

POPULAR COMPUTING WEEKLY

A FOCUS MAGAZINES PUBLICATION

March 3-9 1988

70p

WEEKLY

This Week

- News** p. 1-5
Saga promotion from Mastertronic
Instant Business Letters
Code Masters' 16-bit

- Game of the Week** . p. 9
Get Dexter II on the Amstrad CPC from Infogrames



- Exposure** p. 10
New games soon to be released

- Communications** p. 12-13
Steve Gold compares the MicroLink multi-speed and Supra 2400

- Puzzle** p. 23

PC WORD PROCESSING REVIEW p. 24-25

By Peter Jackson

- Bytes and Pieces** p. 32, 33
Programs for the C64, Amiga and Atari ST

Miles Gordon Technology rejects Amstrad claim

ALAN MILES of Miles Gordon Technology reacted angrily to a report in *Computer Trade Weekly* which stated Amstrad had warned the company against producing a Spectrum clone.

"We are not borrowing, stealing or deriving technology from any other product," said Miles, "and are very angry at the implication of the article.

"Amstrad has merely stated that it will fight anyone who infringes its copyright and it is

right - so would we," Miles continued. "So far as I am aware there is absolutely no reason for us or Amstrad to be worried about the activities of either company."

Miles pointed out that his machine 'SAM' was further away from being a copy of a Spectrum than the Amstrad 1640 was an IBM PC. Although the machine has a Spectrum mode, Miles was adamant that SAM in no way imitates the Spectrum. "We feel it has superior capabilities to any exist-

ing 8-bit computers," he said. "It has superior graphics, sound and a wider range of options."

A spokesperson for Amstrad was non-committal on the subject, stating: "Anything which endangers our intellectual property rights we would look at extremely closely."

Referring to MGT, he added: "There does not appear to be any allegation that this particular outfit is infringing the Amstrad name."

Adventure trilogy marks the Level 9 Mandarin debut

LAUNCHED with a budget of £1 million, Mandarin is a new entertainments software house which will combine the marketing abilities of the Europress group with the various top programming teams.

The first link with Level 9 has produced an adventure trilogy, *Time and Magik*, which contains three formerly acclaimed titles, *Lords of Time*, *Red Moon* and *Price of Magik*.

Having been made available on a wider range of micros, the games have also been enhanced considerably so that the vocabulary has increased five times since the originals, there are 700 locations and better quality pictures on disc versions.

Mike Cowley, a spokesman for the new venture, explained how the new deal had evolved. "Level 9 is a good programming team but it was not marketed properly, which



The Level 9 team.

is a role we can play".

Chris Payne, also of the Europress group, supported him, saying, "Mandarin could not be more sound financially - we have £1 million in the kitty - so we are in a superb position to pick and choose not only our partners but also just what products we decide to release and when."

Claiming that the new label will be the Rolls Royce of software games, *Time and Magik* is to be released on March 31 in 13 versions.

The second game, released on March 16, will be *Icarus*, resulting from a collaboration with Power-

continued on page 5 ►

MASTERTRONIC

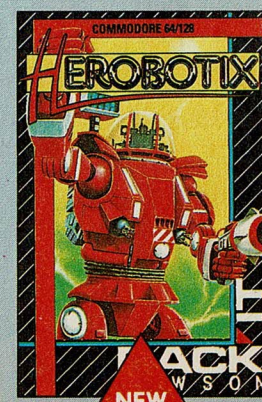
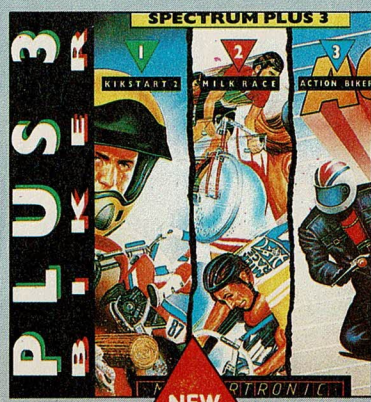
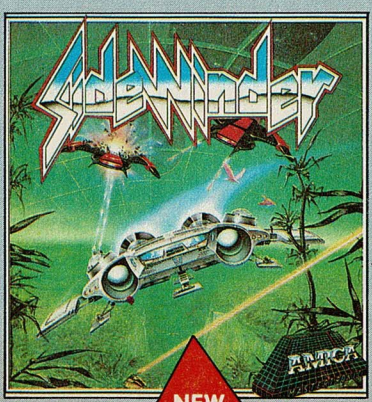
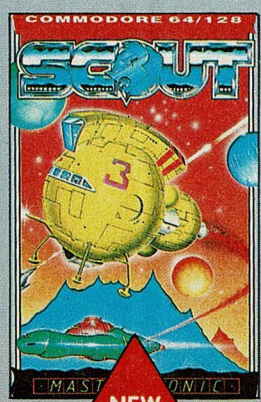
TOP 20

Position	Title	Make	Spectrum	C64	Amstrad	CI6	Atari	MSX	BBC	Amiga	IBM	ST
1.	Kikstart II	Mastertronic	✓	✓	✓					✓		
2.	Way of the Exploding Fist	Ricochet	✓	✓	✓							
3.	Ghostbusters	Ricochet	✓	✓	✓							
4.	Agent X II	Mastertronic	✓	✓	✓							
5.	Energy Warrior	M.A.D. X	✓	✓								
6.	Bosconian	Mastertronic	✓	✓	✓							
7.	L.A. Swat	Entertainment USA	✓	✓	✓							
8.	Rockford	M.A.D. X	✓	✓								
9.	Skate Rock	Ricochet		✓	✓							
10.	Milk Race	Mastertronic	✓	✓	✓		✓	✓				
11.	Motos	M.A.D.	✓	✓	✓							
12.	Angleball	M.A.D.	✓	✓	✓			✓				
13.	Feud	Mastertronic	✓	✓	✓	✓		✓		✓		
14.	Dan Dare	Ricochet	✓	✓	✓							
15.	Scumball	Mastertronic	✓	✓								
16.	Venom	Mastertronic	✓	✓	✓							
17.	Rasterscan	Mastertronic	✓	✓	✓							
18.	Rigel's Revenge	Bulldog	✓	✓	✓		✓					
19.	Xevious	Americana	✓		✓							
20.	Revenge II	Mastertronic										

SEGA

TOP 10

	Title	Format		Title	Format
1.	Out Run	2 Mega Cartridge	6.	World Grand Prix	1 Mega Cartridge
2.	Choplifer	1 Mega Cartridge	7.	Enduro Racer	1 Mega Cartridge
3.	Space Harriers	2 Mega Cartridge	8.	The Ninja	1 Mega Cartridge
4.	Rockey	2 Mega Cartridge	9.	Wonderboy	1 Mega Cartridge
5.	World Soccer	1 Mega Cartridge	10.	Secret Command	1 Mega Cartridge



NEW

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NEW RELEASES NEW RELEASES NEW RELEASES NEW RELEASES NE

LICENSED TO THRILL
AMERICANA
SOFTWARE

RACK IT

M.A.D.
MASTERTRONIC

RICOCHET

SULLOUG
SOFTWARE

SEGA

SEGA

SULLOUG
SOFTWARE

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M.A.D.
MASTERTRONIC

RACK IT

LICENSED TO THRILL
AMERICANA
SOFTWARE

A funny thing happened recently. Not to me but to one Eric Nussbaum, who recounted his tale in a letter to the Metropolitan Diary column of the *New York Times*.

It seems he returned one night to an apres-row atmosphere at home, where it transpired that Mrs Nussbaum and their 3½-year-old son had been locked in battle over the untidy state of his playroom. The room was now tidy, certainly, but Nussbaum Junior was looking strangely quiet and shaken.

To cut a short story even shorter, the reason for the child's distress was not withdrawal of bedtime stories or even bubblebath, as you might expect. No - the tiny Nussbaum was in tears because his mother had threatened to tear up all his computer software. The child was 3½ years old, remember.

Several thoughts spring to mind, the first being "What a spoilt brat" but it makes one think about the appeal the home computer industry is making, or ought to make, to the whole age range. This journal's letters page has lately been the site of several complaints from readers who object to our increased games coverage. A point is often missed by those same readers is that *Popular Computing Weekly*, just like the home micro industry as a whole, needs to appeal to all sections of the market simultaneously.

We are often told that the computer market is growing up and the position of *Popular Computing Weekly* on that development needs no repetition. If the story of the American family Nussbaum is at all representative, the industry should be growing down, if anything.

Efforts to inform and entertain the young and pre-school child through microcomputers are piecemeal, not to say lamentable. Look at Acorn, look at Miles Gordon Technology, look at the toy computers available in the big toy stores. The computer industry's attempt to cater for this age group is not good enough and, as in other areas, needs to show long-overdue signs of thought and originality.

John Brissenden

NEWS DESK..... 1-5

Code Masters turns attention to 16-bit... Electronic Arts acquires Australian distributor... Sega promotion from Mastertronic

LETTERS 6

More of your comments and opinions

HOTLINES..... 8

Keeping up with the software gossip

GAME OF THE WEEK: GET DEXTER II..... 9

Duncan Evans reviews the sequel from Infogrames

EXPOSURE..... 10

New releases examined by Duncan Evans

A TALE OF TWO MODEMS..... 12-13

Steve Gold scrutinises two cheap new modems

GAMES..... 15-17

Chuck Yeager's *AFT* on the C64, *Time Fighter* on the C64, the Mastertronic *Sidewinder* on the Amiga, *Demon Stalker* on the C64, the Firebird *Magnetron* on the Spectrum and *IO* on the C64

PUZZLE..... 23

POUNDS PER COLUMN INCHES..... 24-25

Peter Jackson looks at word processors

KENN GARROCH..... 30-31

Technical problems solved

BYTES AND PIECES..... 32-33

Programs for the C64, Amiga and Atari ST

COMMENT..... 46

Anthony Shepherd advises on choosing a new computer

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Budgie games

BUDGIE U.K. is a new Software house which produces free games for the Atari ST. The four titles recently released for public domain distribution are *Damonoid*, a space shoot-'em-up; *Blitz 88*, flying three aircraft simultaneously in formation; *Football 88*, a football manager for up to six players; and a version of *Othello*.

Damonoid and *Blitz 88* are on individual discs, whereas the other two are on the same disc. The programs are available from most public domain services or direct from Budgie U.K., 5 Minster Close, Rayleigh, Essex. Copies will cost £2.95 each including postage.

Code Masters to break into 16-bit market

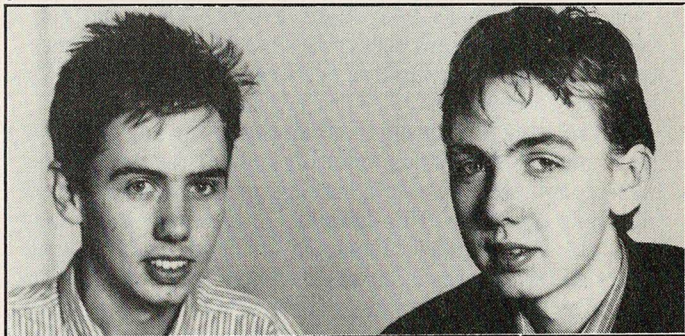
CODE Masters has turned its intentions from 8-bit to 16-bit software. David Darling, managing director of Code Masters, says: "We have wanted to break into the 16-bit market for a long time; the improved graphics and quality of games of these machines is extremely appealing."

The first title to appear on the ST and Amiga will be a conversion of *BMX Simulator*. Other releases will follow.

The price for the 16-bit releases has been set at £14.99. "We think it is very high quality and much

better than the current £9.95 budget software on the market. We

tried to go for a mid-price," Darling says.



David and Richard Darling.

EA goes east

ELECTRONIC Arts, which achieved nett sales of \$30 million in 1987, has announced the acquisition of Australian distributor Entertainment and Computer Products and the formation of Electronic Arts Japan.

Trip Hawkins, president of Electronic Arts, says: "Our goal is to become a truly international company with effective world-wide distribution. In the last six months we have gone from manufacturing on one continent to manufacturing on four."

Ken Zerbe, international director of Electronic Arts, enthuses

Improved Brainstorm

BRAINSTORM Software has announced a new version of *Brainstorm* for the IBM PC compatibles, including the Amstrad PC 1512

about the expansions: "We are very much looking forward to moving into Australia and Japan. We have been shipping products to Japan since 1987."

Zerbe explains what will be released in Japan. "We will be converting American products to the local format, such as the Sega and NEC 9801 and 80801."

One exciting development is the plan by Electronic Arts eventually to develop products in Australia and Japan and sell them world-wide.

family. *Brainstorm 2.0* features several improvements over its predecessor, such as high-speed monochrome and colour displays, more natural key use and an easy-to-use customisation program for setting a variety of applications.

The new version also incorporates Pop-Up *Brainstorm* which is memory resident and can be used while in other applications. For anyone wishing to try the product, there is a sampler available which is a fully-functional version apart from the restrictive memory of 4K. Complete with on-disc tutorial, the sampler may be bought for £5 and buyers are free to copy and distribute it to other users.

For new buyers the full version

of *Brainstorm* is available for £52.95 or an upgrade can be obtained for £15. To qualify for that price users should return the originally-supplied master disc.

Prices of *Brainstorm* include VAT, package and posting and are based on cash with order. Handled previously by Caxton Software, the rights to publish the product have now reverted to *Brainstorm Software* at 18 Courtlands Close, Ruislip, Middlesex HA4 8AX.

Centre for Star U.K.

STAR U.K. Computer Systems Ltd has moved to a new centre in Aberdeen and will be offering several new services to customers. There will be training courses in IBM, Amstrad and Atari ST desktop publishing, support groups and computer repair facilities.

There will also be a programmers' department for the development of software and hardware for the Atari ST under the STar Soft label.

For details send a large SAE to Star U.K. Ltd, 50 Bridge Street, Aberdeen, Scotland AB1 2JN.

New drive test program

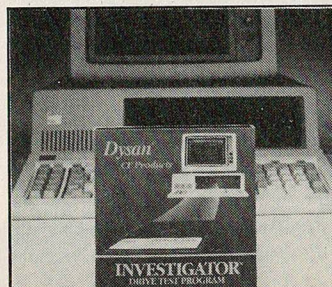
THE Dysan Investigator, from Action Computer Supplies, is a new drive test program which determines whether a drive is in good working order. Designed for the IBM PC/XT and compatibles with 48tpi and double-sided drives, the Investigator is contained on a single 5.25in. diskette.

When inserted into the drive the program conducts seven crucial tests automatically and a readout shows on the monitor, indicating pass or fail.

Tests include read/write, spindle speed, static head alignment, disc centring, index to data, azimuth head rotation and hysteresis. If more specific information is required operating the controls can produce numerical results and a full printout of the data if required.

The investigator will retail at £29.50. For further information contact Action Computer Supplies, Abercorn Commercial Centre,

Manor Farm Road, Wembley, Middlesex HA0 1WL.



Dysan Investigator.

INFOCOMICS is a new computerised story-telling medium, blending comic books and technology.

The result of a partnership between Infocom and Tom Snyder Productions, Infocomics are not computer games but a web of storylines enriched with cinematic effects such as zooms, pans and dissolves. Tom Snyder, who originated the idea, gave his reasons for the new product.

"Many people are intimidated by complex recreational software whose instruction manuals would boggle the mind of a Nobel Laureate. I wanted to create a product even my mother would love - something simple to use, escapist like a movie and, unlike other forms of computer software, rooted in pop culture."

Infocomics enable the user to create the destiny of the char-

Infocom to enter comics arena in joint venture with TSP

acters and events. Each Infocomic embodies intertwining storylines and wherever different paths intersect, the player can choose to enter a different character. These paths also reveal different thoughts, flashbacks, dreams and perspectives.

The graphics in Infocomics are

minimalist, used to support the storyline rather than deflect from it. "We have developed a technology which allows artists to create expressive drawings using minimal storage," Tom Snyder said.

Beginning what they hope to be a successful series, Infocom and TSP are releasing three titles.

Lane Mastadon vs the Blubbermen is a spoof of 1930s science fiction; *Gamma Force in Pit of a Thousand Screams* is a superhero tale featuring a trio of brave aliens; and *Zorkquest: Assault on Egreth Castle* is a fantasy adventure involving travellers and an evil magician.

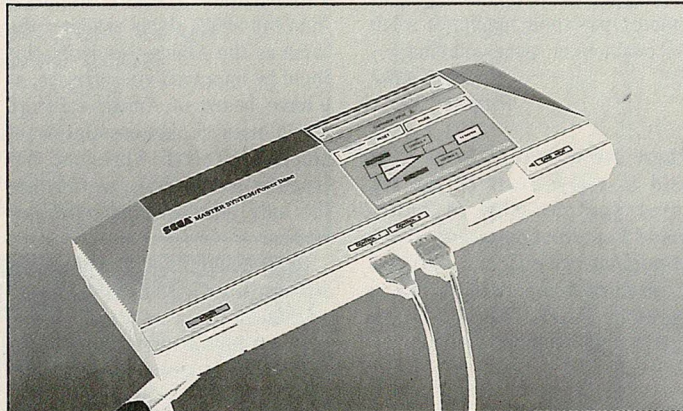
Instant letters

INSTANT Business Letters is the latest innovation from Eclipse Software Projects, whereby 102 standard business letters are provided on one floppy disc.

David Harris of Eclipse evolved the idea having seen similar things in book form. "Many new business people are not used to the way things are carried-out, so what better than to have a set of ready-made letters," he said.

The letters cover a variety of subjects, including clients, suppliers and mailshots. They are intended to form a basis on which the user can insert details.

Available on Amstrad PCW, Acorn BBC and IBM PC, Instant Business Letters costs £19.95. For further information, contact Eclipse Software Projects on 0922 692258.



The Sega.

Sega promotion announced

MASTERTRONIC has announced a Sega promotion, giving the customer the choice of two special offers.

Lasting until June 30, the first promotion offers a complete Sega system and a free two-Mega game

for £99.95. Each game is worth £24.95 and customers can choose from *Outrun*, *Space Harrier* or *Rocky*.

Alternatively, people can pay £124.95 for the Sega Master System and Light Phaser, again saving about £25.

Rachel Davies, marketing manager of Mastertronics denied the promotion was to support flagging sales of the Sega but simply a marketing ploy to assist the post-Christmas decline, common to all hardware manufacturers.

"We sold in excess of 30,000 units before Christmas and as there was a drop afterwards, we just want to keep the momentum going.

"There are several ways of looking at how you market hardware" she continued; "rather than spending thousands of pounds on advertising, we are giving value to the customers and support for the multiples."

She did not exclude the possibility of advertising in the future but added that Mastertronics will take its time "to make sure we get it right".

Organiser for PCs

THE *Organiser* package, bundled with the Amstrad PPC, has just become available as a separate item for all other PCs. A fully-integrated package, it is memory-resident and offers a variety of features, including word processor, spreadsheet, calculator and name diaries.

According to Peter Mackeonis of

Triangle Publishing, it was the functionality of the *Organiser* which prompted Amstrad to take it. Now he hopes it will have as much appeal for other PC users, whether they own an Olivetti, Wang or Compaq.

The *Organiser* will retail at £59.95 and is due to be distributed internationally by Atari.

Level 9 Mandarin debut

◀ continued from page 1

house Software. A fast action space game, it has 20 levels and a split-screen facility which enables a player to compete alone or with a friend.

No other games have been finalised, but Cowley hinted that there are negotiations with several other software teams. "We are picking the best people," he said, "to combine with our marketing muscle."

Irish ST SOS

I have been an ST user for more than six months and to be honest there is very little support for the ST in Ireland.

Instead of sitting and waiting for someone to start a user group, I have now decided that I will start one myself. I am at the moment compiling a newsletter with the help of a few friends.

We also have a lot of PD software between us and we also have made a few of our own music demos.

As the name suggests we are looking for Irish ST owners interested in joining our group but we would like to hear from anybody, anywhere. It goes without saying we would like any of your readers to send their demos and PD software to us. All discs will be returned and we will add a few demos of our own.

If you are interested send a SAE or for U.K. or Europe an International Reply Coupon. If you send us demos we cover return postage. In return you get a list of demos and our first newsletter. I would like to thank you for giving us the chance to publicise our new group.

Mark Kinsella,
ST Ireland, Johnstown,
Sea Road,
Arklow, Co. Wicklow, Ireland.

Panic in year Zero

I have had *Popular Computing Weekly* delivered every week since it was 35 pence or so. If it had been 70 pence then, my view is that it would have been far better value than it is today.

Of course advertisements are as essential to a publisher as countless games reviews are to some readers, judging by the letters of praise. No doubt these are from either youngish new readers, or perhaps those involved with software sales.

Reviews are an essential part of any micro magazine; it stimulates sales and helps keep computing alive but why must this be to the exclusion of most of the things that made *Popular Computing Weekly* popular?

Sections covering hints and tips; Peek and Poke; Bytes and Pieces; the Adventure column; Arcade addicts section; Communications updates and info; reasonable size Letters section where all manner of computing views have been exchanged and not just Amigas or STs which most of the readership have no intention of owning; and

even a once-affordable private small advertisements section. Computers old and new were worthy of mention and occasional support.

Almost from week one of the new management the Letters area was halved. Is it not significant that a high percentage of letters recently printed offered criticism and that an increasing amount of lineage is being used by the editorial staff answering such criticism with more than a hint of sarcasm?

Popular Computing Weekly was a well-balanced, comprehensively informative and friendly magazine second to none. All that has changed. For some while now I've considered cancelling my *Popular Computing Weekly* order: the 15 per cent plus price increase was the last straw! Kenn Garroch's excellent section cannot singularly sustain my interest in *Popular Computing Weekly*. I am sure my views are shared by many. Not all readers use their machines solely for business or games playing.

George Payne,
Watford, Herts.

There are only two things to be said in reply. Most of the features you describe as having made *Popular Computing Weekly* popular are still here. Second, I am sure many readers are as bored by letters like this as you are by letters about Amiga.

Amigamedes - the case continues

First of all I will make this letter as short as I can to avoid the chances of it being shortened again. I have written the main facts and a few comments of David Vint's letter (*Popular Computing Weekly* Feb 11-17), who was writing about my previous letter.

Here I will write the true facts:

Archimedes advantages:

1. Speed;
2. Protected RAM;

Amigas advantages:

1. As Vint said, true multi-tasking;
2. Some parallel processing, with the help of the blitter;
3. 4096 colours on screen simultaneously;
4. The memory chips can operate at twice the processor speed;
5. The sound-chip is of better quality;
6. The ability to do many things with scarcely any loss of speed. The 25 DMA channels allow the custom chips to access memory without disturbing the processor. The blitter can generate graphics

and animate them faster than the processor. The blitter, as stated in the Amiga handbook, runs at around ten times the processor speed could it be over 70MHz?. Graphics on the Archimedes are fast but not as fast so it is capable of;

7. Amiga has eight sprites;
8. Amiga is easier to program because of its library of routines;
9. Amiga is better value it makes a change to hear that;

Two things about the Archimedes advantages that I have written:

- a) I did not write 'the O/S in Rom' as I do not see that as an advantage;
- b) I did not write 'the pixel resolution' because I was informed by an Acorn expert, with the confirmation of three different Acorn magazines, that Archimedes does not have a higher resolution than 640 x 512 pixels, which is the same as the Amiga. No doubt this could be improved via software, as I have heard of Amiga software which uses a pixel resolution of around 2400 pixels. I presume that Vint has a 300 series, as they are the only ones with monochrome models.

Saying that what Amiga can do via hardware, Archimedes can do more flexibly via software depends on the programmer. The Amigas hardware runs from the ROM, and the ROM is still a program which could be improved on. Every computer operating system is a program. What the Amiga already does via hardware could be improved greatly via software - it does not stop there.

In my original letter - and *Popular Computing Weekly* will confirm this - I said that the ARM was a very powerful processor. The accusation aimed at me saying that I had a disregard is understandable, given the fact that my letter was shortened.

Finally, everyone I know who is interested in computers prefers the Amiga to the Archimedes. With all due respect Vint's friends must be mad if they call that "upgrading".

That word is used only when a computer with a higher number of bits is concerned. Yes, Archimedes is 32-bit but the only reason that the Amiga can not be called 32-bit is because of the 16-bit databus.

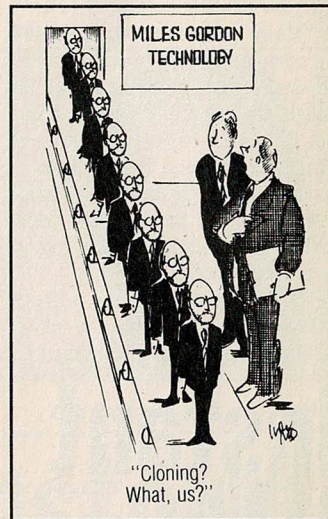
Amiga would have been a true 32-bit computer like Archimedes if equipped with a 32-bit databus. The 68000 always uses 32-bit values during operations.

I do not think that any word is appropriate for the change from

an Amiga to Archimedes. If anything, it would be "downgrading".

Whenever magazines talk about the Archimedes, no matter how long the article, they are only trying to put forward one advantage - the speed. That is the only advantage Archimedes has over computers like the Amiga.

Yogesh Raja,
London SW17.



Satisfied

and probably many other computer magazine readers stopped taking magazines such as *Sinclair User*, which believe it or not, was good in its early days when it fell into the "comic" category of computer-orientated magazines. The demise of *ZX Monthly* meant that another section of regular readers of computer magazines went to newsagents seeking a replacement magazine.

You must have seen them poring through all the computer magazines and then putting them back on their respective shelves without buying any of them - until they pick up *Popular Computing Weekly*.

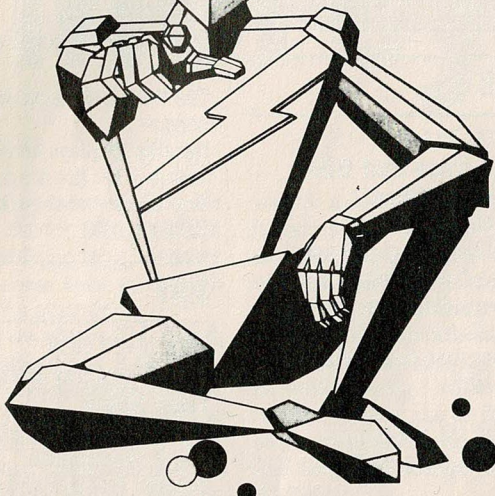
We all have our own reasons for buying our chosen magazine regularly and for me it is the puzzle. *Popular Computing Weekly* must have increased its circulation tenfold - well done - due not only to those reasons above but also to its new, upmarket image which probably appeals to the impulse buyer, in contrast to its previous format.

My criticism is that the present puzzles are too difficult, complicated, call it what you will. You must realise that with your larger number of readers that is, a wider range of abilities. As your circulation has grown, so should your offerings.

Malcolm Phillips,
Ystradgynlais, Swansea.

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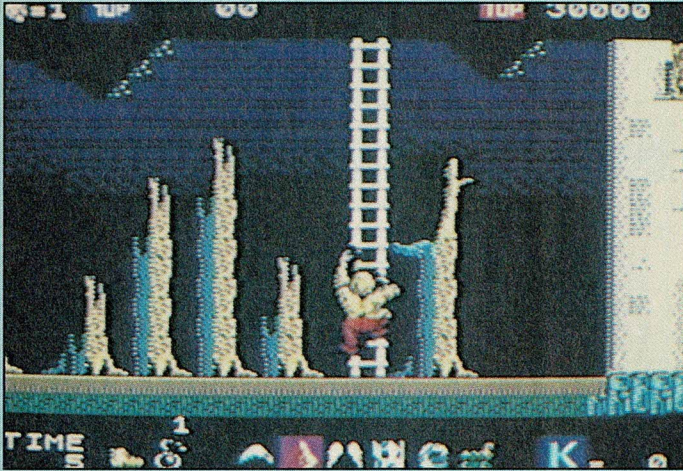
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Games required - if more room is required, please use separate sheet

(745)



SOFTWARE HOTLINES

In case the news story the other week about the John Elway licensed arcade game had you wondering, yes **Mastertronic** will be producing home computer versions (most formats) for around October.

Other exciting stuff from the outfit from rubbish strewn Paul Street includes a couple of arcade conversions, *Double Dragon* and *Dreadnought*.

Speaking of news stories and budget houses, remember 'Darlings Feed The World'? Well, they may feed the world but their PR company can hardly manage to feed the Press. A press conference over lunchtime entails sandwiches and coffee. Yummy.

The Russian theme so valiantly hyped by **Mirrorsoft** with *Tetris*, widens this week with our screenshot of *Karnov*. **Data East's** coin-op is being produced by **Electric Dreams** and **Activision**, and has you playing a fire breathing Russian, searching for the lost treasure of Babylon.

Well, that seems fair enough, and it will only be sometime this month before Spectrum, Commodore 64 and Amstrad CPC owners will be breathing through nine levels of action, along dozens (yes, count them - more than ten in other words) of paths, collecting ladders, superboots, flippers and wings, and fighting off dinosaurs, skeletons riding ostriches and a two headed dragon.

Add to that the problems of flying, swimming, running, jumping and climbing through the scenery, and it sounds good fun. But then again, so did the **Activision** *Championship Sprint*.

Now I have to say that my review of the **Mirrorsoft** *Dungeon*

Master wasn't quite right. It is actually far better than I said it was. Down in level three are a brilliant set of traps and puzzles that have to be examined and watched in action to understand. I just love the magic system as well. There I was, trying to dispel this magical force-field by casting half random combinations (the manual gives some hints) of runes. I came up with a good one by accident though. This fireball sizzled into the force field and was then sent back into the face of my party. Ouch!

Level four has worms straight out of *Dune*, and boy are they hard, while further down on level six there are floating fire spitting eyeballs. Although how an eyeball spits I don't know.

Now, this is such a great game, lucky ST owners will be rubbing their hands with glee, but they won't be the only ones, because (cue the fanfare) there's an Amiga version and it should be finished in about two months!

Other **Mirrorsoft** news is that before *Rocket Ranger* hits the market *The Three Stooges* will be out on Amiga and C64 formats first.

While this may be a great licence in the States, I can see this being a big flopper here. The graphics may be excellent, but would you spend money on a game which went 'Nyuck, nyuck'? Sorry to be pessimistic John, but who is that interested in the Three Stooges these days?

They said it would never happen, they said it was a foolish dream. But they were wrong. **Electronic Arts'** Lesley Mansford has finally sent me a copy of *Gridiron*. Reviewed in two weeks time, because, next week I'm going to have a quiet lie down in a darkened room. That, and partake of the bottle of Vodka that accompanied the *Karnov* press release. See you in a fortnight Comrades.

Duncan Evanski

DIARY DATES

MARCH

March 18-20 1988
The Electron and BBC Micro User Show

UMIST, Manchester
Details: Displays and demonstrations of all the latest hardware, software and peripherals from Acorn computers
Organiser: Database Exhibitions, 061-456 8383

March 22-24 1988
Electro-Optics & Laser U.K.

National Exhibition Centre, Birmingham
Details: Electro-optics and laser hardware, components and applications
Organiser: Cahnern Exhibitions; Sheila McGill, 01-891 5051

APRIL

April 12-14 1988
The Scottish Computer Show

Scottish Exhibition Centre, Glasgow
Details: Scotland's exhibition for

professional and business computer users
Organiser: Cahnern Exhibitions; Stella Hall, 061-832 4242

April 22-24 1988
The Atari User Computer Show

The West Hall, Alexandra Park, London
Details: Displays and demonstrations for the Atari range
Organiser: Database Exhibitions, (0625) 878888

MAY

May 13-15 1988
The Electron & BBC Micro User Show

New Horticultural Hall, Grey coat Street, Westminster
Details: Displays and demonstrations for the Acorn range of micros
Organiser: Database Exhibitions, (0625) 878888

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

CHARTS

Top Twenty

1	(1)	Platoon	Ocean
2	(4)	Out Run	Sega-U.S. Gold
3	(2)	Way Of The Exploding Fist	Ricochet
4	(3)	Ghostbusters	Ricochet
5	(5)	Kik Start 2	Mastertronic
6	(6)	Soccer Boss	Alternative
7	(14)	BMX Simulator	Code Masters
8	(9)	Grand Prix Simulator	Code Masters
9	(7)	Trap Door	Alternative
10	(28)	Pro Ski Simulator	Code Masters
11	(8)	Match Day 2	Ocean
12	(10)	Fruit Machine Simulator	Code Masters
13	(24)	Dizzy	Code Masters
14	(11)	ATC Simulator	Code Masters
15	(13)	Popeye	Alternative
16	(12)	Super Stuntman	Code Masters
17	(—)	Star Wars	Domark
18	(20)	L.A. Swat	Mastertronic
19	(30)	Combat School	Ocean
20	(23)	Back To The Future	Firebird

All figures compiled by Gallup

Mercy mission

After winning independence for *Xul-3*, *Dexter the Android* and his podocephalus Scooter have once again been assigned a 3-D isometric adventure.

Down on the planet Kef, things have been going just a little bit wrong. Natural disasters and the like have provided the catalyst for the emergence of a new religious sect, inhabited mainly by the Stiffiens, the race holding power on Kef. Bad news for the Swappis, who naturally like to swap things, as this sect is heavily into xenophobia and hating new technology.

The centre of these nefarious practices is a stronghold located inside a mountain, called Antines. Dexter's mission, should he choose to accept it, is to shed some light on the Antines mystery.

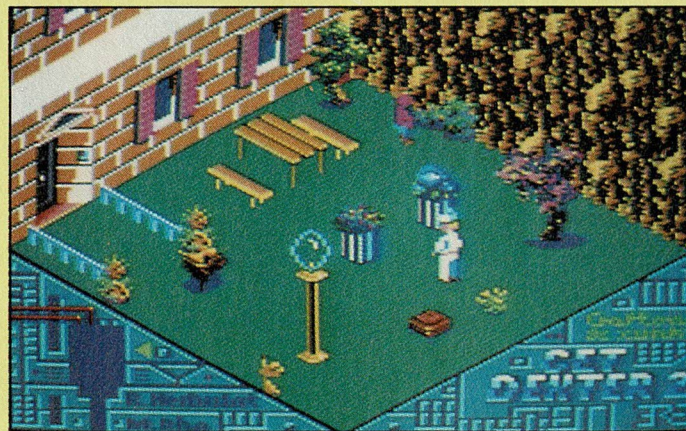
No easy task, as contact with the Stiffiens, along with the fauna of Kef, drains the old batteries, and is ultimately fatal. It is necessary to employ the assistance of the Swappis in order to get into the secret stronghold, but unfortunately, Dexter being an offworlder, they don't trust him very much.

So, the primary objective is to build up the trust, there is a trust rating on screen, to 100% by performing good deeds for the Swappis. Inside each of the three Swappi houses are signs which inform you what they want, and outside are signs giving clues to each test.

The tests can be completed in any order, and indeed a general

shufty around to discover the layout of the various buildings and topography is a recommended first move. For one thing you'll find the dynamite and the laser gun which are useful for icing the natural creepy crawlies as well as the Stiffiens. The Stiffien women are in fact quite cute, but as deadly as the men so feel no remorse when you stiff a Stiffien.

The graphics for the world of Kef are presented in the usual style, and are very colourful, and considering the low resolution, quite detailed. More than this, the improvements over *Get Dexter I* come in the gameplay and are not immediately obvious. The depth of play has been enhanced quite dramatically.



See a fruit tree? Bang into it and the branches quiver and an oversized orange pops onto your head if you are stood in the wrong place. Objects can be



swapped with the Swappis by running into them. A little bubble appears showing what they have on offer, and if you fancy that then a jab of the fire button will

along the length of various screens, and objects can be dragged along in a similar manner.

The first test is to discover the origins of the Swappi, and without revealing too much the solution involves a book and statuettes.

Test two is a mercy mission and a bid to cure ill Swappis with the most difficult and convoluted test revolving around the Swappis' dog, which has been experimented on by the Stiffiens (boo, hiss) so that it is by turn sane, and insane.

If you do manage to perform all three tasks, then the game moves into *Get Dexter I* territory inside the mountain. Players familiar with the original will be very much at home in this section. The ending is something of a surprise, and bodes well for *Get Dexter III*.

As it is, *Get Dexter II* should keep you occupied for no small number of weeks, and with its first rate animation and spiffy graphics, jolly title page music, and excellent gameplay should delight both fans of the original and newcomers to the concept. □



perform the exchange.

This really isn't *GDI* with different sprites, as *Alien 8* was the same game as *Knightlore* if you remember that far back. There are boards to read, and numerous clever touches. Watch how Scooter behaves when confronted by a female Scooterette!

I especially liked chucking things all over the landscape and getting Scooter to go fetch objects.

To do this simply recall Scooter and press the appropriate key. A list of fetchable objects then comes up in a bubble and you can select which one to go for and set him loose. Objects off screen are no problem, and this is another nice feature of the game. Characters will wander

Reviewer: Duncan Evans

Price: \$9.95/£14.95

Micro: Amstrad CPC

Supplier: Infogrames

POPULAR RATING

Graphics: 21

Sonics: 15

Gameplay: 46

82

Samurai Warriors and Rocket Ranger

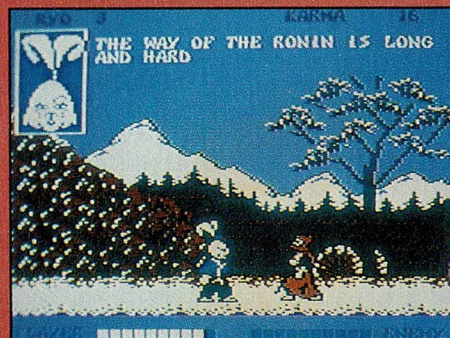
The name Usagi Yojimbo may not mean very much to most people in this country, but in Japan and the U.S. it stands for a fast growing comic



featuring animal characters set in a mythical 17th century Japan.

Pretty soon, thanks to Firebird, you'll be able to play the computer version of this world, as you take control of Miyamoto Usagi, a rabbit bodyguard in his quest for vengeance.

It's like this you see. Miyamoto's master Lord Mifune first had his family killed by ninja assassins sent by the evil Lord Hikiji, and when the two armies of



the Lords met, Mifune was betrayed by his own team and slain as well.

This left Usagi as a Ronin, a masterless Samurai, and to cut the tedious part of the story short he befriends another young lord who is then kidnapped, and he must rescue him before Hikiji forces him to watch Neighbours, or some other unspeakable fate.

Enough of that, the game has you, the rabbit, bouncing along in a horizontally scrolling arcade adventure. At every

turn nasty ninjas and repulsive Ronin will leap out and a sword fight ensues.

Although cutting the dogs to small pieces is the most important part of the game, there is also honour to consider. If you wander up to peasants with your weapon out they will be offended to say the least. Lose all your honour and you have to commit Sepuku.

There are also things to pick up, and alternative paths to travel down, all accompanied by a melodic little tune.

Because Usagi Yojimbo is a bit of a gobfull, the game will be titled *Samurai Warrior*, which doesn't quite have the same style, but there you go. Expect it on the C64 someday soon.



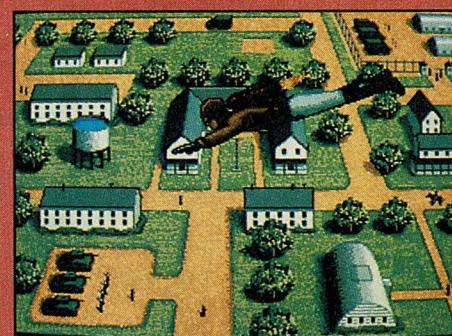
Cinemaware Corporation's *Rocket Ranger* and *The Three Stooges* are the next two new games on the production line at the moment. Read my opinions on the Stooges in Hotlines if you like, 'cos we're only printing piccies of Wocket Wanger in Exposure.

Cinemaware games always have had an adult tag, the Saxon maidens in



Defender of the Crown are legendary, and it's fair to say that *Ranger* follows in the same tradition.

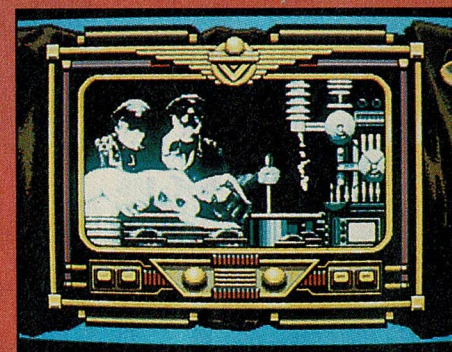
Sleaze is the order of the day here though, in another game set at the start of WW2. The time is 1940 and Hitler's



minions are stamping their jackboots across Europe.

Meanwhile over in the good old U.S. of A., a scientist working late one night gets a visit from the sky. A mysterious rocket-like package is left on his desk!

Don these and go up, up and away, as *Rocket Ranger*, defender of the free, protector of the brave, or something



along those lines. Battle Stuka dive-bombers, attack giant zeppelins, and rescue a crusty old professor and his curvy daughter.

Rather than being in the style of *Defender* or *Sinbad*, *Ranger* follows in the footsteps of *King of Chicago* and provides a more movie-orientated experience.

Expect to see versions of the game on the Amiga in about two months, and then cross your fingers for the conversions. □

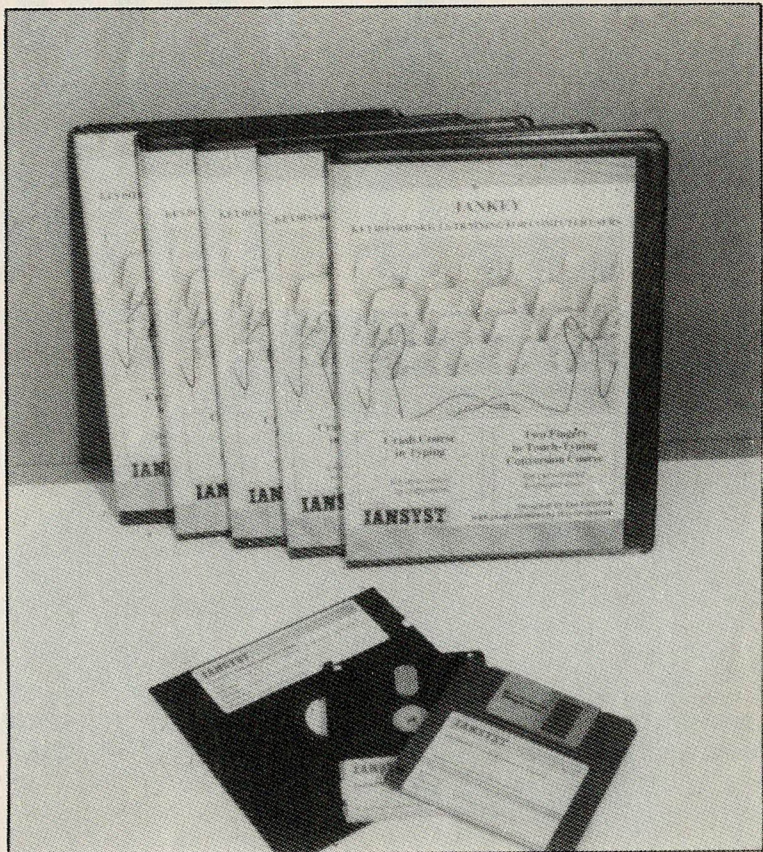
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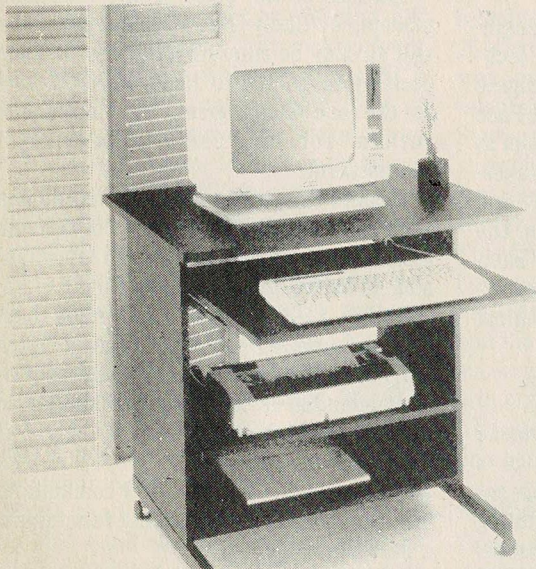
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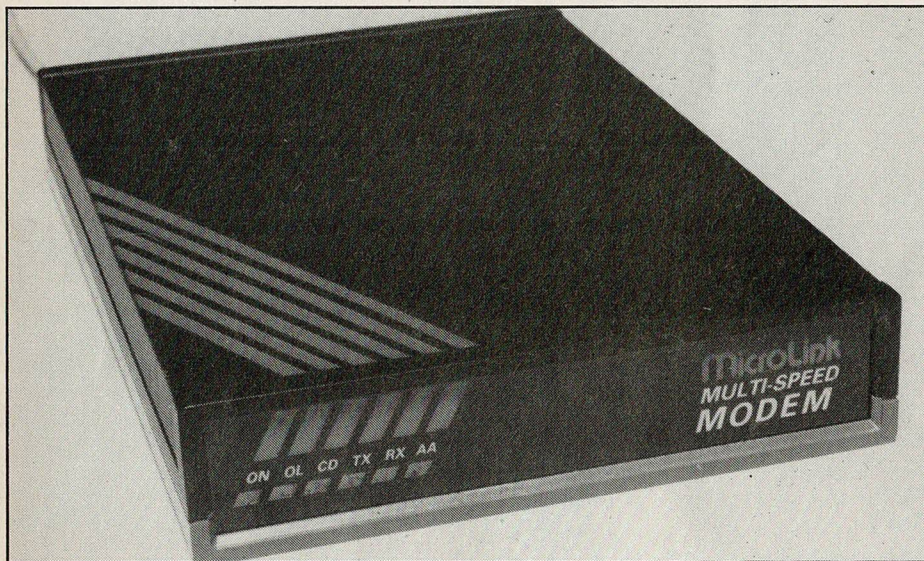
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A tale of two modems



With modem prices seemingly going through the floor, Steve Gold looks at two of the latest and cheapest high-speed modems on the market.

Modem prices have been falling for the last year or so, with the effect that many previously expensive high-speed modems capable of 1,200/1,200 and 2,400/2,400 baud full-duplex have fallen below the psychological £200 barrier. Before we look at two recently released modems, many readers are probably asking why there is a constant move towards faster and faster communications. The answer, as with most things of this nature, is pricing. On-line databases and electronic mail networks charge for their services on the basis of time; the longer you remain connected to the service the more you pay. Add the fact that the British Telecom meter is clocking units all the time and it is not difficult to see why lower-speed modem users are migrating to the higher speeds as fast as modem prices are falling.

The two modems I have chosen to review are the recently launched MicroLink multi-speed modem and the Supra 2,400 modem. The former is designed and manufactured in the U.K. while the latter originates from the U.S. This fact, as we shall see, greatly influences the facilities available on each unit.

The MicroLink modem is badge-engineered for MicroLink by Pace Micro Technology of Bradford, whose modem pedigree stretches several years to the original Pace Nightingale. The most recent Pace claim to fame is the Linnet, a £139.95 Hayes-compatible unit capable of 300/300 and 1,200/75 baud. A version of the Linnet, the Linnet V22, capable of 1,200/1,200 baud full-duplex is in the works, with a provisional price of more than the psychological £200 mark.

Financial muscle

As readers will probably have guessed the MicroLink multi-speed modem is a badged version of the forthcoming Linnet V22 unit. The difference is in the bundling and its price, £169 including VAT, substantially less than the forthcoming Linnet V22 model. Not that corners have been cut nor the modem cheaply-assembled. It is merely because MicroLink has exercised its financial muscle and is using the multi-speed modem to market its own electronic mail service.

As communications users can scarcely have failed to notice, MicroLink offers all

the facilities of the Telecom Gold network but with a much lower price structure. The MicroLink's pay-as-you-go service costs between 20 and 30 per cent less than the comparable e-mail facilities on Telecom Gold.

MicroLink is looking to the multi-speed modem to boost its already high subscription base. Included in the £169 price tag is a free subscription to MicroLink, worth £5 and the first month's usage free of on-line charges. This deal, provided the user wants a subscription to MicroLink, is worth at least £8 plus VAT.

Good value

Also included within the MicroLink multi-speed modem's price are all the cables required to link the modem to a computer, as well as software for a variety of micros, including the Amstrad PC and BBC Model B, B+ and Master. More software packages for other micros are planned. Even if your micro is not catered for in the software stakes, the modem bundle still offers good value.

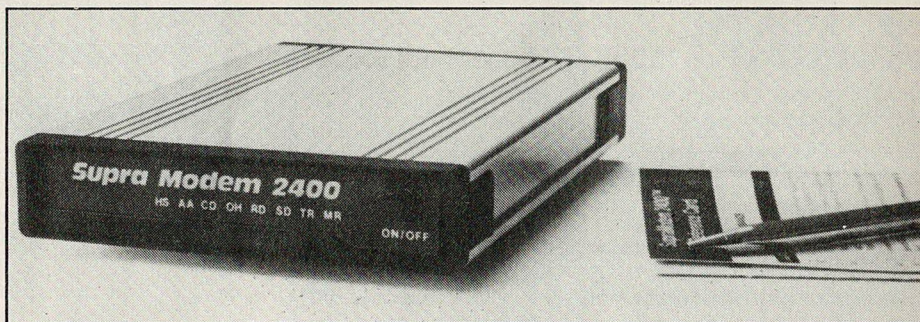
Because of the price of the MicroLink modem, it's likely that a typical purchaser will already be running a low-cost modem, possibly restricted to 1,200/75 baud, such as the one being given by Micronet in return for a year's subscription commitment.

Despite this, the software bundling deal adds considerably to the nett worth of the modem to its owner. In use, the MicroLink modem behaves as you might expect of any 300/300, 1,200/75 and 1,200/1,200 baud Hayes-compatible modem. Several internally software-driven extra facilities have been included as standard, including automatic speed-buffering - even when operating in reverse Prestel, i.e., 75/1,200 baud and an optional dialling suffix command to lock the modem speed-seeking functions to a particular baud rate.

Most Hayes-compatible modem users in the U.K. find that the speed-seeking feature of a new modem is more of a headache than an advantage. Listening to two speed-seeking modems trying to lock on to each other's carrier is about as interesting and productive as watching a £5 note burn in an ashtray.

In practice, it is a simple matter to issue

● Far left: MicroLink multi-speed modem, right: Supra modem 2400.



a dialling suffix - e.g., ATD 618 + 75 - to lock the modem speed-seeking functions on to 1,200/75 baud carrier only. A similar suffix of +12 indicates that reverse Prestel modem speeds - 1,200 baud TX, 75 baud RX - are required.

I have two criticisms of the MicroLink modem, both of which have been communicated to MicroLink. The first involves the inability to accept a pulse dial string followed by a tone dial string. This could prove problematic if you are using the unit on an old pulse-dialling PABX and dialling through a tone-only System X telephone exchange. This feature or lack of it also proved a headache when using the Mercury telephone network to reduce on-line costs. I gather that MicroLink is considering changing the software to accommodate such usage.

To be fair to MicroLink, the modem can accommodate a tone PABX string in prefix to a pulse-dialling string, as is normal for PABX out-dialling. The lack of the reverse option of pulse and then tone dialling is odd and almost certainly a software oversight.

The mains plug

The second complaint concerns the mains plug. In common with many other modems, the MicroLink mains plug doubles as an AC/DC transformer, feeding DC power to the modem. That makes for a bulky plug and one which may not fit a typical wall socket unless some form of adaptor is used to move the socket away from the wall. Again, to be fair to MicroLink, the problem afflicts other modems, including the Supra 2400 model, to a lesser or greater extent.

Cheap imported U.S. modems are not new. Previously, however, such modems have been limited to 1,200/1,200 baud or greater, because U.S. modems work to different standards when using 300/300 baud. In addition, they rarely offer 1,200/75 baud rates since Prestel is unavailable in North America.

While the Supra modem does not offer 1,200/75 baud it includes a software switch to enable full CCITT working at 300/300 baud. As an added bonus a software switch tweaks the dialling timing and modem frequencies to that of the U.K. and CCITT specifications. That is not to say that a U.S. modem will not work in the U.K. - merely that some U.S. modems can cause problems with slightly off-tune telephone lines. Normally, U.K.-originated modems

can accommodate such lines. U.S. modems are little less tolerant of such line conditions.

Miniaturisation

The Supra modem is much smaller than the MicroLink unit - less than half the footprint and a third of the weight. Internally, the modem is well-constructed, with miniaturisation of many components. Externally, the case is of a solid metal design. Like the MicroLink modem, the Supra unit features several status lamps on the front. There are eight on the Supra unit, compared to six on the MicroLink modem. That is due to the number of extra facilities seen on the Supra unit, including the 2,400/2,400 baud facility, albeit at the expense of the 1,200/75 baud facility.

Unusually for a budget modem, the Supra 2400 includes a simple on/off switch on its front fascia. It acts in a similar fashion to the software re-set button on most other modems, the MicroLink unit included. The rear of the Supra modem has the same array of inputs/outputs as the MicroLink and other budget modems - telephone in and out, power input, and a 25-way serial cable socket. A moulded 25-way serial cable and all relevant U.K. telephone cables are bundled with the Supra, making it a good all-round package.

Again, like the MicroLink, the Supra includes a free subscription to an on-line service in its £199.95 including VAT price. This time it is a \$25 starter kit to the giant CompuServe system in the U.S. which now has direct dial ports in London. The bundling deal also includes a one-hour free subscription to the Official Airline Guide, although users should watch for the rather high usage costs for this useful airline database.

Auto-answer

Technically, I liked the Supra 2400. It conforms closely to the true Hayes standard and, as such, can be operated with an auto-answer bulletin board system with a minimum of software tweaking. Such tweaking is normally required to accommodate the ubiquitous 1,200/75 baud rate used by Prestel and several U.K. on-line services.

No on-board number store is provided as

on the MicroLink unit, although the Supra software can remember the last telephone number dialled, even after the unit is powered down.

Aside from the aforementioned problems with combined plug/power supply units, which affect the Supra slightly less than the MicroLink unit, my only criticism is the lack of a 1,200/75 baud rate. Prestel is upgrading its dial-in port network to include 300/300, 1,200/1,200 and 2,400/2,400 baud rates.

The Vasscom system, as the Prestel multi-speed network is called, is available in London, Scotland and several major cities. It is not yet available in Sheffield. It will, says Prestel, be available "soon".

Both modems offer amazing value. The documentation for both is excellent and the inclusion of free offers and serial cables make them both compare very well to the competition. The MicroLink multi-speed modem is ideal for communications novices, as well as established users of modems generally. The inclusion of free software for a variety of micros will appeal to many potential buyers.

Compatibility

The Supra 2400 modem costs slightly more but offers true Hayes-compatibility, albeit at the sacrifice of 1,200/75 baud rates. No software is supplied but the free offers compensate for this to a certain extent.

I would recommend the MicroLink modem for beginners and middle-ranking comms enthusiasts. For middle-ranking and advanced enthusiasts, the advantage lies with the Supra 2400. Even if you buy both modems for the best of both worlds, you will still have change from the price of a comparable combined modem such as the Pace Series Four. □

The MicroLink modem, £169 including VAT. MicroLink, Europa House, Adlington Park, Adlington, Macclesfield SK10 5NP. Tel: 0625 878888.

The Supra 2400 modem, £199.95 including VAT. Frontier Software, PO Box 113, Harrogate HG2 0BE. Tel: 0423 67140.

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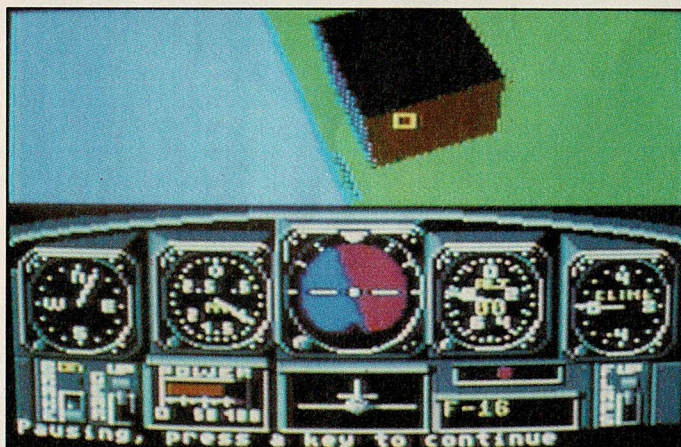
Chuck Yeager's AFT - C64

Have you got what it takes? Do you have the right stuff? If not then Electronic Arts have got a program for you. Yes, while the real men and women will be up there in the blue sky, the cowardly, and let's face it, less affluent (unless you want to make a career of it), will be down on terra firma looping the loop on their computers.

Chuck Yeager, obviously not satisfied with just a flight simulator, has returned as technical advisor and endorser of *CY's Advanced Flight Trainer*.

There are eight aeroplanes available to zip around in, ranging from the ancient Sopwith Camel to the ultra fast Lockheed SR-71. One aircraft even has a list of unknowns for its stats - it's for you to fill them in by putting the plane through its paces, pushing the technology to the limit, while avoiding making a nasty mess all over the countryside.

Scattered around the world of AFT, which is approximately 250 km square, are three airports and seven obstacle courses. Considering that actually flying to one of these obstacle courses would take anything up to 30



minutes' real time of just plodding along, there is the very handy option of being able to call up the location menu and transport yourself directly to the site - this is no *Flight Sim 2* for sure.

Once at a site it's really time to make sure you're not flying on a full stomach as you hurtle through things like three gates backed by brick walls, dodge through six closely packed pylons, and hold steady down a street lined by tall buildings.

If those acrobatics are not enough you can always go up, up, and black out by testing the ceiling rating of the plane.

The screen refresh rate is not particularly fast and the display

is animated in rather a chunky way. But the graphics are still pretty good for this type of program on a C64.

If you haven't the nerve to try it for real, then *Chuck Yeager's Advanced Flight Trainer* provides a relatively painless way of indulging in flying fantasies.

Reviewer: Duncan Evans

Price: £14.95/£19.95

Supplier: Electronic Arts

POPULAR RATING

Graphics: 18

Sonics: 14

Gameplay: 38

70

Time Fighter - C64

Long ago in the darkest mists of time... the people of the land were content with mediocre graphics, routine sound, and dodgy scrolling.

But that was years ago and though the plot to the CRL *Time Fighter* may drag you back in time, there is no need for the programmers to join in.

Well, when I say plot, that may be exaggerating somewhat. You are a time fighter, armed with weapons appropriate for that era, and have to plough your way through the indigenous population so that you can get on to the next section. Pretty deep stuff then.

To start with you are in prehistoric times. An ashen gray desolate landscape provides the lumpy scrolling backdrop for your mad sprint along to the end of the level. Armament is in the form of a knuckle sandwich and rocks. Throwing a rock once may be something you can do. Repeating the process with any accuracy or regularity is another matter entirely. Severe gritting of teeth and cursing in this section.

Moving on you will find yourself in mediaeval times, armed with a bow and arrow, running along the battlements of a castle. This is more like good fun, and is made all the more palatable by being the only section in which it is possible to duck underneath the enemy's missile weapons. The graphics are still sub-standard though.

And so the adventure leads on, through cowboys and indians, prohibition, subway New York, and finally into outer space.

A couple of the sections are markedly better than the others.

The animation of your warrior is excellent, but he is in monochrome, and *Impossible Mission* did that style years ago. There may be a lot of game there, but I for one have no desire to waste my time playing it.

Reviewer: Duncan Evans

Price: £9.95

Supplier: CRL

POPULAR RATING

Graphics: 9

Sonics: 8

Gameplay: 12

29



Your complete guide to all the software released this week

Amiga

Program *Mercenary Compendium Edition* Price £24.95 Supplier Novagen, 142 Alcester Road, Birmingham B13 8HS.

The classic *Mercenary* and the *Second City* data disc make a timely appearance on the Amiga, with graphics just as fast as the ST version, and the best sonics of any version.

Novagen have only done two Amiga games so far, both of which are excellent, so I look forward to some more releases, *Damocles* probably being next.

Amstrad CPC

Program *Nigel Mansell's Grand Prix* Price £9.99/£14.99 Supplier Martech, Martech House, Bay Terrace, Pevensey Bay, East Sussex BN24 6EE.

Even better than the Spectrum version which we reviewed some weeks ago. If you fancy a realistic driving game then go for this.

Program *Plasmatron* Price £9.99/£24.99 Supplier CRL, 9 King's Yard, Carpenter's Road, London E15 2HD.

Decent enough conversion of a space warfare arcade game. The graphics are good and it plays well, even if the excitement level never rises that high.

Atari ST

Program *Music Construction Set* Price £24.95 Supplier Electronic Arts, Langley Business Centre, 11/49 Station Road, Langley, Berks.

ST version of Amiga music program that sounds awful coming out of the monitor, so thank goodness for MIDI.

Program *Scruples* Price £19.95 Supplier Virgin Games, 2-4 Vernon Yard, Portobello Road, London W11 2DX.

continued on page 16 ▶

Software guide continued

◀ continued from page 15

Atari ST

Probably the best version of the computerised boardgame. The graphics are relatively unimportant, but the programmers have done a good job on them anyway.

Program *Ultima IV: Quest of the Avatar* **Price** £24.95 **Supplier** Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 8DA.

The ST graphics and sound make this the best implementation of the series, but it really represents the past of role playing games, with *Dungeon Master* being the product of the future.

Commodore 64

Program *Black Lamp* **Price** £9.95 **Supplier** Firebird, 64-76 New Oxford Street, London WC1A 1PS.

Substantially better than last week's feeble Spectrum version, but this game is only really going to be outstanding on the ST and Amiga.

Program *Professional BMX Simulator* **Price** £4.95 **Supplier** Codemasters, 1 Beaumont Business Centre, Beaumont Close, Banbury, Oxon OX16 7RT.

Four players simultaneously, fifteen courses, more excitement, more money please. If you want more of the same then you're not going to be disappointed.

Program *Werewolf* **Price** £9.99 **Supplier** CRL, 9 King's Yard, Carpenter's Road, London EC15 2HD.

Another splatter adventure in which you get to play a gentleman with large teeth and hairier eyebrows than Denis Healey, and at one point the young maiden he takes a liking to.

Program *Championship Sprint* **Price** £9.95/£14.95 **Supplier** Electric Dreams, Terminus House, Terminus Terrace, Southampton, Hampshire SO1 1FE.

We're getting there. Miles better than the dismal Speccy version, and quite a good game. Roll on the ST version.

Magnetron - Spectrum

Do you remember the brilliant *Quazatron* released a couple of years ago and written by Steve Turner? Well, Firebird has just produced the follow-up, with *Magnetron*. *Quazatron* was inspired by the fantastic *Marble Madness* in that it was a continuous scrolling game. This time, Turner has opted for single-

screen action. Once again, KLP-2 is the hero of the game. Around the planet Quarteck are eight droid-controlled satellites which provide power for large destructor beam weapons. The weapons provide a threat to the entire world.

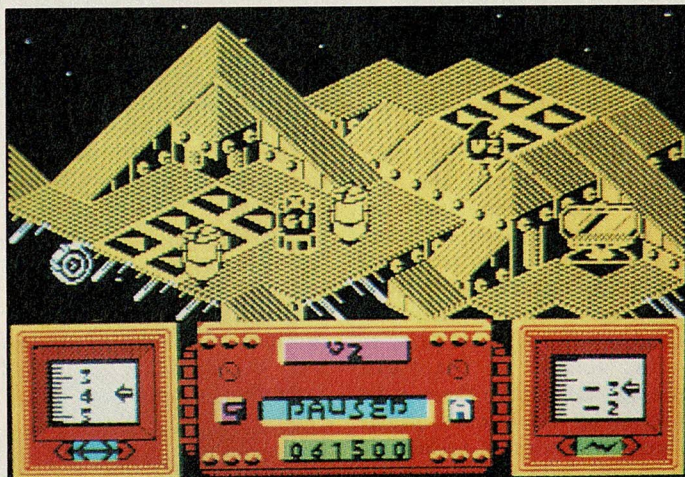
As KLP-2 you must deactivate the four reactors on each of the eight orbiting stations.

While the game bears a pass-

ing resemblance there are some added extras. There is a grapple facility, which means KLP-2 can use the enemy parts to construct a replica of himself with the abilities of the dismantled droid.

KLP-2 can also hack into computer systems and gain access to information which contains details of the four reactors, KLP-2's current position, the station droids and the weapons and systems they can get at.

Once again Turner has delivered the goods and come up with a totally addictive game and one which is a sheer pleasure to play. Firebird should count itself lucky it has Graftgold on its side now. All I want to know is when will KLP-2 re-appear again?



Reviewer: Leslie Bunder

Price: £8.95

Supplier: Firebird

POPULAR RATING

Graphics: 20

Sonics: 15

Gameplay: 35

70

IO - C64

I like *Nemesis*-type games. Good job for Firebird then, because one of its latest releases, *IO*, is just that. Horizontally scrolling blasting with vegetation and surface rock formations leering from the edges of the screen, over a scrolling starfield.

It all starts with a large mother ship skimming along dropping your fighter into alien space. Problems start immediately, with bubbles just as deadly as those from *The Prisoner*, whirling in from the right. While you're trying to deal with those, a couple of defence emplacements are popping shots at you

from below and above. This is fact one of the few complaints against *IO*, it starts off difficult and gets harder. Sliding bases, rabid alien fighters, and the ever present threat of a fatal encounter with the scenery make this game one for hardened shoot-'em-up addicts only.

Thankfully, there are extra weapons that can be added to your ship, but they don't come thick or fast enough.

Blast away at a green disc, which is located far too close to the ground or ceiling for comfort most of the time, and it turns into a gun which doubles firepower. Do it again and triple your firepower. Now we are starting

to get somewhere, more so when the next extra comes along. This is in the form of a pod which is just like those you can collect in Mastertronic's *Xenon*, and provides additional supporting firepower.

David Whittaker's music on the title page bears an uncanny resemblance to the tune that plinks along in *Xenon*. Hey, what a surprise, DW did the music for that game as well.

Assuming you manage to live long enough to tool your ship up to serious backside kicking standard, you'll need it when you see what Firebird has placed on the end of each level.

A huge enemy emplacement that spits death continuously while you duck and dodge around, trying to find the shot to nail it in the vitals.

If you're looking for a real challenge then *IO* is the game for you, but this weary hack found it just a little too difficult from the start.



Reviewer: Duncan Evans

Price: £8.95/£14.95

Supplier: Firebird

POPULAR RATING

Graphics: 17

Sonics: 16

Gameplay: 28

61

Sidewinder - Amiga

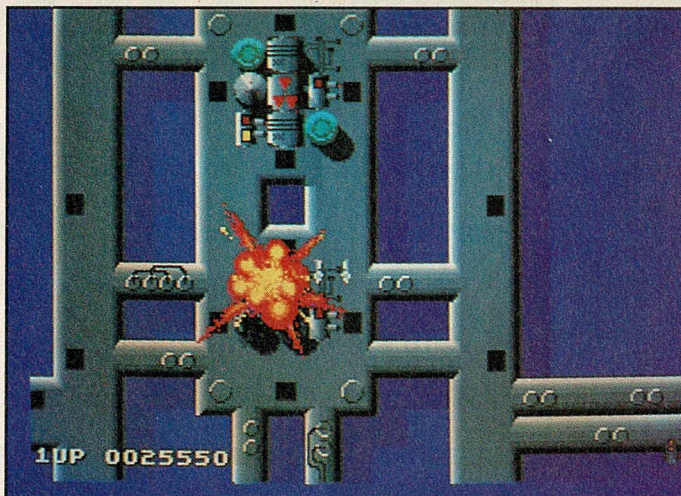
When the plot to Mastertronic's latest Arcadia game converted for home use starts on about giant space fleets locked in a fight to the death, an alien Star Killer ship the size of a planet, and the need for a suicidal volunteer mission to penetrate to the very heart of the ship in a small, one-man fighter, you can tell that it's time to disengage the brain and set up the adrenalin drip.

After entering through the waste water vent (who cares about logic), the first exercise in wholesale destruction takes place in the water distribution level. At the end of this a pair of gates must be carefully navigated to avoid an early demise.

There are five further levels to make mayhem in, and include the hydroponics, residential, flight deck, command level, and finally the control level which needs to be completely blown away to destroy the Star Killer.

The graphics take up the entire screen, whatever the level, which is great to see, especially as the scrolling is wonderfully smooth, there's plenty of alien sprites to nobble, and the surface is literally chock-a-block with destroyable objects.

With nose-splitting explosions,



and rattling good sonics, this is arcade quality action. When things like command posts, oil drums, and ground troops are firing and being destroyed in turn the effect is sweaty palms and maximum excitement.

As well as scrolling downwards, the screen also has limited lateral movement, a la *Flying Shark*.

Just when the going gets too tough though, the tough get hold of the lettered boxes which infrequently appear and impart such useful ship additions as rapid fire, power shots, invulnerability, and hover which stops the

scrolling so that you can get at otherwise inaccessible targets. *Xenon* was the first page in the book of new shoot-'em-ups, now be prepared to turn to a new chapter altogether and witness a blindingly brilliant pure arcade experience.

Reviewer: Duncan Evans

Price: £9.95

Supplier: Mastertronic

POPULAR RATING

Graphics: 21

Sonics: 18

Gameplay: 43

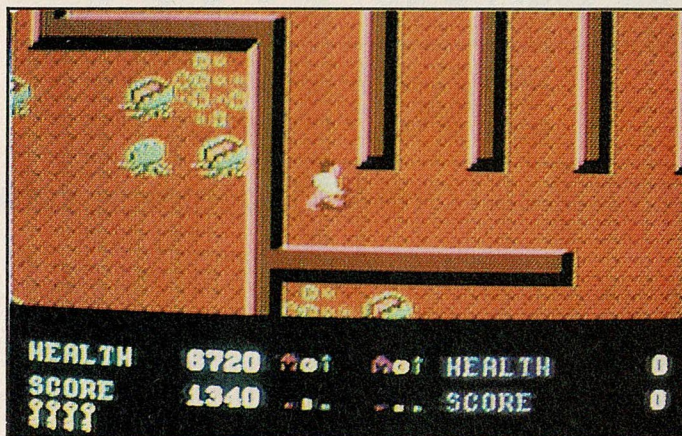
82

Demon Stalkers - CBM 64

Demon Stalkers is a new release from Electronic Arts and can be described loosely as a *Gauntlet* variant. According to legend, in the old days the land was green and bountiful. The realm was ruled by a powerful order of mages who lived in the marble vaults. They were led by Arthur, who created a peaceful environment to live in. Magicians came from miles away to learn the secrets of the mages.

Arthur designed the marble vaults and each vault was more amazing and complex than the previous one. Arthur thought the last maze level 100 would be the best but one day a mage struck his pick into a stone which gave way and a cavern lay beyond which contained an evil presence. The mages had unleashed a horrible and evil demon called Calvak.

War was now in order between Arthur and Calvak but Arthur did not win the war. As a Demon Stalker it is your role to seek out Calvak and destroy him and res-



tores the marble vaults to their former beauty. What a plot - it is a pity it was not transformed into the game. The scrolling is the worst seen in recent times for the Commodore 64 and as for the sound, where is it and what is it supposed to be?

What is amazing is the screenshots included in the packaging.

It looks pleasant and I was looking forward to playing the game but on loading I was shocked that Electronic Arts could allow

Demon Stalkers to be released. If you really want a *Gauntlet*-style game it is better to stick with the original from U.S. Gold.

Reviewer: Leslie Bunder

Price: £9.95/£14.95

Supplier: Electronic Arts

POPULAR RATING

Graphics: 5

Sonics: 4

Gameplay: 5

14

Software guide continued

IBM PC

Program *Academy* Price £19.95
Supplier CRL, 9 King's Yard, Carpenter's Road, London E15 2HD.

Sequel to *Tau Ceti*, one of CRL's biggest and best games. The graphical simplicity that is inherent in all the version looks less out of place here than on say the ST version.

Program *Moebis* Price £24.85
Supplier Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 8DA.

Perfectly at home on the PC, this oriental role playing has one or two novel twists beneath its stereotyped exterior.

Program *Bill Budge Pinball Construction Set* Price £14.95
Supplier Electronic Arts, Langley Business Centre, 11/49 Station Road, Langley, Berks.

What more need I say. Slightly interesting way of constructing video pinball games.

Program *Universal Military Simulator* Price £24.95
Supplier Rainbird, 64-76 New Oxford Street, London WC2H.

Okay, so it isn't as fast or quite as pretty as the ST version, but if you have enough patience then this is a fabby program. If you don't have the patience then upgrade to an ST and get that version.

Spectrum

Program *Guild of Thieves* Price £15.95
Supplier Rainbird, 64-76 New Oxford Street, London WC2.

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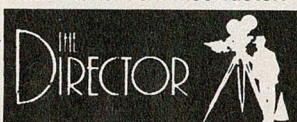
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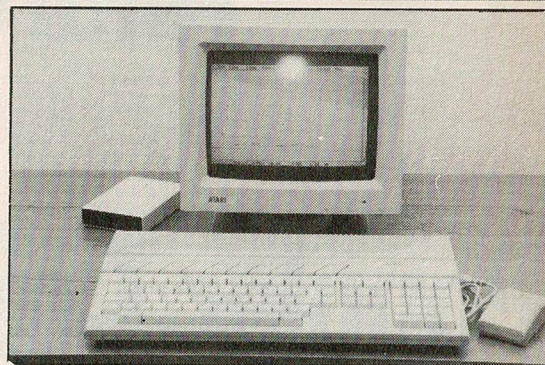
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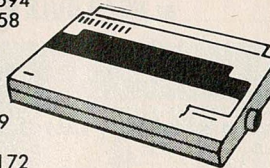
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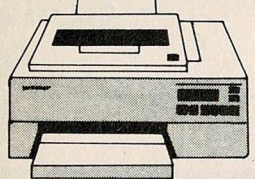
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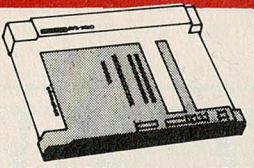
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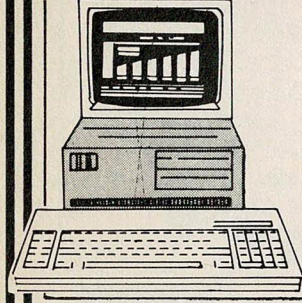
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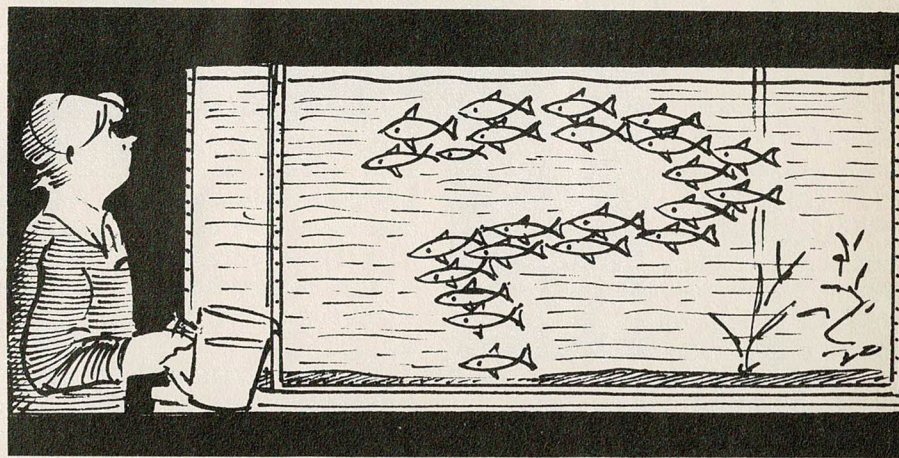
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Water in the works

An aquarium has been set up which holds exactly 10 litres of water. Evaporation results in the loss of one per cent of the total volume per day, so, to counter this, a jug, full to the brim with fresh water, is added at the end of every week.

After one year has elapsed it is found that to restore the volume to the original 10 litres, two jugs full of water need to be added. Clearly, the jug was slightly too small and so the cumulative effect resulted in an overall drop in the volume of the tank.

If this has happened for 52 weeks, can you determine the volume of water held by the jug?



PUZZLE SOLUTION

Solution to puzzle for 25 February–2 March

Answer: The smallest number of segments is nine in the number 121 – 11 times 11 – and the largest is 27 in the number 6888 – 82 times 84.

Solution: Each digit in the display is made up from a certain number of segments. The values are held originally in the DATA line, from where they can be read into the array D(). As a dimensioned array begins at subscript zero, D(0) can hold the number of segments in the display of a zero, D(1) holds the number in a '1', and so on up to D(9).

The program then uses two FOR/NEXT loops to test all possible products of numbers from 10 to 99. To prevent repeating a test for any given pair, for example, testing both 16 times 17 and 17 times 16,

the second loop starts counting from the present value of the first loop and not from 10.

Two variables are used – H and L – to keep a record of the current highest and lowest segment totals, the L variable being set initially to an artificially high value. Whenever either of the values in these variables is improved on, the variable is updated and the calculation which produced that result is printed-out.

For each pair of multipliers, the resulting product is first converted to a string variable. This variable is then scanned, digit by digit, and the corresponding value in the array is added to the running total to achieve a segment total each time. This is then compared to the current highest and lowest scores.

The required answers will be the last lowest and highest results respectively which are printed-out.

```
>
10 DIM D(9)
20 FOR N=0 TO 9
30 READ Z:D(N)=Z
40 NEXT
50 H=0:L=999999
60 FOR A=10 TO 99
70 FOR B=A TO 99
80 T=0
90 P=A*B:P$=STR$(P)
100 FOR F=1 TO LEN(P$)
110 V=VAL(MID$(P$,F,1))
120 T=T+D(V)
130 NEXT F
140 IF T>H THEN H=T:GOSUB 500
150 IF T<L THEN L=T:GOSUB 500
160 NEXT B:NEXT A
170 END
500 PRINT STR$(A);"*";STR$(B);"=";P$;" Segment sum=";STR$(T)
510 RETURN
1000 DATA 6,2,5,5,4,5,6,4,7,6
```

COMPETITION WINNERS

Here are the winners of the Road Wars competition:

N Gordon, Bilton; C Marron, Isleworth; I Chiles, Forest Hill; B Oates, Cambridge; C Best, Plymouth; M Pursey, Bournemouth; K

Wolstenholme, Manchester; A Thomson, Ilford; P Evans, Felixstowe; M Bryan, Halesowen; J Gill, Surrey; M Weatherill, Aylesbury; B Nix, Kettering; S Lee, Ramsey; J Shaw, Cheshire; K Dawson, Gedney

Drove End; T Lyall, Northumbria; I Levy, Pitsea; J Douglas, Blackpool; D Caesar, London N18; J Rose, Bognor Regis; C Richardson, Kent; C Hebberts, Halesowen; A May, Elgin; T Road, Salford.

Pounds per column inch

Peter Jackson reviews two word processing packages at different ends of the price scale and outlines their advantages.

Of all personal computer applications, word processing is the most personal. Ask 12 users which word processor is best and there may well be a dozen answers, since the choice of a word processor depends not only on the usual criteria of price, performance, features and suitability for the job on hand but also on individual preferences and prejudices.

Naturally the software industry has attempted to satisfy those individual needs with word processors tailored for home users, small business users, big business

users, lawyers, scientists and budding publishers, with prices set to match the prospective markets. Large corporations think nothing of spending \$500 on a single software package but home users would expect to get 10 for that price on a good day.

When the fundamentals of any word processing program are the same, involving text entry, editing and re-organisation followed by printing, how can the cost differences be justified? Is a high-priced package like *WordPerfect* really 10 times

more valuable than a low-priced one like *WordStar Express*? The answer is it depends on the user's application, the budget available, and on those intangible qualities of ease of use and transparency, the art of keeping out of the way while thoughts are transcribed onto screen and paper.

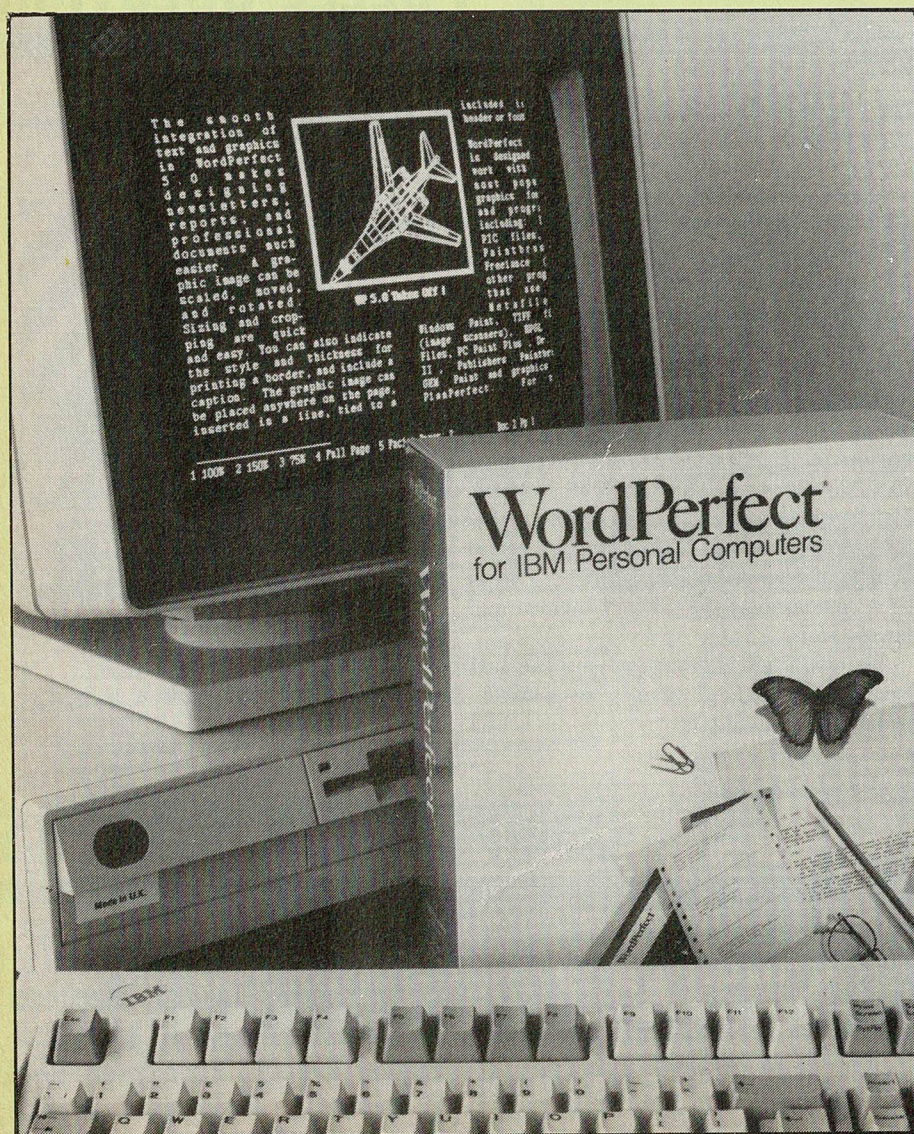
Taking *WordPerfect 4.2* and *WordStar Express* in their Amstrad-labelled incarnation as the opposite ends of the price spectrum, it is instructive to look at the marketing as well as their features. *WordPerfect* is the undisputed big seller among business users and sells to corporations because it includes every feature you might need and works exactly the same on a wide range of machines, from the Atari ST and the Amiga up to DEC VAX and Data General minicomputers.

First

WordStar Express, on the other hand, is sold as everybody's first word processor. There is no confusing plethora of features - just a collection of the most-used word processing functions made as easy to use as possible.

That marketing difference is clear from installation onwards. *WordPerfect* assumes the user is familiar with computers in general and MS-DOS in particular, while *WordStar Express* assumes nothing and starts by explaining, with a useful diagram, the differences between a monitor, a keyboard and a disc drive. *WordPerfect* lets users install the program as they wish, copying individual files into a specially-named hard disc directory, while *WordStar Express* tells them to run the install program provided and follow the instructions on the screen.

Most obvious of all, *WordStar Express* requires users to remember only three function keys F1 to get help, F2 to call up a menu of available options, and Escape to cancel the previous operation - while *WordPerfect* has 40 commands attached to the 10 PC function keys alone. Each function key has a different meaning depending on whether it is typed on its own or with any one of the Alt, Shift and Control keys held down and that ignores other *WordPerfect* key combinations such



WordPerfect: New version to be released in the Spring.

as Home-Home-DownArrow to move to the bottom of a file and Control-End to delete the remainder of the current text line.

That means gaining access to WordPerfect features requires users to make a considerable investment in learning time, while WordStar Express is a get-going-fast package with a much shorter feature list.

Missing

Looking at WordStar Express features it is difficult at first to see what is missing. It has a spelling checker which uses an 85,000-word British dictionary, direct support for hundreds of printers including models costing 10 times the price of the Amstrad PC, a linked mailing list package which can act as a simple database and a set of pop-up utilities including address book, calculator, notepad, appointment reminder book and print-screen functions. That is sufficient to produce any type of document, including form letters, manuals, novels, invoices and the rest and it will even run on a single-drive PC.

WordPerfect, on the other hand, has all that plus an on-line thesaurus, on-screen display of multi-column documents, built-in mathematical functions to calculate totals in tables - say an outliner to produce structured documents - line-drawing functions to produce boxes and borders, automatic generation of tables, contents lists and indices, comprehensive footnote handling, and macro handling which lets users perform repetitive editing tasks with a single keystroke.

Impressive list

That is an impressive list but it is fair to say that the majority of WordPerfect users will never find the occasion to use most of those advanced features and will do the same kind of editing and mail-merge jobs WordStar Express is designed to do. Feature lists are satisfactory but confuse the issue when the features on the list are obscure and rarely if ever used in anger.

What is really at the heart of the comparison between WordStar Express and WordPerfect is nothing to do with the features. It involves the flexibility of the latter and number of user options in performing any task, from simplest letter to the most complex scientific document.

The Find command in WordStar Express looks for text strings and setting-up the Find to look for whole words only or for the correct combination of upper- and lower-case letters in a string has to be set using a global settings menu. In WordPerfect the search can be for text strings or text formatting commands such as bold, underline or tab stops, and it searches for exactly what is typed-in, including upper- and lower-case combinations. Leaving a

space before and after the text string to be found limits the search automatically to whole words only and the search can run forwards or backwards through the text.

Similarly, even something as simple as cursor movement shows the greater richness of WordPerfect options. In WordStar Express the cursor can be moved up and

perfect and retrieve it, or display its contents without loading it. All files in a directory can be searched for particular text strings and the names of matching files displayed. If that is not enough, WordPerfect allows a temporary exit to DOS for any further file operations; typing EXIT at the DOS prompt returns control to the word processor exactly where it left off.

None of this is intended to decry WordStar Express, which is a great improvement on its predecessor *WordStar 1512* and which has mailing list management functions which basically are easier to handle but inevitably less flexible than those in WordPerfect. The intention is to show that the two packages have differences

more fundamental than their prices, even if the really advanced features of the more expensive program are ignored.

Good job

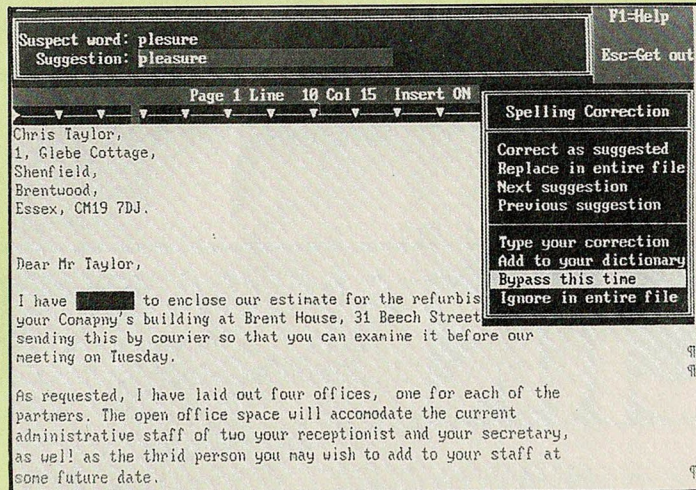
WordStar Express will do a good job on the straightforward tasks which form the bulk of word processing for most beginners. WordPerfect will do that, too, with some extra little features which may or may not be useful from time to time. Beginners will

“WordStar Express will do a good job on the straightforward tasks which form the bulk of word processing for most beginners. WordPerfect will do that, too, with some extra little features which may or may not be useful from time to time.”

not be beginners for ever and simple word processing tasks have a tendency to turn into more and more ambitious tasks as experience grows.

It is then that the depth of an expensive package will gradually be revealed, while the limitations of a cheap one will start to appear.

Put more simply, WordPerfect will do every conceivable job for the foreseeable future while WordStar Express will do only for now. □



WordStar Express.

down a line at a time, left or right a character at a time, to the left or right end of the current line, to the top or bottom of the current screen, or to the top or bottom of the current file. WordPerfect has all those and adds other commands to move the cursor to the boundaries of the page rather than the text area or move it by a specified number of characters in a line, lines in a page, or pages in a document. There is even a special GoTo command which allows immediate cursor movement to a specified character, page, or text column or to the beginning of a marked text block.

Gets you there

These two examples have been chosen deliberately, since text searching and cursor movement are two things every word processor user does frequently and two things which can be very frustrating if they do not do what you want them to as quickly as possible - if not faster. WordStar Express will get you there, but the flexible WordPerfect commands will get you there faster once you have figured the key combinations.

The same story could be told about almost all of the comparable functions in the two packages. Here is one more example: WordStar Express has file management utilities which let users copy, move, re-name or delete disc files without going to DOS. WordPerfect has file management utilities which can retrieve a selected file to the screen at the current cursor position, delete it, re-name it, print it, change its format from DOS to WordPer-

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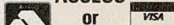
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J10	Magnum	12.95	10.99	J22	Tac 5	13.99	10.99
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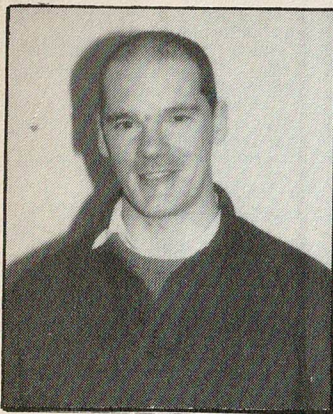
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Over-loader

John Burns, of Churchdown, Gloucester, writes:

Q I have a Spectrum+ 48K issue 2. Recently it stopped accepting programs greater than 16K. It does load into higher RAM but then hangs up or crashes. Programs below 32768 work perfectly.

An examination of the memory above 32767 reveals that what is poked in differs from what is peeked out.

I have written a program to test memory and have noticed that above 32767 bit 5 is not operating correctly.

Visual inspection of the circuit shows no shorts or open lines, particularly in the area of i/cs 23 to 26 and 15 to 22. The fact that the computer works perfectly below 32768 eliminates quite a lot of possible faults. The voltage/amplitude timing transistor TR3 seems to be missing on this board. The first item I suspected was i/c 25, a 2 to 1 quad data selector and luckily I was able to easily change this since it was socketed.

I still have the problem, however, and if you have a corner of your brain that is not already punch drunk with years of teaser solving, it would be very much appreciated if you could direct a few tips this way.

A It sounds like either the RAM chips (although it would have to be the whole block) or trouble with the connection from the processor to the RAM on the bit 5 line. I do not have a Spectrum of this type I can look at to see what it might be and I am not really an expert on Spectrum hardware. Perhaps one of our readers is able to help? If so,

please drop me a line with any suggestions.

Looking for a pig

Andrew McIntosh, of Halstead, Essex, writes:

Q There are two problems I am having with my MSX computer that I hope you will be able to help with. The first is about a book you recommended in Popular Vol. 6 No. 30. I know books are available from stockists by mail order, but I feel reluctant to buy a "Pig In A Poke". Therefore when you recommended "The Complete MSX Programmer's Guide" I decided to get a copy (easier said than done). Unfortunately, it seems to have gone out of print about a year ago. I have tried everywhere I can think of, but I have been unable to obtain a copy. Do you, or your readers, know where I can get one? Also, could you recommend other MSX books?

My second problem is on getting Basic programs to auto-run. I have listed a program (shown below) which works sometimes. I do not know why, but it seems to have something to do with what is on the screen before the program is run. Am I right? What can I do to correct it, or can you suggest something better?

```
5000 S=PEEK(624581)+
      PEEK(624591)*256
5010 POKE S,13:GOSUB 5080
5020 POKE S,82:GOSUB 5080
5030 POKE S,85:GOSUB 5080
5040 POKE S,78:GOSUB 5080
5050 POKE S,13:GOSUB 5080
5060 H=INT(S/256):
      L=S-H*256.POKE 624561,L:
      POKE 624571,H
5070 CLOAD
5080 IF A=645351 THEN
      S=644961 ELSE S=S+1
5090 RETURN
```

P.S. About the new photo at the top of your column - NO COMMENT.

A The book you mention is, or was, published by Melbourne House and since, as far as I know, the book publishing side of this concern no longer exists, I do not know where to suggest you will get one - perhaps our readers will know. Unfortunately, the other book I would recommend for the MSX, 'MSX Exposed' by Joe Pritchard, was also published by Melbourne House - again any help from the readers?

The auto run program appears

to work by poking the letters RUN followed by carriage return to the screen - at least I think it is the screen, it could be the keyboard buffer (the manual calls location F3FA (62458) GETPNT but I do not know what this means).

At a guess, you will need to clear the screen first and it is just possible that the first POKE i.e. POKE S, 13 should be POKE S,12 i.e. clear screen code - my MSX is not operational at the moment so I cannot try it.

Another, more obvious, solution is to save the Basic program in ASCII format with SAVE"filename" or SAVE"CAS.filename" and use LOAD"CAS.filename",R which will run the program once it has been loaded. The only drawback with this is that it will take longer and use more tape since ASCII files are longer.

By the way, all I can say about the photo is you can't see my feet.

Give us a clue

J T Cicero, of Wirral, Cheshire, writes:

Q I am in the middle of a crossword program. As you know a Spectrum+ only prints 32 columns on its screen.

How do I made the Spectrum print letters on 64 positions on the screen?

I want to put the clue on the screen beside the crossword but I am stuck for space.

The problem with the Spectrum is that it only has 256 pixels horizontally. This gives 32 columns since each character is made up from an 8x8 matrix. To get 64 characters across you would need to define a character set where each character is made up from only four pixels horizontally. In practice this means that each character can only be three pixels wide since there must be a space between each to make them readable.

For most of the alphabet this is all right but M, W, X, and Q cause problems - you would be better with six pixels across giving 42 characters horizontally.

The most obvious way to get 64 characters is to access the screen memory directly and poke the correct patterns onto the screen.

For example, take the letters A and C as 4x8 matrices (see fig. 1), to put the letters AC at the top left of the screen, use the following program:

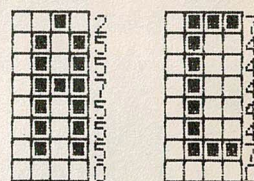
```
10 DIM A(8)
20 DIM C(8)
30 FOR T=1 TO 8
40 READ A(T)
50 NEXT T
60 FOR T=1 TO 8
70 READ C(T)
80 NEXT T
90 S=16384
100 FOR T=0 TO 7
110 POKE
      T*256+S,A(T+1)*16+C(T+1)
120 NEXT T
130 DATA 2,5,5,7,5,5,5,0
140 DATA 7,4,4,4,4,4,7,0
```

As you can see from this, it is not especially readable and you will have to resort to 6x8 characters. Putting these on screen is a little more complex since 6 into 8 gives a remainder of 2 - the solution is to put 4 6x8 characters into the space of 3 8x8 using the same method as the 4x8s.

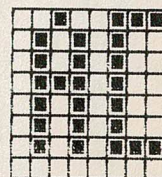
The best way of doing this is with a machine code program since bitwise AND and OR can be used - these do not work correctly in the Spectrum's appalling Basic (my own opinion).

What you need to do is mask out the bits you want to replace with characters using AND e.g. the top six bits can be set to zero by ANDING the byte with 252. Then OR the pattern into place and put it back on the screen.

Unfortunately this is rather hard to demonstrate from Basic, so all I can advise is to take up machine code programming and then follow the guidelines I have outlined.



Definitions of A & C



A & C on screen

Note A * 16

Fig. 1 - Spectrum 4x8 characters and how they go on screen.

Educator

John Witchard, of Chippenham, Wilts, writes:

Q I am intending to write a program for my children to help with their spelling and would like to know whether it is possible to use the C64's data cassette as an audio tape player to get sounds through the TV's speaker.

Also, what POKES are used to start and stop the data cassette within the program.

A I'm afraid I do not know of a method of getting the C64's data cassette to play ordinary sound through the TV's speaker. The problem is that although it is possible to play external sound through the 64's SID chip, connecting the cassette player to this input and to the normal data input is rather complex since the signals do not, as far as I know, match.

A simpler solution would be to use the 64's user port to control an ordinary cassette player and just use the data cassette for program input. Fig. 1 shows the connections you would need to make to the

cassette player and the user port.

Controlling the 64's data cassette is done with the following POKES:

If a key is pressed i.e. play:
POKE 192,1:POKE 1,PEEK(1) OR
32 turns the motor off
POKE 1,PEEK(1) AND 31 turns it on again

To see whether one of the cassette keys is down:

IF (PEEK(1) AND 16)=0 THEN
PRINT"The key is down"
If (PEEK(1) AND 16)=0 THEN
PRINT"The key is up"

For the other audio cassette player using the design in Fig. 1, the following components are available from Maplin Electronic Supplies, Box 3, Rayleigh, Essex S56 8LR (0702 554161).

Component	Maplin No.
Relay 5V single pole	
DIL reed	FX88V
2.5mm plug (the most common REM plug)	HF76H
C64 edge connector - 2 x 12 0-156in	BK74R
Wire - single core 1 metre	BL85G

The following short program shows how to turn the motor on and off.

```

10 REM SET UP USER PORT IN LINE 20
20 POKE 56579,1 : REM BIT 0 OUTPUT
30 POKE 56577,1 :REM EXT CASS ON
40 FOR T=0 TO 2000:NEXT T
50 POKE 56577,0:REM EXT CASS OFF
    
```

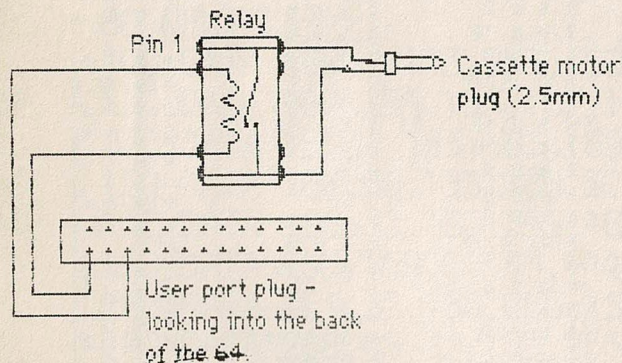


Fig. 1. - external cassette controller.

Restricting values

Philip Elwell, Morley, Derby, writes:

Q In Popular Computing Jan 21-27, Gerry Holmes asked for help after having difficulty with supervisor mode on

the ST. The problem lies with the fact that he has written 'super' as a subroutine.

As you probably know, when a subroutine is called the 68000 saves the address of the next instruction on the stack (normally the user stack). Switching to

supervisor mode causes the 68000 to use a separate stack and so, when it reaches the RTS instruction, the value on the top of the stack is no longer the return address.

This value is more likely to point to a restricted or non-existent area of memory producing the two bombs.

As a rule, if a subroutine enters supervisor mode, do not exit it until in user mode again - unless you feel confident enough to read the value off the old stack, pointed to by DO.

Can you recommend a good book about the ST's interrupt structure, interfaces and timers, etc?

A I am afraid that you are wrong about the supervisor stack on exit from a call to the GEMDOS \$20 super call.

When using a subroutine to put the machine into supervisor mode, as you say at the BSR, the return address is placed on the user stack and the subroutine is executed.

If this then performs a GEMDOS \$20 call, the supervisor stack pointer is set to the current value of the user stack so that the return address is exactly where it was before and RTS operates correctly.

It is true that supervisor mode uses a separate stack but in the case of the GEMDOS super call, this is placed on top of the user stack, if (and only if) zero.1 is placed on the stack as the argument to the command i.e.

```

CLR.L -(SP) * This zero.1 means
super mode on top of
MOVE #0, -(SP) * the user stack.
TRAP #1
ADDQ.L #6, SP
    
```

If a value other than zero is used, this is taken to be the location of the new supervisor stack base.

To get out of supervisor mode the old value of the super stack is used as the argument to GEMDOS \$20 which returns the super stack to its old position and, as long as all the BSR/JSR/TRAP/interrupt commands have the appropriate RTS/RTES, then the resulting stack is the old position of the user stack.

The GEMDOS \$20 routine keeps track of the number of times it has been called and on the last call returns to user mode and replaces the super stack pointer with the original, as long as the correct value, i.e. the old super stack

pointer, has been used as an argument.

The upshot of all this is that the super call can be used in a subroutine and for the reasons mentioned above, obtains the correct return address.

The super call can also be used to move the supervisor stack pointer after the machine has been put into supervisor mode but care should be taken in using it from this since it is possible to get the stack pointer mixed up.

The best rule to follow is to put the program into super mode at the beginning and take it out at the end. If you want to move the stack pointer around in between, simply move values to and from A7 remembering to keep all stack accesses even e.g. each BSR needs an RTS.

I am afraid I do not know of a 'good' book about interrupts, interfaces, timers etc.

I learned all I know from the Anatomy of the Atari ST from first publishing, but to say this is a good book on these subjects is rather hyperbolic - you will need to play around with the machine quite a bit to find out what is going on.

Through the gate

Duncan MacGlesham, of Orrell Park, Liverpool, writes:

Q I have been playing with my Popular Buggy for years and so I am very interested in your series on interfacing. I know what AND, OR etc gates are but, where and how do you get hold of them.

Could you please give me the addresses of mail order companies like Maplin and tell me how to get their catalogue?

A Maplin can be contacted on 0702-554161 or through P.O. Box 3, Rayleigh, Essex SS6 8LR. You can get a catalogue directly from them or from W H Smith.

The fastest way of obtaining components is to telephone your order in with a credit card and the goods are usually sent by return of post.

Since Maplin do not supply everything, quite, other addresses can be found through one of the many electronics specialist magazines and catalogues obtained from them as well.

Scale Print

Dr. Schaeprnanstr

This program makes it possible to draw any text of any size, anywhere on the screen. It uses the ScalePrintData file which contains all of the information about character shapes. The first part of

the program loads the characters into memory, the characters must be loaded again every time you start the program anew.

The second part is a little demonstration of how to use ScalePrint and the whole routine can be used with other programs by MERGEing it in. Note that when the routine has been merged, you must read the data from the disc with GOSUB

ReadCharData at the beginning of your program and the section called demo can be left out.

To enter the program, type in the ScalePrint program listing and save as ScalePrint and then NEW and type in the data - exactly as shown starting at ego esc in the listing. Save this as ScalePrintData and then reload the demo program and test it. □

```

*ScalePrint made in August 1987
* by T. Schotanus (The Netherlands)

Usage:
ScalePrint(Text$,Hstart,Vstart,Hscale,Vscale,Spacing,Color)

Text$ : Put text you want to print.
Hstart : Horizontal position in pixels.
Vstart : Vertical position in pixels.
Hscale : Width in pixels / 5.
Vscale : Height in pixels / 5.
Spacing : Space in pixels, between letters.
Color : Text is drawn in this color.

Demo:
First part : the demo
GOSUB ReadCharData Make everything ready for the
use of the ScalePrint routine.

t$="test !?/" Here starts the actual demonstration.
FOR t=1 TO 9
f=t-3*INT((t-1)/3)
a=20+t*10:b=20+t*10:c=2+t:d=2+e=2+l/3
ScalePrint t$,a,b,c,d,e,f
NEXT t

END

ReadCharData:
Second part : read font data
DIM Chars%(40,40)
OPEN "ScalePrintData" FOR INPUT AS 1
INPUT #1,n$
IF n$<>"ego est TS/ScaleP" THEN ERROR 53

FOR t=1 TO 40
p=1:a=0
WHILE a<>-1
INPUT #1,a
Chars%(t,p)=a
p=p+1
WEND
NEXT t

CLOSE
RETURN

Third part : the program itself
SUB ScalePrint(Text$,hpos,vpos,hscale,vscale,space,col) STATIC
SHARED Chars%(
x=hpos
y=vpos

FOR t=1 TO LEN(Text$)
a$=UCASE$(MID$(Text$,t,1))
GOSUB PrintChar
x=x+hscale*maxl+space
NEXT t

EXIT SUB

PrintChar:
a=-1
IF a$="" THEN RETURN
IF a$>="A" AND a$<="Z" THEN a=ASC(a$)-65
IF a$>="0" AND a$<="9" THEN a=ASC(a$)-22
p=INSTR("!/?",a$)
IF p>0 THEN a=35+p

IF a=-1 THEN RETURN

maxl=0:p=0

Pchar:
q=p*4+1
k=Chars%(a+1,q)/2
l=Chars%(a+1,q+1)/2

LINE (x+k*hscale,y+l*vscale)-(x+m*hscale,y+n*vscale),col,bf
GOTO Pchar

END SUB
    
```


Print binary

Kenn Garroch

When writing machine code programs on the ST, it is sometimes necessary to be able to check on various values that are being used in the program. This routine takes the 8-bit value in d4 and prints it out as a binary number. To get 16 or 32-bit numbers simply change the value placed in d5, at the start of the routine to #16 or #32 and alter the lsl.b to lsl.w or lsl.l. for 16 and 32 bits respectively. □

```

* Binary number print routine *
* place number to be printed *
* in d4 and bsr pbin          *

pbin    movem.l  d0-d5/a0-a1,-(sp)
        move    #8,d5          pbinz   move    #'0',d0
pbini   lsl.b   #1,d4          bra    pbinc
        bcc    pbinz
        move    #'1',d0       pchar   move    d0,-(sp)
pbinc   bsr    pchar          move    #2,-(sp)
        subq   #1,d5          trap    #1
        bne   pbini          addq.l  #4,sp
        move   #10,d0        rts
    
```

List Disc Directory

S J Massey

This short program will provide a directory listing of the disc without destroying the current Basic program. This is

quite useful in many ways, for example, you may have just written a program and want to store it on any empty disc. Using this program you can check the directories of a number of discs without upsetting the program.

The major advantage of the routine is that it is totally relocative, i.e., it can

reside virtually anywhere in memory. The start address is specified in the variable 5A - remember, however, that care should be taken when altering this variable in that the program will not work if it is accidentally written under a ROM.

To get the directory simply type SYS and then whatever value of SA was chosen. □

```

10 REM ***** LIST DISK DIRECTORY *****
20 REM CHANGE SA TO CHANGE START ADDRESS OF CODE
25 SA=9000
30 FOR LI=0 TO 13:CH=0
40 FOR I=0TO7:READVA:POKESA+(LI*8)+I,VA:CH=CH+VA:NEXTI
50 READEL:IFEL<>CHTHENPRINT"ERROR IN LINE";100+(LI*10):STOP
60 NEXT LI
100 DATA 169,0,133,253,169,36,133,251,1144
110 DATA 169,251,133,187,169,0,133,188,1230
120 DATA 169,1,133,183,169,8,133,186,982
130 DATA 169,96,133,185,32,213,243,165,1236
140 DATA 186,32,180,255,165,185,32,150,1185
150 DATA 255,169,0,133,144,160,3,132,996
160 DATA 251,32,165,255,133,252,164,144,1396
170 DATA 208,48,32,165,255,164,144,208,1224
180 DATA 41,164,251,136,208,233,166,252,1451
190 DATA 32,205,189,169,32,32,210,255,1124
200 DATA 32,165,255,166,144,208,19,170,1159
210 DATA 240,7,32,210,255,165,253,240,1402
220 DATA 239,169,13,32,210,255,160,2,1080
230 DATA 208,197,32,66,246,96,0,0,845
    
```

READY.

MICRO-FILE

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For the AMIGA MONTHLY MAGAZINE ON A DISK No. 20 MAR 88 Vol. 3, Issue 3

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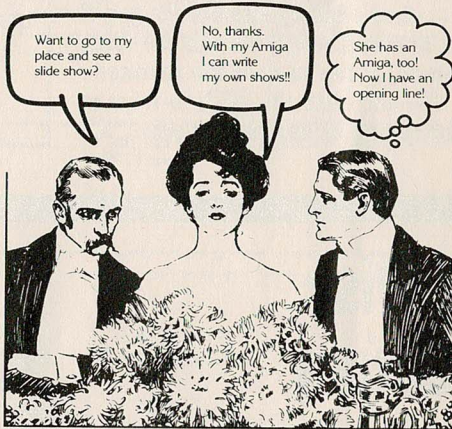
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See Reverse For Contents

Amiga® is a registered trademark of Commodore-Amiga Inc.

This month sees the arrival of a program that will add a new dimension to your Amiga. At last it's possible to make a slide show of low res IFF pictures narrated by the synthesised Amiga voice. A working example of digitised pics taken at the recent AmiExpo at L.A. and presented by a cartoon character is included. JUMPDISK is available in the UK & Europe from: George Thompson Services, Dippen Lodge, Dippen Brodick, Arran, Scotland KA27 8RN. Tel: 077082 234. Please send a cheque or money order for £8.50 inc. VAT and P.&P. for immediate despatch. ● PUBLIC DOMAIN — Each month we list on these pages the contents of PD discs we have in stock for Amiga Computers. Full details of Fish discs 1-118 are included on the Fish Directory Disc, price £3 inc. Here are details of the latest releases:

FISH 119. MicroEMACS - V3.9e of D. Lawrence's variant of D. Conroy's microemacs. Update to version on Fish 93. Included, for the first time, is extensive documentation in machine readable form. Inc. source.

FISH 120. Amoeba - This clone of Space Invaders is one of the best freely redistributable games for the Amiga to date. **BackGammon** - A graphical Backgammon game. Inc. source. **Bankn** - A complete chequebook system. **EgyptianRun** - Cute little "road race + hazards" type game. **IconImage** - Replace an old icon image with a new image, without affecting icon type drawer data, etc.

FISH 121. BasicStrip - Helps to convert programs written in other forms of Basic to AmigaBASIC. **DataPlot** - Plotting program. **Plot** - 3D graphing program with sample output plots. **Stairs** - Demonstrates a musical illusion. **Uedit** - Nice editor. Has learn mode, a command language, menu customization and other user configurability and customizability features. **WBColors** - Changes the Workbench colours to a predetermined colour set.

FISH 122. Asteroids - Nicely done "blast the asteroids" type game. Unique feature is that all the images and sounds are replaceable by the end user. So instead of ships and rocks, you can have an Amiga against a horde of IBMPC's if you wish. **IF2Pcs** - An interactive puzzle program that takes any IFF file containing up to 16 colours, and breaks it up into squares to make a puzzle which can then be piece back together again. **Names** - Create and manage mailing lists. **Pr** - Utility to print listings in different formats. **PushOver** - A neat little board strategy game. Inc. source. **PuzzlePro** - Create a puzzle from an IFF picture, which the user can then piece back together again.

FISH 123. Arp - ARP stands for "AmigaDOS Replacement Project". Arp is an effort to replace the current DOS in a compatible fashion, so that current programs will continue to work. **Car** - This animation is one of Allen's entries to the Badge Killer Demo Contest.

FISH 124. Icons - Some sample animated icons. You might find just the icon for that refugee CLI program you've been meaning to make runnable from the WorkBench environment. **Tarot** - An AmigaBASIC program as an

environment. **Tarot** - An AmigaBASIC program as an exercise for learning BASIC.

FISH 125. ElGato - This animation is an entry to the Badge Killer Demo Contest.

FISH 126. Colour - A program to manipulate the colours of specific named screens. **Dance** - These two programs, "dancing polygons", are an entry to the B.K.D.C. They demonstrate the range of colours available on the Amiga. **HBHill** - This animation is another entry to the B.K.D.C. It is the first known animation that makes use of the Amiga's "Extra Half Brite" mode. **Iconify** - A subroutine that creates an icon on the Amiga screen that can be subsequently dragged around and double-clicked on. **OnlyAmiga** - This animation was an entry to the B.K.D.C.

Suplib - The support library needed to rebuild various programs of the author from the source, including DME, DTERM, etc. **VCheck** - V1.2 of virus detection program. This version will test for the presence of a virus in memory, or on specific discs.

FISH 127. Bounce - Entry to B.K.D.C. **Nemesis** - Won fifth place in B.K.D.C. **Ripples** - Entry to B.K.D.C. Unlike most other animations, it shows a fixed object from a moving point of view, rather than a moving object from a fixed point of view.

FISH 128. Dis - A 68000 disassembler, written in 68000 assembler. Inc. source. **DropCloth** - Lets you place a pattern, a 2 bitplane IFF image or a combination of a pattern and image, into the WorkBench backdrop. **LedClock** - Extremely simple clock program, for interlaced screens only. Inc. source. **MRBackUp** - A hard disc backup utility that does a file by file copy of standard AmigaDOS floppy discs. Includes an intuition interface and file compression. V1.3, inc. source. **Paint** - Simple screen painting program, written in web. **PrtDriver** - A printer driver for the Toshiba "3-in-1" printer in its Qume (best) mode. **SDBackUp** - A hard disc backup utility. CLI interface only. Does file compression. **Sed** - A clone of the Unix sed (Stream Editor) program. **wKeys** - A "hot-keys" program that binds keyboard function keys to

window manipulation functions.

AMICUS 24. Moose - A talking Moose! **BMon** - System monitor. **QuickFlix** - Slideshow program. **Daisy** - Example of using translator device. **BoingMachine** - Ray-traced animation of perpetual motion Boing machine. **Monolace** - Resets colours of Preferences. **BNTools** - Three examples of assembly lang. code. **Amibug** - W/B Hack. **CodeDemo** - Converts assembler object files to inline code statements. **Iconize** - Convert IFF brushes to W/B icons. **Sectorama** - Disc sector editor. Recovers files from trashed hard disc. **DGCS** - Stands for Deluxe Grocery Construction Set! **Virus Check** - V2.12, now checks discs and memory.

AMICUS 25. Nemesis - Excellent demo with music. **KickPlay** - For those that want to hack the A1000 K/S disc. **KeyBird** - Edit keymaps. **8ColorWB** - Colour up those icons. **BrushIcon** - Converts brushes to icons. **Egraph** - Graphing program. **Keep1.1** - Save online messages to another file. **Kill.fastdir** - Speed up directory access. **LaceWB** - Go between interface and non-interface without rebooting. **Dodge** - Occasionally moves the W/B screen around. **Softballstats** - Looks after team records. **Mlist** - Mailing list database. **Snow** - Make snowflake designs. **DiskWipe** - Fast remover of files. **Guru** - Prints probable causes of those infuriating messages. **PW.Utility** - For ProWriters users.

AMCUS 26. ImageMaker - Edits C image structures. **Claz2** - Useful for printing IFF images on a laser printer. **SDBackup** - Hard disc backup with compression. **TCB** - Prints inf about processes/tasks in the system. **FunBut** - Use function key instead of left mouse button. **DC** - Switch drive by clicking an icon utility, for 5.1/5.25 inch drive users. **SystemConfig** - View Scribble in 80 col text. **DicktoRam** - Move Scribble dictionary to and from RAM. **Lexical** - Analyzes a text file. **HexDump** - Display memory locations in hexadecimal. **Tartan** - Design tartans. **DirMaster** - Catalogue discs. **BMP** - Plays sampled sounds as a background task. **ShowPT** - Changes your pointer to another, includes a collection of them.

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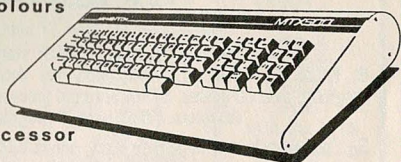
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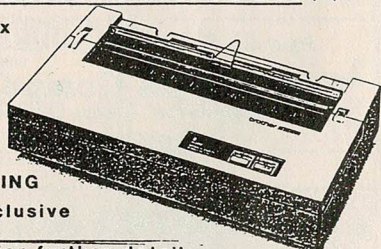


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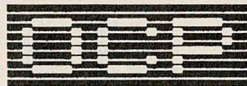
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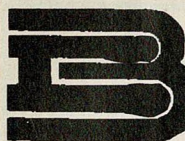
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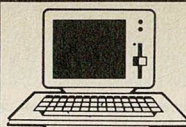
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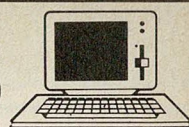
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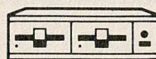
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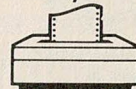


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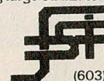
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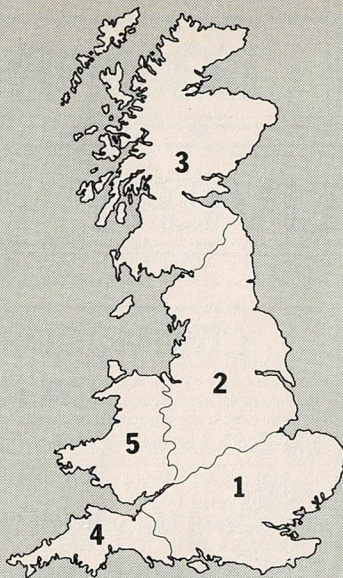
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Cheap and cheerful

So, the time had come, in the words of Ford Prefect, to swallow my pride and join the human race. I'd grown over the last six months increasingly tired of the prehistoric monster I'd built back in '86, which at the time had been a big improvement on my first machine (anyone out there remember Tangerine?) but was rapidly showing its age.

I decided I wanted something more, more memory, more speed, more power, and possibly above all, something which wasn't lost in computing's backwaters.

Well, I looked at what I could possibly afford, and having established an upper spending limit, I looked for what was available. This left me with three possible choices, either an Atari ST, a Commodore Amiga A500, or some cheap PC clone.

I looked around, eventually writing in to this august publication, to try to find a DIY PC clone, in the hope that I could then get one made cheaper than anything 'off the shelf', but this didn't really work out (despite having my *nom de plume* mentioned three times in this magazine), and the recent article only confirmed those suspicions.

Basically, I couldn't afford a PC clone I liked, and I didn't much like any of the ones I could afford, and, all things considered, decided that a 68000 processor would make for a logical step up from a 6809 processor, despite PC clones being far more like the sort of things I was used to, with their system bus for plug in add-ons, and good old-fashioned DOS command lines. I despised the Amstrad PC's for their monitor fixation, which would have practically prevented me from getting a simple

display to begin with and upgrading it as money provided, and was really thinking that with the coming(?) of OS/2, within a few years any 8088 based machine might joint the dinosaurs, the only PC clone really worth the buying would be at least a 286, the cheapest of which is still a long way above my spending limit.

So that left me with a choice of two, an Atari ST, or an Amiga A500. Which was it to be? I rapidly jettisoned the idea of the 520STFM, for its meagre 360K disc capacity, which really is a bit of a joke.

And what of the Amiga? Well, I considered it, on the grounds of its seemingly superior technical merit, large disc capacity, and general state of the artness, then considered it overpriced for what it was. I also considered the necessity of buying an expensive colour monitor, which the way graphic resolution is going would be obsolete in a few years time, and reflected that with an ST I would quite happily settle for the hi-res mono monitor, for word-processing, DTP purposes, and use a plain colour portable for 'playing about'.

And so, after also considering when I actually wanted to get this new machine, I finally plumped for a compromise. I purchased an Atari 520STM, with separate double-sided disc drive. It may be messy, wires everywhere and two big black boxes on the floor, but it was cheap and fulfilled my need for a decent disc capacity.

This is where the culture shock comes in. Although quickly adapting to the idea of all this mousing about, I still have to admit that these trendy 'user interfaces' can't compete with a good old-fashioned command line, and in blacker moments

consider that whoever thought up the whole stupid idea ought to be shot . . . !

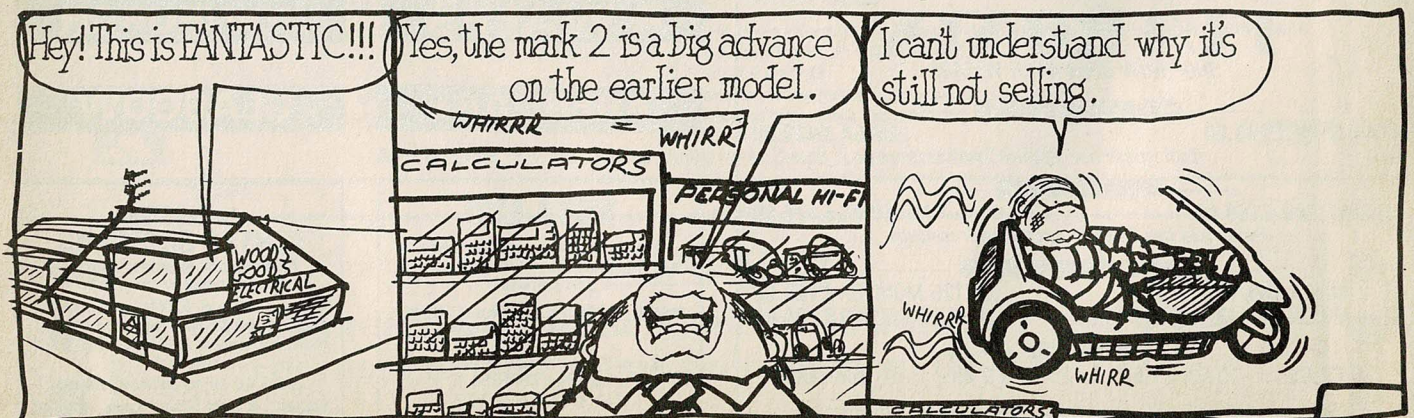
I also find myself very annoyed at the fact that the ST manual gives no information whatsoever regarding the operating system, thus necessitating for serious programmers the purchase of several books on the ins and outs of GEM. I believe any computer manual ought to provide the purchaser with every last piece of information, every last address in the jump table, every last system variable, everything. Anything less is only ripping off the customer who then, having already splashed out large sums of money on a machine, has to spend more to find out the information which he/she should have been provided with in the first place.

I now intend to annoy all Atari ST owners by stating irrefutable fact. The Atari ST is not the best small computer going, it leaves much to be desired, both in its use, packaging, and documentation. Just to keep things balanced, the Amiga also leaves much to be desired, and is still, at the cheapest prices seen, overpriced.

So here we come to the crux of this article, and advice to anyone considering plunging in for a new machine. Let me tell you why I chose what I chose. First, it was cheap, secondly, it fulfilled my requirements, and thirdly, it was capable of what I wanted to be able to do. That is what *really* counts. Don't let yourself be seduced by technical jargon and advertisers' blurbs. Trust the manufacturers about as far as you can spit out a rat, and whenever possible try to get what suits you, not what suits them . . .

Anthony Shepherd

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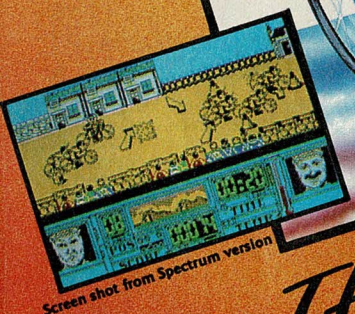
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