68030/68882, 100Mb HD	£

AMIGA Peripherals

68030 25Mhz CPU for A500/1500/2000	£399.00
2Mb 32-bit Ram expansion for above	£299.00
4Mb 32-bit Ram expansion	£
8Mb 32-bit Ram expansion	£
68882 25MHz Co-Pro	£169.00
68882 33MHz Co-Pro	£199.00
68882 50MHz Co-Pro	£425.00
68000 14MHz Switchable for the AMIGA	£49.99
A590 20Mb Hard Disk for A500	£289.00
A590 20Mb Hard Disk with 1Mb RAM fitted	£354.00
A590 20Mb Hard Disk with 2Mb RAM fitted	£415.00
8Mb RAM card fitted 2Mb for the Amiga 2000	£289.00
8Mb RAM card fitted 4Mb for the Amiga 2000	£405.00
8Mb RAM card fitted 8Mb for the Amiga 2000	£525.00
AMIGA A500 Replacement PSU	£45.00

Commodore C64

C64 Night Moves/ Mindbenders Pack (NEW)	£149.00
C64 Light Fantastic Pack	£149.00
1541 II C64 Disk Drive	£129.00
MPS 1230 9pin Dot Matrix Printer	£145.00
Replacement Data Recorder	£34.50
Replacement C64 PSU	£22.99

Monitors - Disk Drives

1084S Colour Monitor (500/2000/PC)	£249.00
Philips CM8833 II Colour monitor	£249.00
CBM 14" Multi-Sync Colour monitor	£559.00
CBM 15" Multi-Sync Colour monitor	£649.00
CBM 21" Multi-Sync Colour monitor	£1999.00
Quadram 14" Multi-sync Colour monitor	£399.00
Amiga 2000 Internal disk drive	£69.00
Amiga 500 Internal disk drive	£69.00
Amiga 500/1000/2000 External disk drive	£69.00

Disks

3.5" DS DD Disks (TC Brand)	£9.00
3.5" Sony DS DD Disks	£10.99
3.5" CBM DS DD Disks	£10.99
3.5" 3M DS DD Disks	£11.99
3.5" KODAK DS HD Disks	£19.99
3.5" 3M DS HD Disks	£28.99
5.25" DS DD Disks (25)	£11.99
5.25" KODAK DS DD Disks	£9.99
5.25" 3M DS DD Disks	£9.99

All disks are priced for 10's and are fully GUARANTEED

Printers

Citizen 120D+	£169.00
CITIZEN 124D Pin Mono	£239.00
Citizen Swift 9 Mono	£229.00
Citizen Swift 24 Mono/Colour	£325.00
Citizen ProDot 9 Mono	£339.00
Citizen ProDot 24 Mono	£459.00
Commodore MPS1230 Mono	£149.00
Epson LX400 Mono	£199.00
Epson LX850 Mono	£269.00
Epson LQ400 Mono	£289.00
Epson LQ550 Mono	£399.00
Star LC-20 Mono	£169.00
Star LC-200 Mono/Colour	£225.00
Star LC24-200 24 Pin Mono	£269.00
Star LC24-200 24Pin Colour	£299.00

All prices include VAT at 17.5%
Prices are subject to change without notice.
Delivery is charged at cost, please phone for price.

WHERE TO FIND THEM

THE *AUI* ADVERTISERS INDEX

COMPANY	PAGE NO
Abbco	104
Accolade Systems	76
Ace Computers	108
Alma Thera	84
Alternative Image	108
Amiga Bandits	99
Amiga Direct	92, 93
Amiganuts	117
Ark	114
Bitcom Devices	76
Byteback	39
Bytes and Pieces	10, 11
Che Computers	109
Checkmate Systems	94
Care Electronics	65
Cyb Computers	62
Delta PI	124
Diamond Computers	28-33
Digital Applications	74
DTBS	43
DTP	103
EMPDL	124
ESD	104
ESP Software	103
Evesham Micros	46, 47
First Choice Software	60
Full Circle Technology	104
Futuresoft	65
Galaxy Graphics	62
George Thompson	88
GTI	84
Hammersoft	101
Hart Micros	108
Harwood Computing	66-69
HiSoft	57
Hobbyte	44
IC Pug	99
Ireland's No 1 PD	108
JCL Business	52
Kosmos	103
Ladbroke Computing	49
Magnetic Media	62
Marcam	50
MHK Productions	124
New Age Computers	124
New Horizons	25, 41
Newtek	OBC
NIK Williams	117
Omega Projects	74
Orbital PD	101
Oxxi Incorporated	18
P.C.S.	114
Pazaz	114
PD Rebels	117
Penny Lane Video	108
Post Express	62
PD Soft	101
Q.A.C.	109
Rombo	IBC
Sector 16	108
Silica Shop	97
Software Madness	72
State of the Art	81
Supra Corporation	IFC, 3
Surface	36
TC Computers	128
Third Coast Technology	98
Trilogic	42, 43
Ultimate PD	62
Unbeatable Prices	104
Virgo Developments	99
Virus Free	74
Westoning Ltd	128

AMIGA LETTERS

£50 STAR LETTER £50

Dear *AUI*,

Living as I do on the Southern edge of Europe, I can buy American Amiga magazines, and I find that American software prices are significantly lower than their British equivalents.

In many cases it appears that the British retail price is arrived at simply substituting the $-sign for the £-sign!

I have noticed in your review pages that some programs use PAL format, and some the American NTSC display format. Evidently the NTSC software gives a reduced screen display area. Are there other problems associated with running NTSC software? Is it difficult to convert NTSC originated software to PAL format? If so, is this given as a motive for higher prices? I also found some PAL format software is available in the U.S., and I give the following examples of the surprising difference in price for what is identical software:

TITLE	U.S. $-Price/£-Equiv	U.K.Price	Difference
DigiView Gold (PAL)	$145/£75.92	£149.95	£74.03
DigiPaint 3 (PAL)	$58.95/£30.92	£52.90	£22.04
Pen Pal (PAL!)	$99.95/£52.33	£79.95	£27.623
D Professional (PAL)	$309.95/£162.26	£299.99	£139.67
AudioMaster 3 (NTSC)		$64.95/£34	£54.95 £20.95

Prices converted at $1.91 to £1

Since all of the above except Audiomaster 3 are PAL versions, why do the British versions cost so much more? Remember that both are retail prices, so the American suppliers are making their desired profit at almost half the price. Are the British software distributors ripping us off?

Obviously it seems best for me to buy my software by U.S. Mail Order rather than U.K. mail order, but I would like to know if the NTSC versions of Graphics, Music, and even games software would run happily on a PAL system?

Your magazine is excellent: a much better balance between utility and leisure software and applications than your rivals.

Steven Holden,
Spain.

Dear Steven,

The only real difference should be that of screen size - many Americans are envious of the PAL system and so many video and graphics applications are available on PAL. The difference in prices is disturbing and have been like that for many products outside computing - take cars for instance. However, one major factor for software imported into the UK is the cost of transport, customs, handling, etc. which does push up prices, especially for U.S. software/hardware. The supposedly "reduced" UK market also seems to increase prices due to the marketing idea of low volume sales ratio which, of course, has precisely the effect of keeping prices high and sales low.

***AUI** is an international magazine (it sells very well outside of the UK) and so the product information lists the US contact address when appropriate. Most UK distributors are given "evaluation" copies of products to send out to UK magazines, and sadly a few do not - they sell them! **AUI** receives many products from the United States, and so gives credit to the company that supplies them. UK buyers, like overseas buyers, if using an international credit card will find that they can get better buys from the US, the postage and import duty is minute compared with the savings to be had.*

*An editor of another UK Amiga publication, recently made a dig at **AUI** (although he didn't actually name us) for not listing the UK addresses of products that we review.. All that we can say is that our readers are sophisticated enough to realise we are an international magazine and will publish the address from where the product originates - UK, USA, Germany, etc.. **AUI** has known the Amiga-scene for much longer than any other Amiga magazine, and we were offering guidance to early Amiga owners when many others currently giving advice were still playing games on their Spectrums.*

Dear *AUI*,

In Newsfile, January 1991, page 16 and 18 there are two identical news items about Pre-Formatted Diskettes, one in a vertical column (page 16), the other in a horizontal setting (page 18). Wouldn't it be better to keep one for the next issue?

M.Reza Molavi,
IRAN

Dear M.Reza,

As a test we thought we would re-print a news article twice to find out how many people would notice. You were the only reader to point it out! Well done!

Dear *AUI*,

Your magazine has been my favourite Amiga magazine since the first time I bought it back in Jan90. I have greatly enjoyed every aspect of it, from the lay-out to the reviews. I must congratulate Antony Jacobson, Tony Horgan, and Pat Kelly on the great achievements that ***AUI*** has made so far. An achievement which many others have failed to accomplish. The professional reviews cover almost all aspects of today's Amiga computing, along with Newsfile which brings new inventions in the world of computing to light. I enjoy reading all of the magazines articles. Full marks and congratulations also to all of the contributors - Alan, Andy E, Andy M, Anthony, Barry, Bob, Bud, Daphne, David, Erik, Jonathan, John K, John W, Martin, Mike, Norman, Paul, Peter and all other contributors. One of the most interesting aspects of ***AUI*** must be the layout, every page with a border and an icon on the top-left of the page pointing out the section to which the article belongs - another good feature. Well done to Graham. Mention must also go to Liz, Richard, and Tony for the marvellous advertising which contains some real bargains (Especially for the advertisers...Ed.). And as for Ray Lewis and Peter Welham, need I say more (I wouldn't if I were you..Ed.). Believe me when I say that I envy all of you for putting together such an entertaining, knowledgeable and all together superb package. As for me I am still a student and study maths, eventually hoping to become a Hardware Engineer one day. Thank you, and keep up the hard work.

Kambiz Memarzia,
Leeds

Dear Kambiz,

*You weren't joking when you said HARD work, if you were to spend a day at the **AUI** offices you wouldn't be so envious, or so congratulatory to our.*

***AUI** is now bigger both in size and in content and as such takes up even more time to put together and any thanks we can get are really appreciated.*

Although the old design had its many followers we felt, along with other readers that it was time for a change - it had been the same for several years!

We differ from other Amiga magazines because our contributors are hand-picked professionals and work not just for money, but because they enjoy investigating the possibilities of the Amiga in their chosen disciplines. They most certainly can be considered the most qualified in the country to review products, or write the articles of general or specific Amiga interest. Our job is to interest, entertain, and help you master the Amiga to your satisfaction. Thank you again for telling us we do it quite well.

Dear *AUI*,

Not being able to "work" on my

WRITE TO REPLY

This is where you get your chance to speak – or write – your mind about what's bugging you – or your computer. Bud Vennos fields the bouquets and the brickbats.

AMIGA LETTERS

Amiga 2000 (while in the Saudi Arabian deserts) I've taken to reading any and all magazines I can get my hands on. ***AUI*** has left a lasting Impression. You could teach Amiga World (and other Amiga-specific American magazines) a bit about how to write and rate a peice of software. Can I have information on subscrbing to your magazine.

Alex G.Santa-Pinter,
CAPT, USAF.
Choctaw, USA

Dear Alex,

*We sent lots of **AUI**s to the Gulf because we new that there would be many servicemen out there without a great deal to do during the war! We have had lots of response from grateful recipiants. As for subscribing, our Subs Dept. will send you the necessary information.*

Dear *AUI*,

I am not yet an Amiga owner although I aim to be in the near future. My difficulty is in the choice of models - between the A500 and the Amiga 1500. Which at present is the best value for money considering the bundles? How compatible are the Amiga 1500 and A500 with software i.e. games, etc? Which of the following monitors is the better - the CBM 1084S, and the Philips CM8833 Mk.2? Do they both work equally well with the A500 and Amiga 1500? I hope that you can answer these questions.

Mark Williams,
Kent

Dear Mark,

We normally answer these questions in the Amiga Answers section, but there are a lot in that section already this month so I'll answer your questions.

The A500 is the better value if you mainly want to play games and run wordprocessors etc., but the Amiga 1500 is the better buy if you envisage that you'll need hard drives, modems, 24-bit colour graphics cards, extra memory, and lots of other add-ons. The main differences between them are that the Amiga 1500 is designed for expansion boards (up to eight internal) while the A500 has only one full expansion bus and that the A500 can connect to a standard TV - the Amiga 1500 can not.

A harddrive, and up to 8 Megs of extra memory can be added to the A500 through its expansion bus. This is because most units which are designed to connect to the bus have a throughport, which allows other expansions to be plugged into others.

*Some games software will not run properly on the Amiga 1500 due to its different keyboard configuration - a fault of the programmers - however, most do work. Recent non-starters at the **AUI** offices were Robocop 2, Chip's Challenge, and Chase HQ 2. Of the monitors, both are made by Philips and the CM8833 Mk.II is the latest design featuring a flatter screen. Both are have stereo audio outputs and there should be no connection problems if you make sure you have the correct cable.*

Dear *AUI*,

I have a complaint regarding your issue 'Volume 4 Number 6'. On page 32 you gave a review of a joystick/mouse adaptor called 'MouseMaster' by Practical Solutions. I am forever plugging and unplugging my joystick or mouse so this item appeared to be just what I needed to avoid damage to the ports. Unfortunately, after searching through umpteen magazines and ringing umpteen different major dealers I have not been able to trace one. In fact, nobody has heard of it, or Practical Solutions, and when I describe it to them they do not appear to believe that such an item exists. In my desperation I rang your editorial department. They could not tell me where I could buy one and, worse still, could not tell me a contact address or number for Practical Solutions!

This raises the question, where on earth did Bill Hardwick get his MouseMaster to test? Please can anyone tell me where can I buy a Mousemaster or even where do Practical Solutions hide out? If not, why ae you wasting space in your magazine reviewing items the public can't get hold of?

P.S. I am aware that Trilogic do a cheaper version with 2 ports.

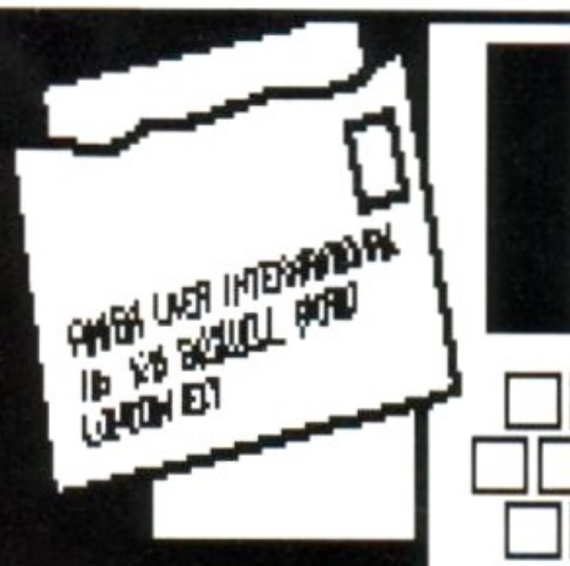
L.M.Devey,
Birmingham

Dear Mr.Devey,

*Since running the article we have since moved offices and - you've guessed it - unfortunately lost any information we have on Bill Hardwick and his MouseMaster. But the MouseMaster does exist, I've seen it! I think that it was mainly produced for the ST because the mouse ports were so inaccessable, but it was popular with many Amiga users. Producing magazines is often a very pressured business which does not leave time for proper answering of phone queries. We cannot guarantee that any telephone caller will get full information, so it is therefore best to write in and we can deal with your requests more thoroughly. If Bill Hardwick or any reader can submit any details to us about the MouseMaster at **AUI** we will pass them on.*

WRITE TO REPLY

This is where you get your chance to speak – or write – your mind about what's bugging you – or your computer. Bud Vennos fields the bouquets and the brickbats.



COMPETITION WINNERS
MEGA MUSIC COMPO
COMPETITION WINNERS

In ***AUI*** February we had a special music suppliment and a MEGA MUSIC COMPO. Here are the winners....But first the answers:

1) Musical Instrument Digital Interface (MIDI)

2) Paul Overaa

3) a. Frequency (pitch)
   b. Amplitude (loudness)

The MASTERSOUND Sampler has been won by
Stewart Wilson, Wiltshire.
AudioMaster III by
Paul Hammond, Middlesex,
and Deluxe Music Construction Set by
William MacTear, Isle of Lewis.

Prises will reach you shortly.

WATCH THIS SPACE . . .
NEXT MONTH . . .
for the draws for Graphics Compo, Virgin Games Compo, and the Citizen 124D compos.

THE COMPLETE COLOUR SOLUTION

£179

Vidi ... No 1 in UK & Europe (Leading the way forward)

Actual unretouched digitised screenshot

Get the most out of your Amiga by adding:

"The Complete Colour Solution"

The Worlds ultimate creative leisure product for your Amiga. Capture dynamic high resolution images into your Amiga in less than one second.

And Look No Filters

Images can now be grabbed from either colour video camera, home VCR or in fact any still video source. The traditional method of holding three colour filters in front of your video camera is certainly a thing of the past. Because Vidi splits the RGB colours electronically there are no focussing or movement problems experienced by some of our slower competitors. Lighting is also less of an issue as light is not being shut out by lens filters. Put all this together with an already proven Vidi-Amiga/VidiChrome combination and achieve what is probably the most consistant and accurate high quality 4096 colour images ever seen on the Amiga.

The colour solution is fully compatible with all Amiga's from a standard A500 to the ultimate A3000. No additional RAM is required to get up and running.

You will see from independant review comments that we are undoubtedly their first choice and that was before the complete solution was launched. If you have just purchased your Amiga and are not sure what to buy next, then just read the comments or send for full review and demo disk.

Features ...

- Grab mono images from any video source
- Capture colour images from any still video source.
- Digitise up to 16 mono frames on a 1meg Amiga.
- Animate 16 shade images at different speeds.
- Create windows in both mono & colour.
- Cut & Paste areas from one frame to another.
- Hardware and software brightness & contrast control.
- Choice of capture resolutions standard & Dynamic interlace.
- Full Palette control.
- Add text or draw within art package.

Amiga Computing: The best Amiga digitiser has had the technicolour treatment. Vidi must be one of the most exciting peripherals you can buy for your Amiga.

Micro Mart: When I first saw Vidi "in the flesh" as it were, at the CES show last September it looked to be the answer to a frustrated Digi View owner's dreams – in fact to see pictures appearing on screen without the customary two minues wait seemed almost too good to be true. I have consistently produced more good quality pictures in the short time I have had Vidi than I ever did with Digiview.

Zero: Now under normal circumstances cheap usually means poor quality but this is not the case with Rombo. Why? cos Vidi-Amiga is the best digitiser for under £500 and I've tried them all.

Amiga Format: Where quality is concerned, Vidi produces some of the best results I've seen on any digitiser at any price.

Amiga User International: The latest addition to the Rombokit is called Vidi-RGB and brings this already impressive package to the realms of totally amazing. CONCLUSION: Who will find Vidi-Amiga useful? The answer to this is almost anyone with a video recorder or camera and a passing interest in graphics.

Full colour demonstration disk available for only £1.95 to cover P&P.

6 Fairbairn Road, Livingston, EH54 6TS. Tel: 0506-414631 Fax: 0506-414634

ROMBO
Limited

Just The Facts:

What Makes Digi-Paint 3 the Ultimate Paint Program?

"Finding the best paint program for your Amiga can be confusing, but once you have the facts it's simple."

Laura Longfellow
Sales Manager
NewTek Inc.

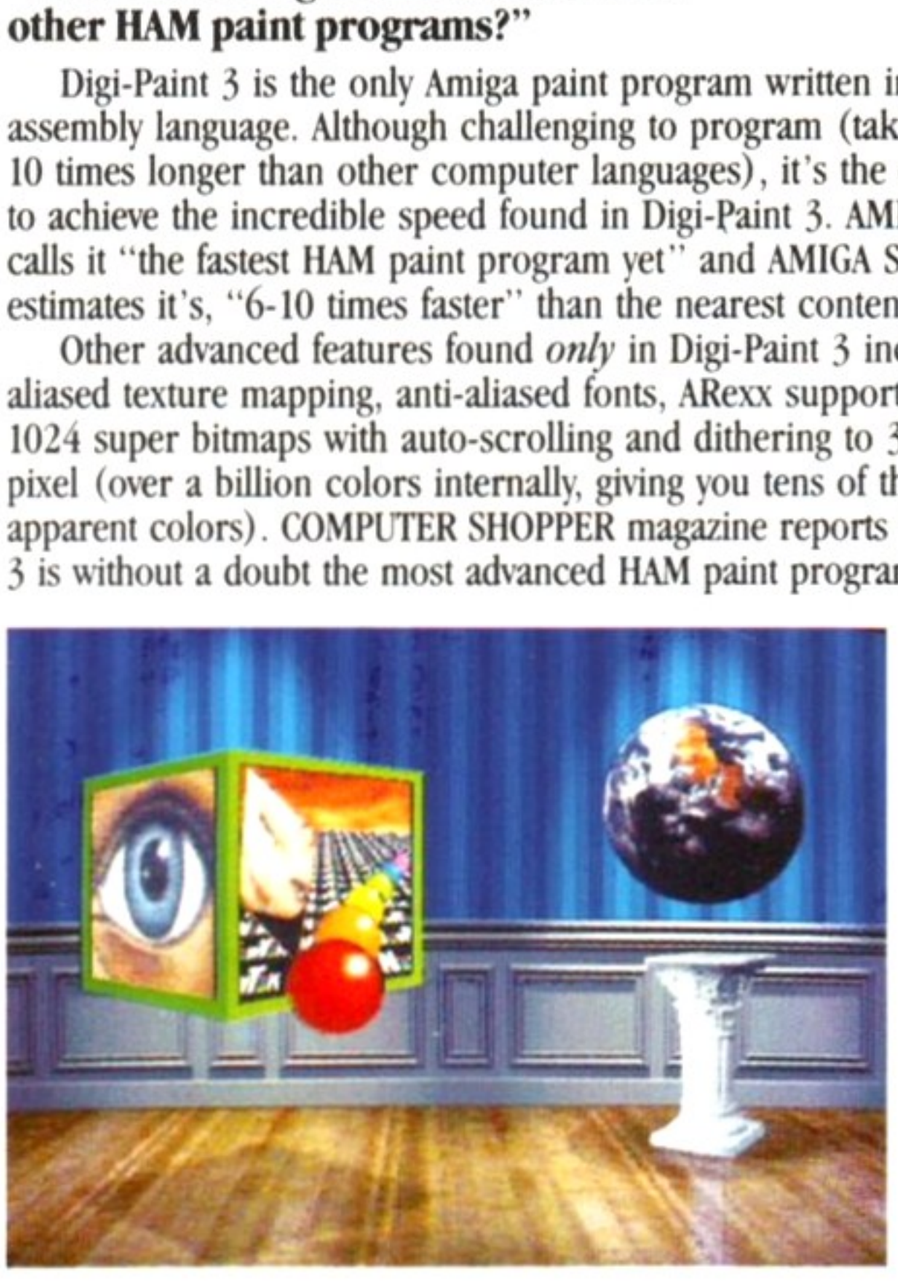
"Why is Digi-Paint 3 better than DeluxePaint III™?"

Digi-Paint 3 works in the Amiga's powerful Hold And Modify (HAM) mode, which allows you to paint using all 4096 colors simultaneously. By comparison, Deluxe Paint III (by Electronic Arts) operates in less sophisticated modes, restricting you to a maximum of only 64 colors. Advanced features available in Digi-Paint 3 – including Colorizing, Variable Transparency, Shading, Lighten, Darken and Range Painting – are simply not possible in Deluxe Paint III due to its 64 color limitation. AMIGAWORLD warns, "Competitors may want to head back to the drawing board, because Digi-Paint 3 is hard to beat!"

"What makes Digi-Paint 3 better than other HAM paint programs?"

Digi-Paint 3 is the only Amiga paint program written in 100% assembly language. Although challenging to program (taking up to 10 times longer than other computer languages), it's the only way to achieve the incredible speed found in Digi-Paint 3. AMIGAWORLD calls it "the fastest HAM paint program yet" and AMIGA SENTRY estimates it's, "6-10 times faster" than the nearest contender.

Other advanced features found *only* in Digi-Paint 3 include: anti-aliased texture mapping, anti-aliased fonts, ARexx support, 1024 x 1024 super bitmaps with auto-scrolling and dithering to 30 bits per pixel (over a billion colors internally, giving you tens of thousands of apparent colors). COMPUTER SHOPPER magazine reports "Digi-Paint 3 is without a doubt the most advanced HAM paint program to date!"



"But is Digi-Paint 3 easy to use?"

I've learned that no matter how powerful a program is, if it's not friendly it's not worth my time. We designed Digi-Paint 3 with all users in mind – from the beginner just starting out with computers, to the "power user" who demands the most advanced features possible. The spiral-bound manual contains a step-by-step Guided Tour, 11 hands-on tutorials, a color coded reference card, and almost one hundred example photos.

Digi-Paint 3's intuitive user interface was created by Digi-View designer (and NewTek Founder) Tim Jenison and renowned Amiga artist Jim Sachs. It features innovative "Dashboard" controls which AMIGAWORLD regards as "a joy to use" and "very easy to learn and understand". INFO MAGAZINE says the new interface "looks great and works logically".

"What is the Transfer 24 program included with Digi-Paint 3?"

Transfer 24 is a separate program disk included in the Digi-Paint 3 package, allowing you to alter any picture's brightness, color saturation, contrast, hue and sharpness, almost as easily as adjusting the controls on your television set. Transfer 24 also lets you modify the size, palette, and resolution of any picture. These powerful features, known as "Image Processing", give you incredible control over your final artwork. You can also save your image in any of the Amiga's 24 resolution modes (up to 768x480) making it compatible with all Amiga graphics software. AX MAGAZINE notes that "Transfer 24 gives you even more options as to the final appearance of your work". AMIGAWORLD declares, "Transfer 24 is great for making overall changes."

For a NewTek authorised dealer near you contact **HB Marketing Ltd.** at **0753 686000.**

NEWTEK
INCORPORATED

Digi-Paint 3, Digi-View, and Transfer 24 are trademarks of NewTek Inc.
DeluxePaint III is a trademark of Electronic Arts.
All brand and product names are trademarks of their respective holders.