# POPULAR COMPUTING WEEKLY

A FOCUS MAGAZINES PUBLICATION

June 16–22 1988 70p


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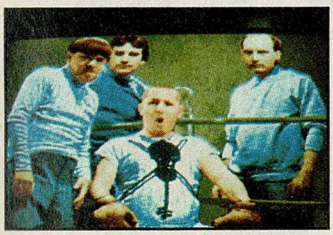


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## Next Week

# ST games achieve all time record sales

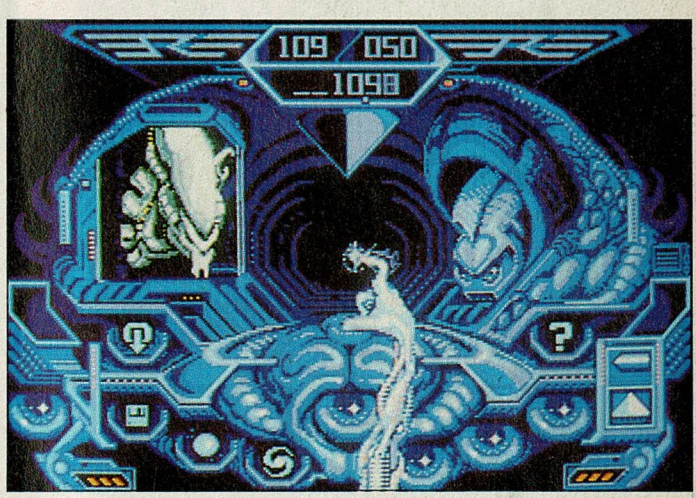
THE 16-bit full-price software market seems to be developing almost solely on the back of the Atari ST. Market researcher Gallup has reported that ST games have recorded their highest ever sales. In one week, ST titles accounted for 6.2 percent of all games sold and the ST share of the games market by value reached 20 percent – ahead of the C64 at 18 percent and the Amstrad CPCs at 14.2 percent. Spectrum games lead the market with a 32 percent share.

ST titles which are currently riding high in the charts are *Out Run, Captain Blood, Buggy Boy, Dungeon Master* and *Carrier Command.*

Evidence of the ST strength in 16-bit software can be found by looking at February figures, which gave 16-bit games a 19 percent share of the market; this includes the ST, Amiga and the PC. Now, the ST alone is accounting for 20 percent of the market.

In the past, ST chart successes have been attributed to one or two titles selling well in isolation, whereas there are now five titles hovering in the Gallup Top 30: "*Gauntlet 2* from U.S. Gold shows that *Out Run* is not the only ST title capable of reaching the top," says Gallup.

The Amiga A500 price reduction is not expected to filter through to software sales "for at least two months", according to Matt Browne, software researcher for Gallup.




Captain Blood – riding high in the charts.

# Micronet sparks row

MICRONET, the Prestel database service for microcomputer users, is increasing its charges in July. As the letters page in this issue testifies, Micronet subscribers are up in arms and the rival service Compunet is making great commercial play of it.

From July, the Prestel previously free service after 6pm will be charged at the rate of one penny per minute and the peak charge of six pence a minute rises to seven pence. After midnight the service remains free but quarterly subscriptions rise 21 percent from £16.50 to £20. On a quarterly basis, the price increases mean that an evening user on Micronet for, say, one hour a week, will be paying approximately 70 percent more than previously – £3.50 extra for subscription plus 60 pence a week.

Micronet stresses that they are the first price rises since 1985. In a letter to subscribers, Micronet business manager John Tomany says that "the service continues to represent excellent value". New services such as links to Telecom Gold and weekly machine-specific updates "more than offset" the price increases, he says.

Tomany told *Popular Computing Weekly* that the rises are "a reflection of the increased cost to Prestel of providing the service".

continued on page 7 ▶

# Two-faced ST-FMs

ALL Atari STFMs now have a built-in double-sided disc drive as standard, as opposed to the original less reliable single-sided drives. The new drives are in all 520STFMs, including those sold as summer packs. Although they have apparently been available for some time, Atari has said little about it and it is possible some dealers still do not know about the upgrade. The Atari 520STFM summer pack includes 22 games, full user instructions and a joystick and is available for £399.

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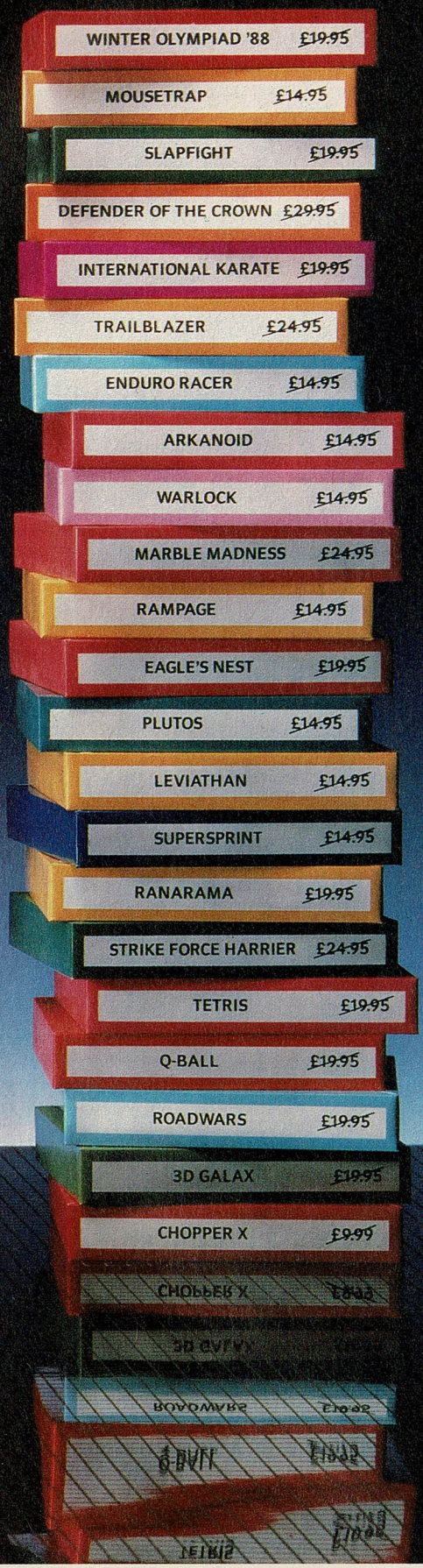


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# EDITORIAL

Sales of 16-bit games lag behind those of full price 8-bit and budget software by a long way, but the gap is beginning to close. This week's news that the games software for the Atari ST is currently making record sales will be heartening both for Atari and the software houses supporting it – Gallup figures give ST games 6.2 percent of the market (in terms of units sold), against 1.7 percent for the Commodore Amiga.

After the £100 Amiga price reduction, Atari must be considering what it will do when its summer pack offer closes on September 1.

Perhaps there will be a reversion to the price which existed before the memory chip shortage was blamed for increasing the price by £100? Or perhaps something more spectacular.

Whatever, a somewhat surprising aspect of the Atari ST summer pack is that it heralds the unannounced introduction of the 520 ST-FM with double-sided disc drives as standard.

It is curious that such an important selling point should have gone unnoticed not only by us until now but, more important, by the dealers who would benefit from shouting about it.

While this is all good news for the consumer, Atari appears to be making little headway with its much-vaunted transputer based Abaq machine.

Lack of software is delaying availability of the Abaq. Software developers are still wrestling with Helios, the distributed operating system which will assign parallel tasks to an array of transputers. Although a recent exhibition was dubbed the "launch" of the Abaq – see page 19 – availability is still said to be "around the end of the year".

While Atari hopes to achieve go-faster computing with the transputer, and Commodore with the 68020 and 68030, BBC Micro maker Acorn is working on an improved version of its home-grown ARM microprocessor – see page 7.

We gather that the device will roughly double the speed of the chip – and it looks as if a Unix machine will probably make most effective use of it.

**Paul Marks**


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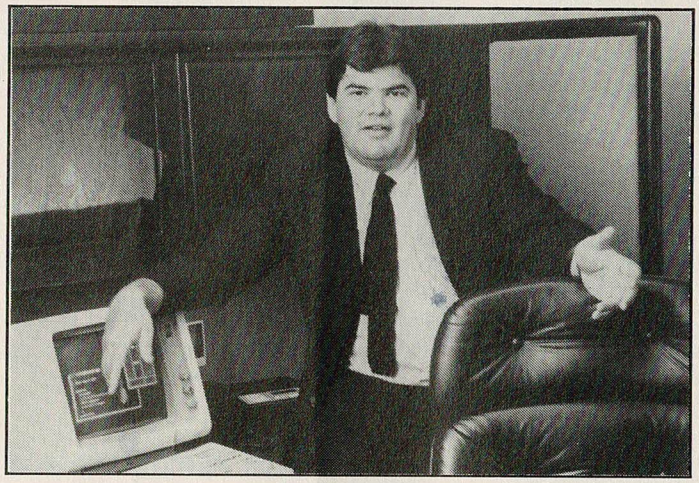
# Borland sprints on to IBM PC with real-time autosaving WP

A PC-COMPATIBLE word processor with the an auto-save capability, a customisable user interface and powerful formatting, has been launched by Borland. Called *Sprint*, the WP will be on sale in the U.K. in the autumn at £195.

Borland president Philippe Kahn gave an enthusiastic demonstration of the PC and PS/2 compatible product at the launch. One of its more impressive features is the fact that it offers alternative user interfaces for those who wish to continue using familiar commands associated with other word processors like *Word Perfect, WordStar, Multimate* or *Microsoft Word*. This will clearly be of considerable advantage to many users, especially when learning the system. Kahn was keen to emphasise the abilities of the advanced autosave. This device saves the work as it is typed, offering protection in the event of accidental exit of files, an unplanned exit from Sprint, or even a power cut, and will certainly contribute to the user's general peace of mind.



Philippe Kahn – Sprint saves documents as they are typed.

Sprint can also manage multiple open files and windows, thus enabling the user to work more easily on multiple documents and should increase productivity. An integrated English spelling checker and 220,000 word thesaurus assists accuracy and articulation. Finally, Sprint can support more than 350 printers.

# Strategic move by U.S. Gold

GAMES software writer and distributor U.S. Gold has announced its new releases for June. There are eight titles on offer, all from Strategic Simulations, including *Stellar Crusade* and *Star Command* for the IBM PC (£34.99). Star Command is a space role-playing game in which, among other things, you and your star troopers hunt a space pirate.

*Questron II* will also operate on the PC but an Atari ST version will be launched in July (£24.99). Three new war games will be released, *Panzer Strike* and *Shiloh* for the C64 (£24.99) and *Sons of Liberty* on the PC and C64, priced at £24.99.

Finally, two war games have been converted to new formats. *Gettysburg* is now available for the Amiga and *Warship* will be available on the ST by July.

# Laws proposed to protect VDU users

ONCE again claims are being made against VDUs and their affects on health. A House of Lords committee met to hear evidence on safety proposals from unions, industry and the Health and Safety Executive. It is expected to meet again on June 29.

The European Commission is also pushing to make working with VDUs safer. Under the EEC proposals, plans are being made to lay down minimum health and safety requirements, in which employers may have to provide eye tests for their staff.

Similar proposals are coming into effect in the U.S. where legislation has already been drafted. This will cover all employees who use VDUs for more than 26 hours a week.

Regular breaks will be enforced and employers will have to contribute to the cost of annual eye examinations.

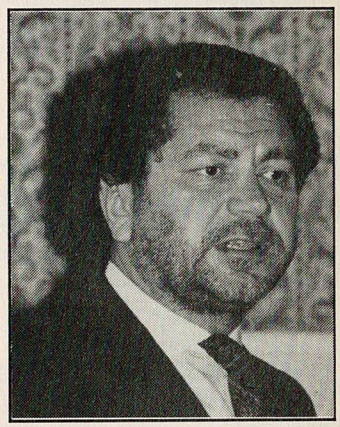
# Amstrad in satellite disc deal

AMSTRAD'S Alan Sugar and newspaper magnate Rupert Murdoch have teamed in an attempt to corner the market in satellite television. Sugar will produce low-cost dishes for Murdoch's Sky Television, which aims to beam four new TV channels to the U.K. by Christmas.

Murdoch and Sugar claim they will be able to keep down costs by transmitting in PAL – the present European broadcasting standard – instead of the more sophisticated and expensive D-MAC standard.

Opting for the more 'cheap and cheerful' technical specification, Murdoch and Sugar have angered competitor British Satellite Broadcasting, which last year decided to go with D-MAC. Some analysts believe that once Murdoch and Sugar have dealt with the competition and built a sufficient viewing base, they will, in fact, turn to the superior quality of D-MAC.

The Amstrad Sky TV receiver kit plus dish will retail for £199.



Alan Sugar – the sky's the limit.

# A ghost in the machine

THE highlight of the low-key Amstrad Show to celebrate the first 20 years of the company was the world's first haunted computer.

Apparently a PC1512 from Stockport had been seen glowing in the dark when unplugged, groaning and projecting images on the screen without software. This is curious, as you would think that if any computer was to be possessed it would be the Spectre-um.

# ARM cache to double speed of microprocessor

ACORN is developing a faster version of the 32-bit ARM, the reduced instruction set microprocessor which powers its Archimedes computers. The upgraded chip will include a cache memory which will roughly double the speed at which data is processed, while allowing the device to work with cheaper memory devices.

According to Acorn press spokesman Michael Page, the addition of a cache "is a logical development of the technology." It is expected that the upgraded ARM will run at approximately 12MHz, providing an instruction speed of about eight million instructions per second against the 4MIPS offered by the 4/8MHz device.

The cache memory will allow the ARM processor to perform faster because it will hold the next set of instructions to be executed in the vicinity of the processor, which results in reduced instruction access time.

When operating with a cache, the external RAM can be made up from slower memory, which is cheaper, as it has to supply the cache only with blocks of the next few instructions.

Putting memory on the ARM processor chip will make it more expensive but systems built using the new ARM could have the extra processor cost offset by the cheaper memory chips required.

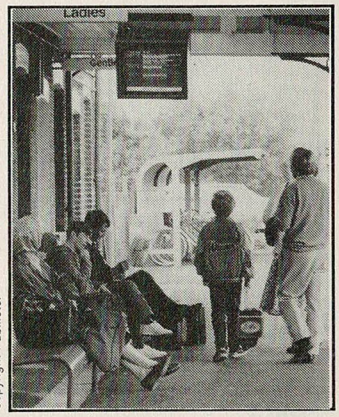
A possible destination of the new chip is the Acorn Unix machine which Page says will be launched by the end of the year. With the Commodore announcement at Comdex that it will offer a Unix 5.3 version for its Amiga 2000, the race to micro-based Unix is certainly hotting-up. The Acorn Unix machine will initially run Berkeley 4.3, according to Page.

# BBC Master gets you there

THE BBC Master 128 forms the heart of a new travel information system at British Rail stations at Hook, Telford and Aberystwyth. Screens linked to the Masters reveal alterations, cancellations and late runners, all of which are continuously updated.

Even that most hard-hearted of species, the British Rail commuter, has by all accounts heaped praise on the new system, dubbed by its designers an "automated timetable".

The system at Aberystwyth was designed to provide information in Welsh and English, a feature which has been well-received. The system was designed by the Yorkshire-based systems house Bocking Lane Information Systems.

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Arrival information.

# Codemasters man on winning streak with Le Mans team

CODEMASTERS has good reason to celebrate this week after Jaguar scooped the honours in the Le Mans 24-hour endurance race. Racing driver Johnny Dumfries, who has been sponsored by the budget software house for the past year, was part of the Jaguar team which won the Le Mans race.

Dumfries, who endorses the Codemasters game *Grand Prix Simulator*, with Andy Wallace and Jan Lammers, ensured that Jaguar won the Le Mans for the first time in 31 years.

The Jaguar car, a seven-litre XJR9, held off strong challenges from Porsche, one of whose cars finished second.

Codemasters marketing manager Bruce Everiss was in France to see Dumfries and his co-drivers take the honours. "I have not slept in three days but it has been worth it," Everiss told *Popular Computing Weekly*. According to Everiss, a game to be launched in August will be developed in conjunction with Dumfries. The provisional title is *Sports Car Simulator*.

# Micronet sparks row

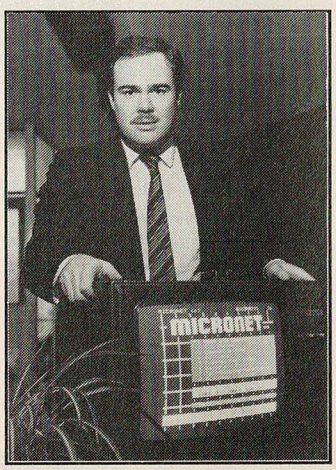
◀ continued from front page

Prestel is investing in an upgrade, called Vascom, which allows access by multi-speed modems.

Micronet competitor Compunet was quick to gain commercial capital from the price increase. In a press statement, Jane Firbank, editor of Compunet, alleged that Prestel/Micronet kept "unrealistically low subscription charges and no time charges" by cross-subsidising through British Telecom. According to Firbank, such practices "have stifled the growth of networking in the U.K."

Compunet allegations were denied emphatically by Tomany and the Office of Fair Trading in Telecommunications supported him. An Oftel spokesman says: "We have no evidence that there has been any cross-subsidising between British Telecom and Prestel/Micronet. The British Telecom licence forbids different parts of the business being subsidised by others."

● See letters, page 8, for more comment.




John Tomany of Telemap group.

# Microdeal debugs ST Soccer game

SOFTWARE house Microdeal says it has cleared its *ST Soccer* game of bugs. Clean versions of the program are now available. Microdeal managing director John Symes told *Popular Computing Weekly* that the game had suffered from a combination of bugs and duplication problems.

One bug manifested itself in the one-player mode, in which the user plays against the computer. Previously the computer always won.

According to Symes, many owners of problem copies have already received clean versions. Owners of problematic versions can obtain replacements by sending the original disc to: Microdeal, Freepost, St. Austell PL25 4YB.

# Any modem for Amiga

IT IS now possible to log on to Compunet with the Amiga, using any modem.

Until a few weeks ago, only the expensive Hayes-compatible modems could be used for Compunet with an Amiga. Now any BABT-approved modem has the potential to access Compunet. For many this will save a three-figure outlay. Commodore programmer Eddy Carroll developed the driver for the software, which is now being adapted and tested by Compunet.

So far, tests have proved to be successful, with the list of compatible modems growing all the time.

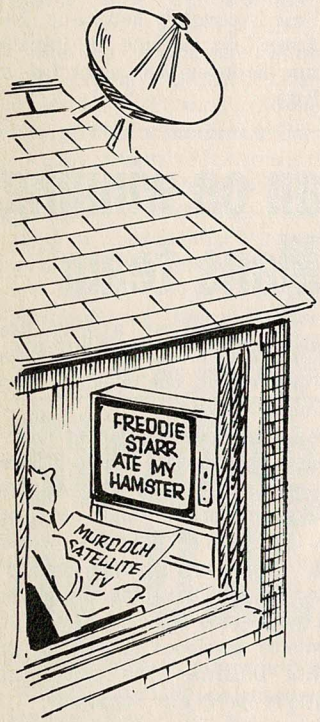
# LETTERS

## C64 bulletin

Having been interested in telecommunications for some time, I am considering setting up my own bulletin board.

I would be grateful if anybody can supply me with details of hardware/software available for the Commodore 64 which will allow me to do this.

*Ian O'Dwyer,*
*22 Broadhurst,*
*Ashtead,*
*Surrey KT21 1QD.*




## Spectrum ignored

I read with some concern your Editorial, PCW May 12–18, regarding the impending release of a Spectrum +4. This poses the question of what will happen to existing +3 owners? For those of us who use a +3 not to play games but as a serious machine the utility side of the market is abysmal. Apart from *Tasman* for the word processor and the fabulous Campbell Systems *Masterfile +3* there are to my knowledge no other business utilities available for the +3.

Three years ago the computer press speculated that if Sinclair produced a Spectrum with a built-in disc drive and a larger than 48K memory the scope for adventure games and utilities would be enormous.

Now three years later we have such a machine and by and large it appears to have been ignored by the majority of software houses. It is impossible to purchase programs like *Mini Office, Fleet Street Editor* or a *Spreadsheet* in +3 format. Now with the impending release of a 256K/512K Spectrum this problem, in my opinion, will never improve.

Having been a Spectrum owner since early 1983, I have always been one step behind the latest developments; now I have the latest model, only to find it has less software than my previous +2 and also that it is to be superseded by a model two to four times bigger leaving me with a "piggy in the middle" machine in which no-one is interested.

*P. T. Street,*
*Sidmouth,*
*Devon.*

**You may not need to worry about the +4, since Amstrad denies that any such product is in the pipeline.**

## Phantom software

Can any readers tell me if they know of any firm which stocks the game *Ghosts and Goblins* for the Acorn Electron?

*Tim Perkins,*
*Somerset.*

**Can anybody help?**

## Disgruntled

I am writing on behalf of a large minority of Prestel/Micronet users to shed, if possible, a little light on what is happening on the system. For the last two months since the 'new' Micronet arrived there has been little to prove the change was for the better. Updates are thin on the ground for the Amiga and ST which have had the worst coverage you could ever believe.

We have had perhaps six or seven reviews and the letters page is still inoperative, which is what it has been from the launch of the new Micronet.

Apart from the Solely Sixty Four Amiga section run by a separate part of Prestel/Micronet there is nothing. Most of the best sections are run by separate Information Providers, not Micronet. Users need to contribute, which I have done, but we should not need to do it all. That is what we pay our subscriptions for. It is not only just true for the Amiga/ST section. There has been a lack of updates in other sections but not nearly so severe.

Another downfall of the system has been the all too often service interruptions, including Chatline failures – sometimes every night, Mailbox going down regularly and severe speed problems. The speed problems are the worst. On the nights it happens you could send a chatline message or a normal mailbox message and it would not appear for about two hours later on some occasions.

Micronet has also taken away the free service which used to be called Swap-Shop where you could place advertisements for other users to read and replaced it with a section called Bazaar. You have to pay from 20 pence to 40 pence to use this section. Also the other new section called Teletalk has charges on top as well. The only interactive parts of the system you can use without getting charged are the letters and certain chatlines.

The charges are also about to get worse. A few days ago an Information Provider, Keith Bulmer, was barred from the system for leaking information about the new charges to be introduced very soon. When users of the system heard about the new charges we decided that we had had enough.

I now list the new charges. At the moment the charges for Prestel domestic users is £6.50 per quarter, which is to rise to £8.50 per quarter.

They are to take away the free off-peak access and replace it with a one penny per minute charge. All other times will be increased by a penny to seven pence per minute. It will be a major blow to younger users who have to wait until off-peak time to use the system.

The new charges will mean that with the cost of the call included an hour's use will cost, on average, £2. The action many users may be taking when the charges operate is to terminate their accounts.

*Richard Clafton.*

## Right of reply

We have thousands of members who are more than happy with Micronet. Many have been subscribers for more than five years so I am sorry to hear that Clafton is not satisfied with the service. I would, though, like to take issue with the points raised in his letter.

At the time of writing there are 28 Amiga/ST software reviews in the Micronet magazine alone, with more added every week. Solely Sixty-Four, an important part of Micronet which is available to only members, has even more. The overall amount of editorial material has increased considerably in the last two months.

The general reaction to the new-look Micronet does not tally with Clafton's views; our figures show a significant increase in usage.

In the last year Prestel has been replacing the network installed more than 10 years ago with a much-improved system. Although service interruptions have been kept to a minimum, there have been some problems but the result will be a much better level of service for all users.

Bazaar costs between three pence and 20 pence a message for Micronet members and is proving to be far more popular than Swap-Shop. There are no additional charges for Chatlines or mailbox.

Keith Bulmer was not suspended for leaking the new prices – full details of which have been sent to all members – but for giving confidential telephone numbers of Prestel technical staff.

Most Micronet subscribers use the service after 6pm. Including telephone charges the cost per hour will be £1.10.

Compare that to a rival service like Microlink which is at least £2.60 an hour – 3.5 pence per minute – and you can see what a good deal Micronet is.

It would be a pity if Clafton's letter prevents anyone joining Micronet, which for the large majority is an extremely enjoyable and useful service.

*David Rosenbaum,*
*Public relations manager,*
*Telemap Group.*

## Warsaw packed

I am a computer editor on a Polish mass market weekly for readers aged 15–20. In co-operation with a few friends I have written a few computer games. Many of our readers send me really good original programs for various home computers, too.

Will you provide me with names and addresses of agents who help to put such software on the market?

*Jacek Ciesielski,*
*Razem Magazine,*
*00-920 Warsaw,*
*Nowy Swiat 81/20,*
*POB 5,*
*Poland.*

**After the Soviet-inspired *Tetris* made good, who knows what binary treasures lie within Jacek's grasp?**

MICRONET

# Shades

**MULTI-USER GAME**

## ACCESS TO A MODEM?

**THEN DIAL DIRECT INTO THE ULTIMATE ADVENTURE**

Without subscribing to Prestel or Micronet you can now dial direct into Shades through Direct Service Networking (DSN). Even as one of the leading multi-user games, it has been one of the best kept secrets around. Accessible in either viewdata or scrolling modes, everyone with a micro and a modem will soon be pitting their wits in the land of Shades.

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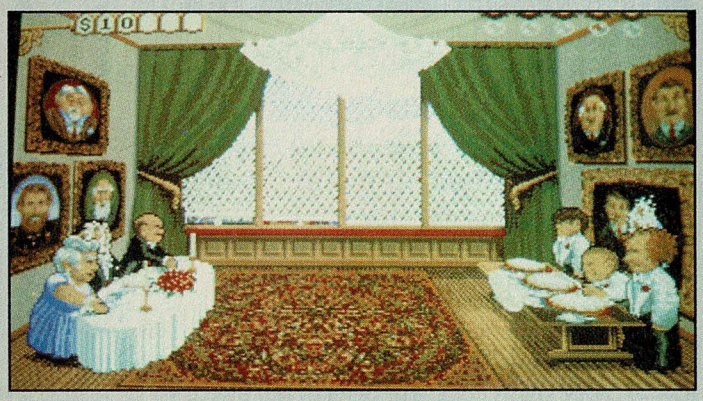
# Larry, Curly and Moe go crackers

Quiz time. What does the expression, 'Nyuk, nyuk, nyuk,' mean to you? Very little I would imagine but if you were an American the odds are that the first thing to spring to mind would be the *Three Stooges*, who were immensely popular 25 years ago and to some extent still are today.

Little surprise, then, to see that the Three Stooges game from Mirrorsoft is the latest production from those all-American boys and girls at Cinemaware.

Given the record of the progenitors of the Three Stooges, it is equally no surprise to witness some superb sonics and very tasty graphics.

True to the subject matter, the game is low on plot – raise loadsamoney to save orphanage from nasty Bank Manager – and high on slapstick humour. There are but 30 days to raise the necessary readies and this is facilitated by getting Larry, Curly and Moe to serve pies, fill in as doctors, enter prize fights, and eat crackers.



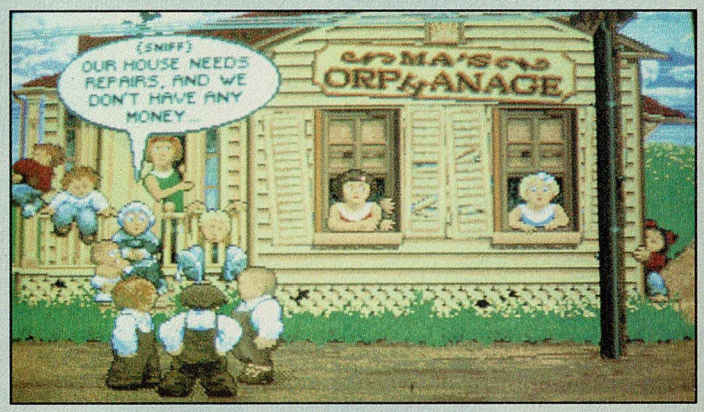
The starting sequence of the game is brilliant; the title page and music for *Defender of the Crown* appears before being interrupted by the Stooges in typical fashion. One thing it illustrates is the ample use of samples taken from old Stooges' films, and sounding surprisingly clear.

Play takes place in and on the streets of Stoogeville, which are represented by six squares at the start of every day. A hand slaps across the squares in a random pattern, while a timer counts down.

Selecting the day's activity for Larry, Curly and Moe is the simple task of pressing the fire button at the desired time.

Only it is not so simple. For one thing, as the days pass the hand moves faster and another is that on certain squares there are mousetraps waiting for the unwary and plain unco-ordinated. To an accompanying yelp of pain, one finger is removed from commission. Lose four and the Stooges are unavailable to work, so the orphanage goes to the banker.

The main individual games are all audio-visual goodies, with the pie-fighting sequence being the most manic. The only controls here are duck and throw, with bucks being made every time a guest is served successfully.




The boxing event is probably the cleverest, with a good line in sideways scrolling and objects to avoid and leap over, being counterpointed by the sight of Curly in the ring being belted around. Can Larry find a violin in time to turn punchbag Curly into a boxing beserker, to the strains of Pop Goes the Weasel? Whether or not he succeeds you will wince every time Larry runs smack into a lamp-post.

Many of the graphics used to depict the trio are digitised and this is put to good use, especially in the cracker-eating contest, which features a big close-up of Curly as he attempts to down all the crackers in a bowl being patrolled by a vigilant oyster.

My favourite is the hospital game in which the Stooges mount midget racecars and head for the operating theatre. The panicky expressions on the patients' faces as the chaotic trio hurtle past them is wonderful. Run people down five times, though, and this particular game is over.

When you consider that Cinemaware is a company dedicated to bringing you interactive movies, as Bob Jacobs likes them to be called, the Three Stooges can be considered something of a throwback as the format is that of a board game.

Even so, the graphics are some of the best yet from Cinemaware and just as commendable are the sound effects and jingles, which are all employed brilliantly.

While few people will fail to be hoodwinked by the quality presentation of the Three Stooges, the simplistic style of the game may mean that interest will wane after a few plays for anyone not a Stooges fan. If you are a fan, though, has Mirrorsoft a treat for you.

**Reviewer:** Duncan Evans
**Price:** £24.95
**Machine:** Amiga
**Supplier:** Mirrorsoft
**POPULAR RATING**
**Graphics:** 23
**Sonics:** 24
**Gameplay:** 34

**81**

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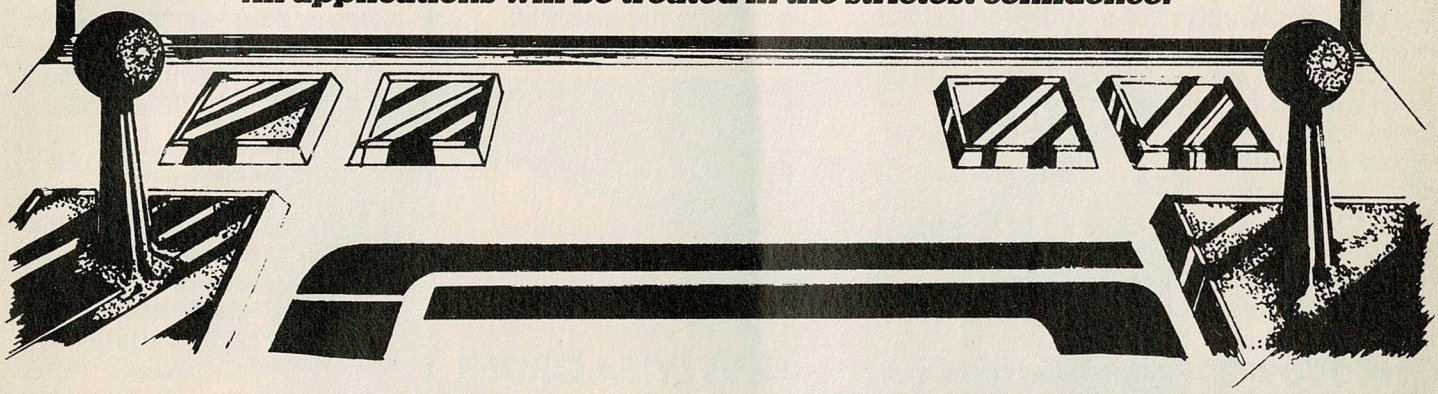

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ATARI

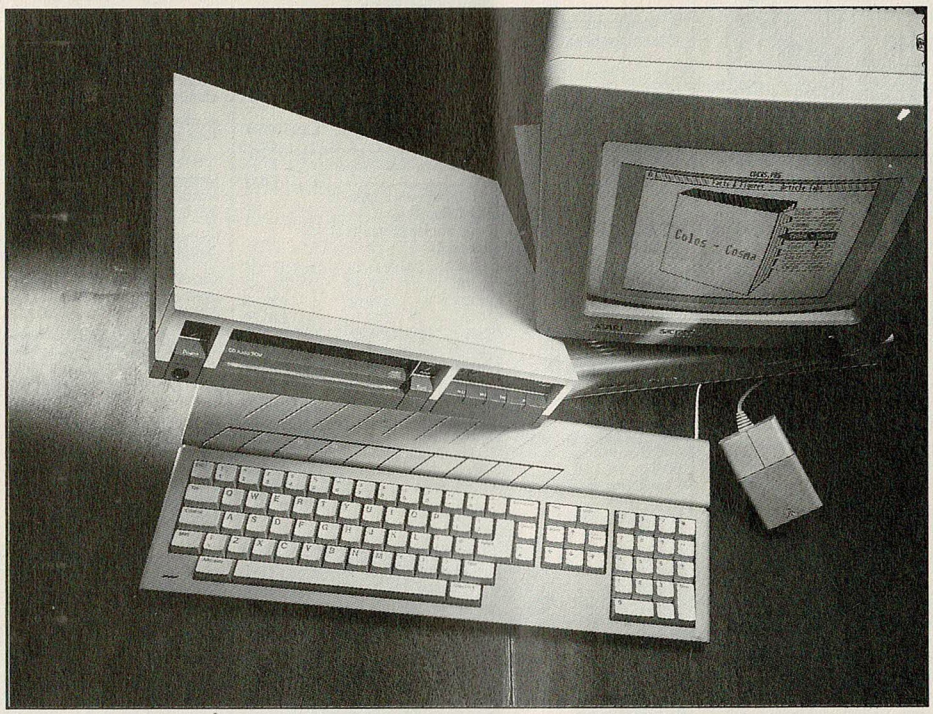
# Taken aback

At an exhibition dedicated to schools, Atari showed that computers have far more application than purely in the mathematical sphere. Kelly Beswick reports from Bloomsbury.

Atari recently made a bid for the educational computing market with an exhibition dedicated to the needs of schools. Held at the London Institute of Education, the exhibition was timed for the launch of the transputer-based Abaq workstation and, according to Atari, the first realistically-priced CD-ROM system at £399.

While both products will presage important advances in educational computing, it must be said that the Atari launch presentation was rather low-key. To call it a launch would be misleading as Silica Distribution Ltd, which presented the exhibition in association with Atari, could provide no information as to when the systems would be available to the consumer.

The Abaq is considered to be a low-cost, high-specification, general-purpose workstation and its proposed price will be less than £5,000. It has been designed to allow for future expansion and to provide an open architecture.



Atari CD-ROM: still not available in the shops.

**"The main thrust of the exhibition was to reveal the future of educational computing and it was interesting that many of the programs on display related more to the arts than traditional disciplines like science and maths."**

The Abaq enables the user to connect up to 17 transputers internally to give greater processing power at higher speeds. Networking of the machines is possible by extending the transputer links externally and connecting them via the links.

The Abaq operating system will be the Perihelion Software *Helios*, a distributed package which will allocate software tasks to the various transputers, thus achieving parallel processing.

Atari says that Helios will have a user interface similar to Unix.

With regard to the CD-ROM, it is generally felt that its emergence on to the market has been very slow; originally it was due for release last December. Compatible with the ST and Mega systems, it is capable of playing audio CDs in addition to reading the new data disc. With the GEM interface, information retrieval will be very easy.

The main thrust of the exhibition was to reveal the future of educational computing and it was interesting that many of the programs on display related more to the arts than traditional disciplines like science and maths.

According to William Owen, national sales manager of the education division of SDL, "The Atari ST is becoming more popular in non-computer areas of education". Atari is making a concerted effort to break down the conventional barriers of computing and in this respect its attempts are commendable.

In the area of art and graphics, several packages were demonstrated. An array of beautifully-designed fabrics was exhibited by Shropshire school children who had used *Degas Elite* on the ST. The SDL claim that Degas Elite enables "real professionalism" to enter the world of education did not seem unfounded.

The Rendale Genlock demonstration revealed the ability to synchronise two PAL video sources which enables computer graphics to be superimposed on video pictures. The Kuma GEM-based graphics package *K-Rikki* included a special animation feature which brought pictures to life, an inspiring aspect for pupils/students.

It appears that the use of computers in the teaching of music is limitless. Computers add a considerable dimension of fun to what has proved to be a tedious subject to teach. The Syndromic Music *EZ Score* - pronounced Eee Zee - is an ideal educational program, displaying the ability to write lyrics, chord symbols and guitar fret symbols. Text can be transported to a word processing or desk-top publishing program.

Another area examined at the exhibition was school and college administration. The MJK Consultants *Corinth* package is a non-programmable system which may be used by untrained staff. □

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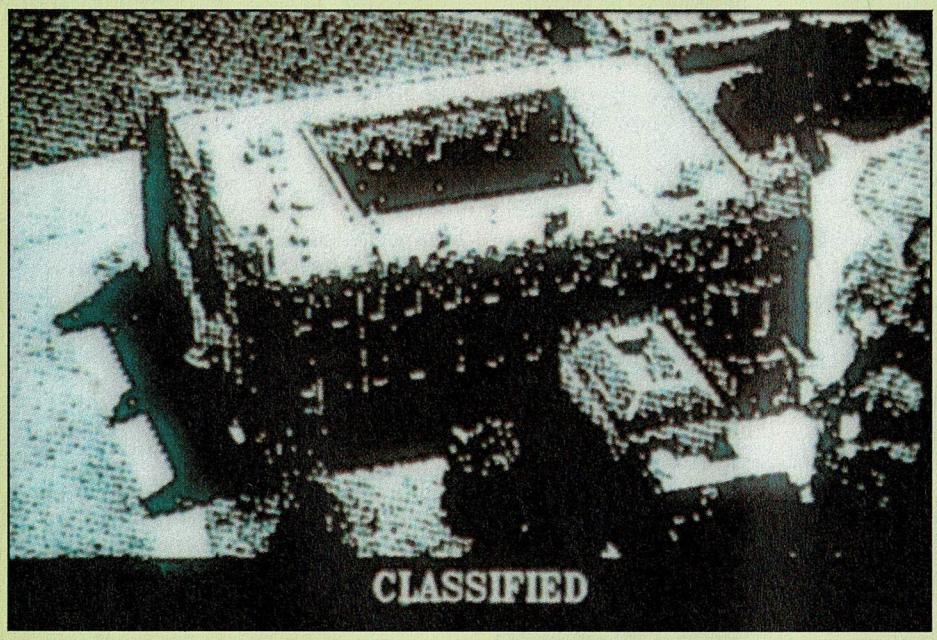
# Summit kidnappings

The President is Missing is expected to be released in July or August. Adrian Pumphrey sneaks a preview of the C64 version.

The President is Missing is the title of a new detective style game from Cosmi, a game of such scope that it could well be responsible for many sleepless nights as you struggle to fathom the depths of the enormous puzzle.

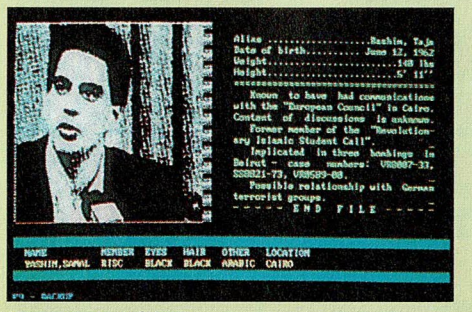
The leaders of the world were supposed to be holding a meeting in Switzerland but in a vain attempt to increase security the meeting was held in the somewhat less-publicised location of Lichtenstein where anti-terrorist talks were to be held. All was going as planned until disaster struck, with two army helicopters landing and a group of terrorists abducting the world leaders.



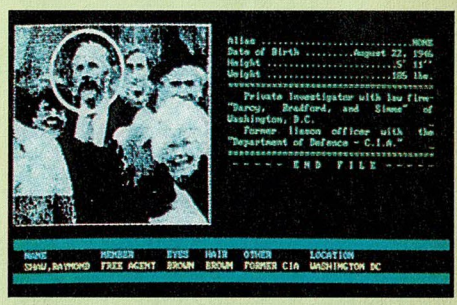

The terrorists' demands are simple – a return to an Arab-controlled Islam with all investments in the West withdrawn, as well as all western influences in Islamic states. As a reaction to this emergency a post has been created. As the holder of the post it is your job to find the world leaders and free them, as well as discovering who is involved and why.

It all sounds fairly simple until you begin to appreciate the complexity of the plot and the masses of information available to you. So much information is contained in the program that two double-sided discs are needed to hold it. On the discs you will find files from the major security services, as well as picture libraries and a group of agents who can be sent to watch people, places or even objects, providing the user with one of the most complicated surveillance options seen in any computer game.

Initial clues to the kidnapping are found from an audio tape which contains news reports and reports from the special agencies about various aspects of the case. You will also find recordings of speeches made by the hostages and the kidnappers and a recording of several minutes of an intercepted Morse transmission which fades in and out as it proceeds.




New game from Cosmi.




## Zoom facility

Working from the clues provided on the tape and from written material included with the package, you must search the comprehensive filing system to progress. By examining relevant photographs with the zoom facility it is also possible to obtain additional clues.

As the plot unfolds you will be requested to advise certain agencies and you will discover the wealth of red herrings planted in the plot to lead you astray.

This is one of the most in-depth games of this type I have seen and although it resembles the *Fourth Protocol* in some respects, the depths to which this program goes make it stand out from the crowd.

The game relies little on graphics apart from the photographs which are detailed and sound effects which are not really relevant to this style of game. As an added bonus for people who manage to complete this horrendous task there is the option to answer additional questions posed by Cosmi about the plot and send a written answer to the company, and you will receive a reply telling you whether or not you have completed the game successfully.

# The Sega saga

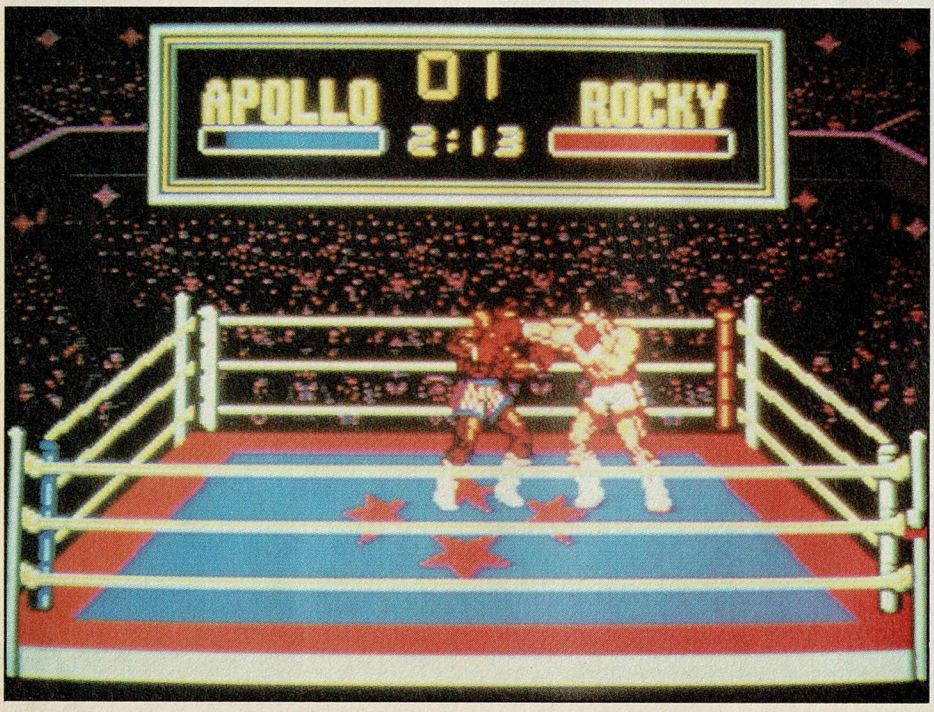
Tony Hetherington looks at the potential of the Sega games console and reviews a range of arcade games available for the machine.

Outrun.

The Sega Master system was launched in the U.K. by Mastertronic a year ago with an initial range of games including Sega coin-op hits *Choplifter* and *Space Harrier*.

If the Sega system is to come of age as a games console there must be a steady stream of high-quality releases to compete with cassette and disc competition of the home computers. The proof of the system is in the games, so here are the latest releases.

The Sega system would appear to have an advantage over many games consoles as it can draw directly from the range of Sega arcade machines and has already produced cartridges containing *Outrun, Enduro Racer* and *Quartet.*




The disc version of Outrun recently topped the chart in its Atari ST format but Sega owners have been playing a bigger and better version for months. At £24.95, there is no difference in price.

## Shapes and sizes

Sega games are supplied in many shapes and sizes, dictated by the size of the cartridge required, which decides the price. *Hang On*, which is bundled with the console, is a Sega card game supplied on a cartridge the size of a credit card.

The latest addition to this range was *F-16 Fighting Falcon* (£14.95), a flight simulator in which you must destroy as many enemy aircraft as possible before they get you.

One of the main benefits of a cartridge-based machine is that you are not limited by memory size or disc capacity. If you wanted to cram a megabit of gameplay into a cartridge you could. Sega has done so for only £19.95 each. *Global Defence* and *Alex Kidd* are the latest additions.

Global Defence offers you the choice of being the aggressor or defender in this game of Star Wars defence systems. As the aggressor you must fly your joystick-controlled craft through the planetary defences and avoid the missiles, interceptors and bolt-firing bases by locking them in your sights before blowing them apart. There are two buttons on the Sega con-

troller – or Sega stick; pressing one fires in the direction of the sight, pressing the other moves the ship in the direction of the stick. This control system takes time to get used to but the game is well worth the effort.

## Platform-style

*Alex Kidd in Miracle World* is a simple platform-style game full of lifts, ramps and enemies out to get you. Nothing unusual there and, as far as I could tell, there is little to warrant the mega status.

Two mega cartridges (£24.95) are even bigger and have a line-up including Outrun and *Rocky*, and now *Alien Syndrome* and *Fantasy Zone II*.

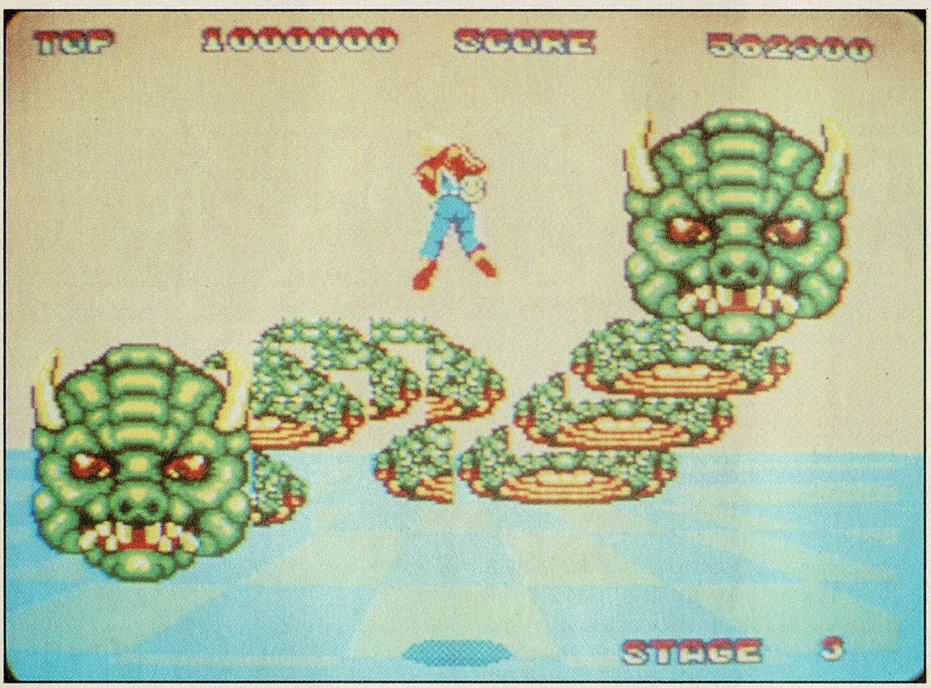
Alien Syndrome was featured as last week's Game of the Week – C64 version – and is even better as a Sega Two mega cartridge. Armed with only a short-range combat rifle you must enter the seven giant alien ships and rescue the captured space marines from the clutches of the acid-spitting aliens.

Two types of aliens guard the ships – the roving aliens and the defenders which look like faces set into the floor. In a fight, the defenders can catch you unawares but you can stun them for a time with a well-placed shot. It will require a barrage from your weapon to destroy the Alien boss which guards the exit of one ship which leads to the other – arcade action at its best.

Fantasy Zone II is weird. Fantasy Zone was strange but this, the sequel, is even odder. Once again you are Opa-Opa as you return to find your homeland under alien attack and your only chance of success is to collect the money the invaders have hidden around the place and spend it in hidden shops in the clouds to buy better ships and weapons to repulse the invaders.

*After Burner* (also £24.95) is the first of a new range of four mega cartridges in which you must strap yourself into your aircraft carrier-launched F-14 fighter. Your mission is to collect the two parts of the enemy's master plan which is held in secret locations. Intelligence has discovered their hiding places but you must get them. To make things worse the enemy knows you are coming and has launched every aircraft, helicopter and missile to stop you.

Enduro Racer.



Space Harrier.

On your side you have air-to-air missiles you can lock on to targets and then forget and a 20mm. Vulcan cannon to blast anything which gets too close. There are tankers in the air on your route for mid-air refuelling but it will take a cool nerve and lightning reflexes to get that far.

After Burner may be the biggest game in the collection but I prefer the action of *Rescue Mission*. It is a game in which you must defend a first aid cart as it trundles round a track to patch up a series of wounded soldiers. Unfortunately, the enemy throws all it has at you to prevent you getting away.

It not only mined the track at regular intervals but also has an army of gun-shooting, rocket-firing and even boomerang-throwing troops to gun you down. Your only chance is to get them first.

In Rescue Mission you can give the controller a rest as you must shoot the enemy using the light phaser in a test of arcade skill and marksmanship. You may have already tried the FBI and clay pigeon shooting games supplied free with the phaser but this is entirely different. Now you must look first and then shoot to make sure you do not hit the people you are trying to save, while firing fast enough to free the line and keep back the enemy long enough to get your man through.

Choplifter.

If you really want to be different, try the 3D glasses together with the special 3D versions of *Zaxxon* and *Space Harrier*. The glasses plug into the console and produce a strobed pseudo-3D image from the flashing screen. Without the glasses this looks awful; with them it is amazing but think before you buy them as non-games players may not be too understanding about why you have to plug in ridiculous glasses to play a game.

The Sega system now has a reasonable selection of games which still lags far behind the range available for the main home micros but the Sega version of a game which is also available on home computers is considerably better than the tape or disc version.

## Phaser

Of the add-ons I found the phaser to be the most worthwhile, particularly for playing Rescue Mission, but as in most things you pay your money and take your choice.

I think it would be unwise to think of the Sega as a direct competitor to a C64, Spectrum, Atari ST or Amiga but instead as a complement and part of your games system – a system ideal for when you want to get as close to the arcade as possible without leaving your armchair. □

# Interstellar experience

## Adrian Pumphrey went to the moon and back.

Not many years ago many children wished to become train drivers when they grew up. Today in the world of high technology the average child aspires more towards the dizzy heights of an astronaut. Children and adults can take off from the heart of London to fly past the Moon to Mars and adventure. This is possible because of a new attraction which has opened in Tooley Street.

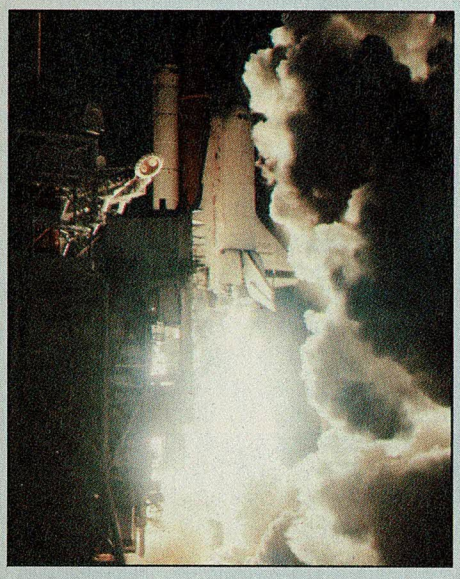
The *Space Adventure* simulator is capable of seating 82 people and taking them on a tour of the galaxy, complete with all the motions associated with space sickness.

The atmospheric scenery in and around the simulator was designed by Ted Dove of Doctor Who fame, who has managed to create the feel and look of space travel as it will be one day.

Once a passenger has passed through the entrance corridors and the airlock, the simulator may be boarded. Inside the simulator there is a main viewing screen at the front of the craft; it is covered by blast shields which open and close according to external conditions and monitors which are situated above the passenger seats.

The main screen displays the view which would be seen from the front of the craft, mirrored on the monitors which also display additional information which has been added by the on-board computer.

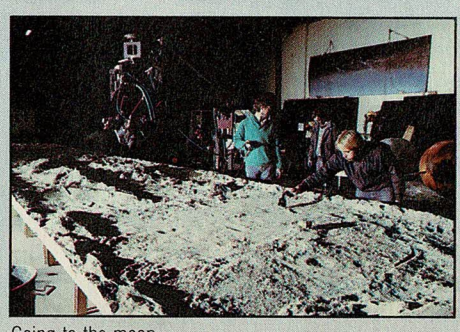
Messages from the captain are also displayed on the overhead monitors. The graphics sequences are certainly impressive and when co-ordinated with the simulator movements combine to produce a very realistic simulation.



The hardware behind the simulation consists of one custom-made simulator supported by four hydraulic ramps, two of which are connected to act as one. The ramps have an operation movement of 1.2 metres, which is capable of producing a tilt of 20 degrees.

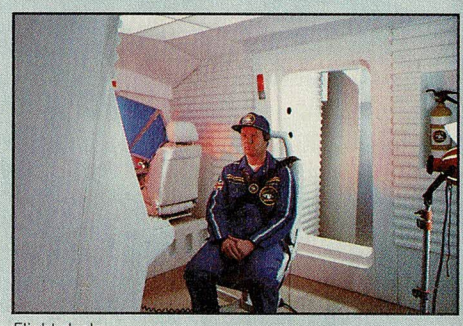
The images are stored and projected from three laser discs, two for the main screen and one for the overhead monitors. The timing between the images is controlled by a PC and customised controller hardware which contains 286K of battery-backed RAM.

The reason the control program is held in RAM rather than ROM is because the system is being improved continually and adjustments are still being made. Once the simulation has ended, it is time to enter the games arcade which has a selection of the latest in video game technology, including such gems as *After Burner* and *Blasteroids*, plus a cafe where humans can replenish their energy resources.



Going to the moon.

Take-off from London.



Flight deck.

Space Adventure offers an exceptional experience which takes the participant to the outer limits of adventure and back again—just in time for tea. □

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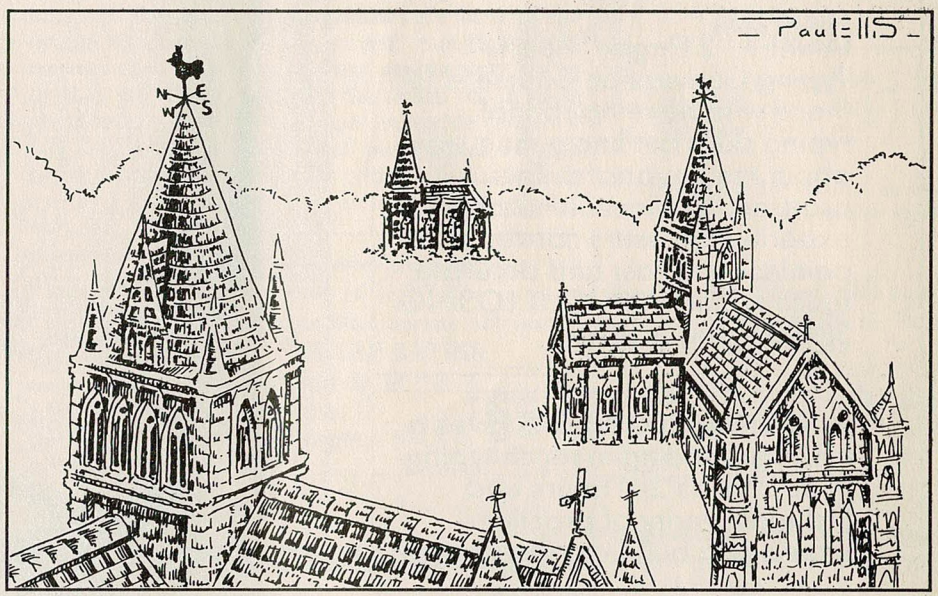
# Village triangulations

When the pupils at Amblebury school carried-out some accurate measurements of distances between the village church spire and those at the neighbouring villages of Birchmere and Cobbleham, they found a surprising result.

The church at Birchmere is due north of Amblebury, while that of Cobbleham is due east. When they measured the distances between the three points they found that all three were an exact number of yards, and that the distance from Amblebury to Birchmere exceeded that of Amblebury to Cobbleham by just one yard.

If a rough estimate of the distance from Birchmere to Cobbleham has been put at 'about three miles', can you find the exact distances? □




## PUZZLE SOLUTION

### Solution to puzzle of June 9-15.

The correct substitution is 7576×7576=57395776. As the product has eight digits, the four-digit number represented by 'NINE' must be greater than 3162, hence the initial value of 'N' in the first FOR/NEXT loop is set to a minimum of 3. The other two loops generate the other two digits in turn, those represented by 'I' and 'E'. The full value is computed in line 150 and its product in line 170. By placing this product into a string variable the position of the relevant digits can be checked. The second digit must equal the digit 'N', the fifth the digit 'I', and so on. Only the values which pass this test - in this case, just the one - are printed-out.

```
100 FOR N=3 TO 9
110 FOR I=0 TO 9
120 IF N=I THEN 250
130 FOR E=0 TO 9
140 IF E=N OR E=I THEN 240
150 NINE=N*1000+I*100+N*10+E
160 IF NINE<3163 THEN 240
170 S=NINE*NINE
180 S$=STR$(S)
190 IF VAL(MID$(S$,2,1))<>N THEN 240
200 IF VAL(MID$(S$,5,1))<>I THEN 240
210 IF VAL(MID$(S$,6,1))<>N THEN 240
220 IF VAL(MID$(S$,8,1))<>E THEN 240
230 PRINT NINE;" ";S$
240 NEXT E
250 NEXT I
260 NEXT N
```

Some computers, when creating a string variable using the STR$ command, include an extra space at the left-hand end. In this case the extra statement:

S$=MID$(S$,2)

would need to be added to the end of line 180 to take account of this. □

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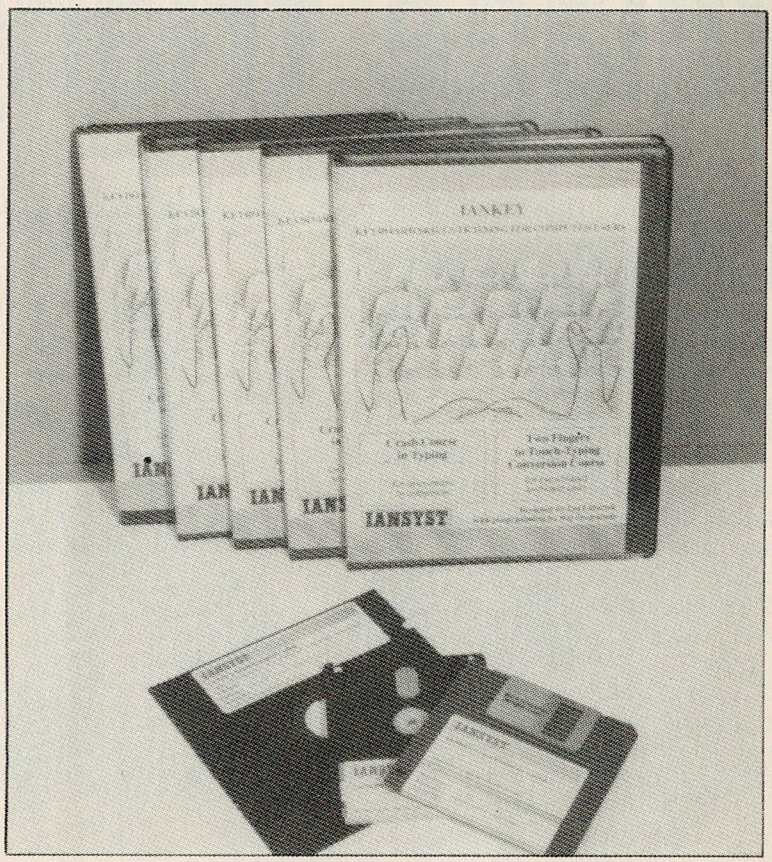
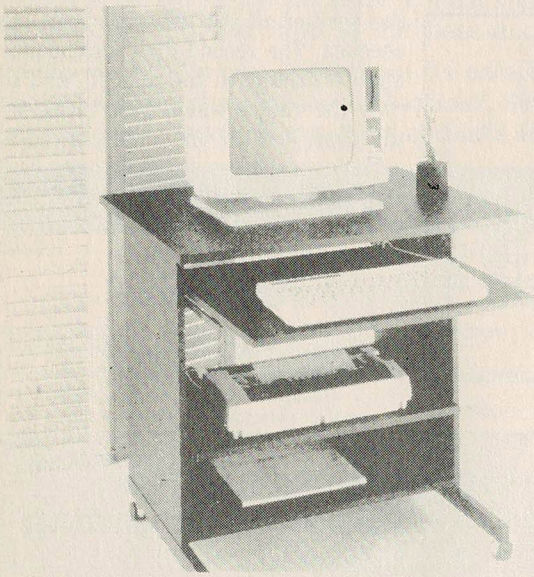



# DATA TROLLEY



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**(Popular Computing Weekly June 16)**

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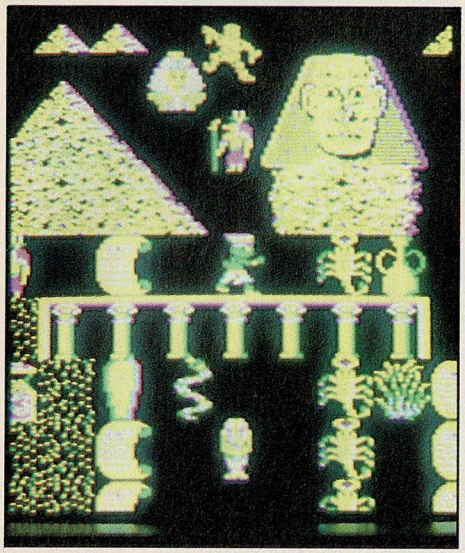
## Repton Thru Time - BBC

Clearly a slight variation on a theme. Here we see the popular character Repton battling through time. In fact, we are offered five time zones through the evolutionary period, ranging from the prehistoric to a space-age future. Can Repton tackle the pterodactyl or deal with the dreaded dalek – to name but two of his adversaries. In the meantime, Repton pushes boulders, casks of beer and Egyptian urns in his quest to collect the treasures, be they green berries, crystals and, believe it or not, in the present-day Repton, cans of Cola, although thankfully no brand is mentioned.



Points are scored according to a standard format, i.e., collecting the treasures and killing the monsters. The whole game operates on a very predictable level yet, it must be said, an enjoyable one.

According to the author, the purpose is to establish the true identity of this strange cult figure; is it an ant or a greenfly? No, it is Repton Man. How this is to be determined I do not know but it was a brave idea.

The graphics are much as you would expect, though nothing spectacular, and the same can be said for the sonics. All in all, a lively and enjoyable game, if somewhat predictable. Perhaps my main criticism is that it could become tiresome rather quickly.

**Reviewer:** Kelly Beswick
**Price:** £6.95/£7.95
**Supplier:** Superior Software
**POPULAR RATING**
**Graphics:** 18
**Sonics:** 19
**Gameplay:** 32
**69**

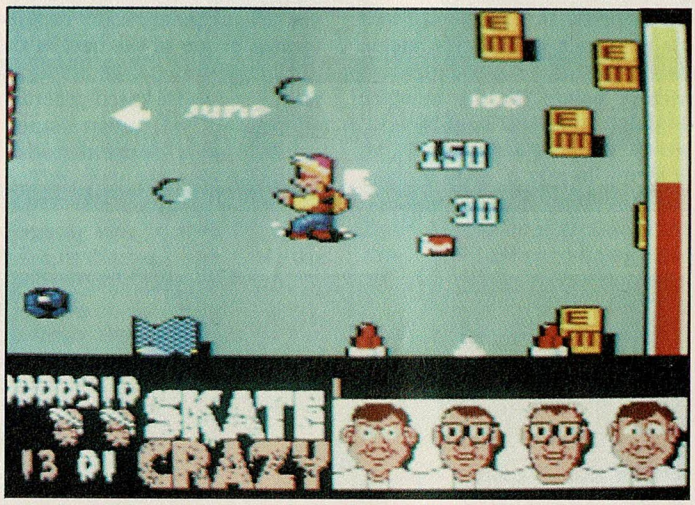
## Skate Crazy - C64

Many children will remember the first time they strapped on their roller skates, stood up and promptly fell. Now, if you are a skater or not, you can play *Skate Crazy* from Gremlin Graphics with very little physical damage.

The objective of this new offering is to skate round a park, track or whatever collecting small pieces of rubbish which some litterbug has strewn all over the area.

You start on a qualifying level, which you must complete within reasonable time to get to further levels. The first thing you notice is the appalling background bleeps; together with the squeal of rubber as you skid to a halt they are annoying, although some of the sound effects are passable.

Control of your child is via the joystick which should be waggled from side to side with some accuracy if you want your little litter collector to go in the desired direction. Control is somewhat clumsy but so are most people on skats. What is annoying is the fact that one of the skaters does not seem to know how to use the small rubber brakes at the front of the skates and so seems to use friction as the only means of stopping.




A few small snags in the game design soon throws you into total disbelief. The fact that the brats can jump up vertical ladders wearing roller skates and stay there without falling is mystifying, if not virtually impossible. Warning – do not try this yourself, leave it to the programmers.

After playing the game for a time I was impressed and totally addicted. The horizontal scrolling is fast and very smooth. While skating you will find many obstructions in your path which must be jumped over, preferably at speed. Jumping is performed by pressing the joystick button, which sets a power level depending on the length of time held. The higher the power the higher you jump. Determining the power level is not easy but after a little practice it comes naturally.

The graphics are good and complement the scrolling very well. It is unfortunate that the sound effects are not up to the capacity or the computer.

**Reviewer:** Andrew Banner
**Price:** £9.95/£14.95
**Supplier:** Gremlin Graphics
**POPULAR RATING**
**Graphics:** 18
**Sonics:** 13
**Gameplay:** 33
**64**

Your complete guide to all the software released this week

## AMSTRAD

**Program** *Ballblazer* **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

Conversion of the popular Lucasfilm game, originally on the Atari 8-bit.

**Program** *Beach Head* **Price** £1.99 **Supplier** Americana, 8-10 Paul Street, London EC2A 4JH.

**Program** *Codename MAT* **Price** £1.99 **Supplier** Zeppelin Games, 28 Osborne Road, Jesmond, Newcastle-upon-Tyne NE2 2AJ.

**Program** *Star Wars Droids* **Price** £2.99 **Supplier** MAD, 8-10 Paul Street, London EC2A 4JH.

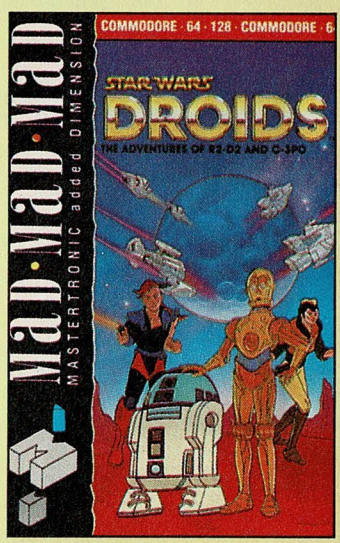
Follow the adventures of the famed C-3P0 and R2D2.

**Program** *Star Trooper* **Price** £1.99 **Supplier** Players, Mercury House, Calleva Park, Aldermaston, Berkshire RG7 4QW.

## ATARI ST

**Program** *Sidewinder* **Price** £9.95 **Supplier** Mastertronic, 8-10 Paul Street, London EC2A 4JH.

Conversion of the popular Amiga game has sadly suffered in quality.




continued on page 24 ▶

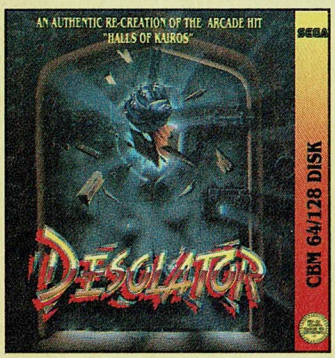
## Software guide continued

◀ continued from page 23

### CBM 64

**Program** *Desolator* **Price** £9.99/£14.99 **Supplier** U.S. Gold, Units 2 & 3 Holford Way, Birmingham B6 7AX.

Free the infants held captive behind mysterious mirrors. Another Sega coin-op conversion.




**Program** *Ballblazer* **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

**Program** *Beach Head* **Price** £1.99 **Supplier** Americana, 8-10 Paul Street, London EC2A 4JH.

**Program** *Super Trolley* **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul Street, London EC2A 4JH.

Conversion of the youngsters' famed Jim'll Fix It game.

**Program** *Star Wars Droids* **Price** £2.99 **Supplier** MAD, 8-10 Paul Street, London EC2A 4JH.

**Program** *Sword Slayer* **Price** £1.99 **Supplier** Players, Mercury House, Calleva Park, Alermaston, Berkshire RG7 4QW.

New hand-to-hand, sword-to-sword combat game with large characters.

**Program** *Draconus* **Price** £2.99 **Supplier** Zeppelin Games, 28 Osborne Road, Jesmond, Newcastle-upon-Tyne NE2 2AJ.

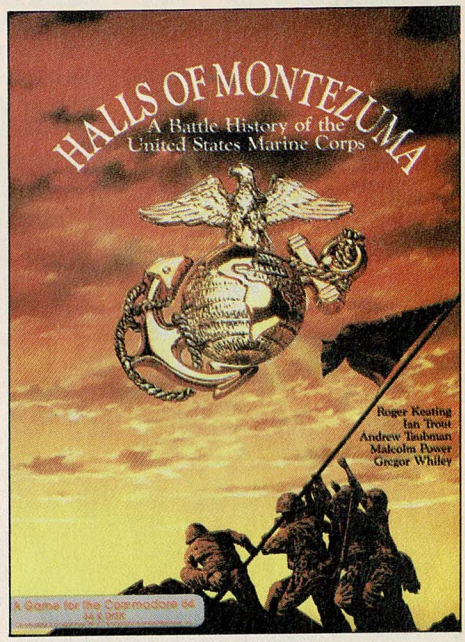
## Halls of Montezuma – C64

**Halls of Montezuma is the latest wargame in the excellent SSG range and plots a battle history of the U.S. Marines from the *Halls of Montezuma* at Mexico City in 1848 to the invasion of Japanese-held islands at the end of World War II.**

**Like other SSG games, this is a hex wargame supplied on disc along with an impressive manual, battle maps, guide to the game menus and disc labels to save the game.**

**Unlike other hex wargames where it is too easy for the player to get bogged down in moving each and every piece about the map, Halls of Montezuma leaves that to the computer and lets you take command. Whichever of the seven scenarios you decide to play you will have three divisions at your command. Each division is split further into three or four regiments and you can command each regiment directly by selecting from nested menu options.**

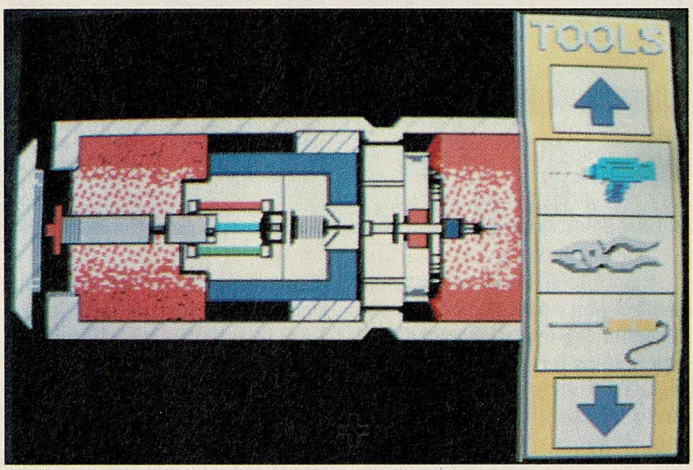
**Each regiment can be given an objective it will try to reach. This may be one of the many areas of strategic importance on the battle map such as airfields, mountain tops and towns which earn victory points for the occupier for every turn they are held. Similarly, the objective may be an enemy unit which must be destroyed; either way, the units which make up the regiment will move automatically as far as they can towards their objective.**




**If an enemy force is contacted you must decide the tactics and whether the regiment should probe, defend, delay or attack. If the order is to attack, should they prepare first, assault or exploit or over-run a small or routed force?**

**As the units carry-out your commands it will soon become clear whether your tactics are working by the speed of your advance or retreat and the losses you are incurring. Halls of Montezuma is one of the best in the SSG range for wargamers and a must for all disc-based generals.**

**Reviewer:** Tony Hetherington
**Price:** £18.95
**Supplier:** Electronic Arts (SSG)
**POPULAR RATING**
**Graphics:** 8
**Sonics:** 6
**Gameplay:** 45
**59**




## Bomb Disposal – Atari ST

**The makers herald a new concept in computerised entertainment. From the moment you start the game you become a trainee bomb disposal expert. How one can be a trainee expert is rather baffling but the idea sounds exciting.**

**The game is based on the processes of logical elimination. A V1 Flying Bomb has landed in the centre of Oxford Street; it is the middle of World War Two not a major terrorist attack. Do you de-solder first or cut through the wires? If you take the latter option there is the added complication that the sequence of wires varies according to which version of the bomb you are tackling.**

**If a mistake is made, which in the initial stages is highly probable, you witness a soldier's face explode and disintegrate into a skull.**

**The game is exciting yet somewhat frustrating. Having mastered the initial stages you have to keep returning to attempt deactivation of the more sophisticated bombs, although the decision not to include a save game option was intentional as the program calls at random four versions of the 'easier' bombs. This, however, is a minor complaint. On the whole a good attempt at a novel idea.**

**Reviewer:** Kelly Beswick
**Price:** £19.95
**Supplier:** Classic Software
**POPULAR RATING**
**Graphics:** 14
**Sonics:** 15
**Gameplay:** 35
**64**

## Shackled - C64

Your friends have been captured and are imprisoned in many cells within a mysterious castle. Your task is to release them from their shackles and lead them to freedom.

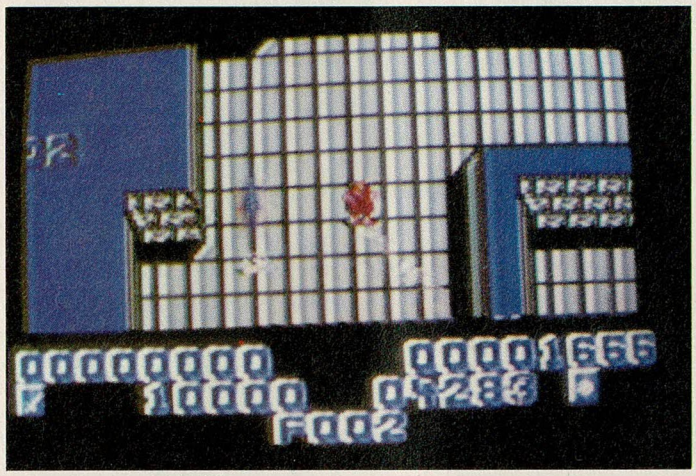
*Shackled* is another one of the increasing number of *Gauntlet*-type games which are now becoming available. Most of them follow the same form of game play as Gauntlet but Shackled deviates from this. As you walk through some not particularly colourful dungeons you will encounter many hordes of nasties, which apparently appear out of thin air. They can either be shot or be engaged with in hand-to-hand combat, although shooting them is favourable as you sustain less damage.

Releasing your mates will reveal them trailing behind you. By this time you will have the use of their weapons, which you will find very useful. As you progress through the game, it is inevitable that you will lose some of your fighting power. When it is gone the game ends but it can be replenished by picking up small flashing bonuses. When killed, some guards also drop bonuses, wich is very considerate on their part.

Many dungeons have locked doors located in them. They will require keys to open them and they can also be found littered round the dungeon. Each new weapon gathered will be displayed in the icon panel, and additional features are shown as secondary icons. Those features include extra defence.

Shackled plays very well and, combined with good graphics and quality sound, the game should be part of any gamer's collection. One game and you will be engrossed for hours.

**Reviewer:** Andrew Banner
**Price:** £9.99/£11.99
**Supplier:** U.S. Gold
**POPULAR RATING**
**Graphics:** 18
**Sonics:** 17
**Gameplay:** 37
**72**



## Poltergeist - C64

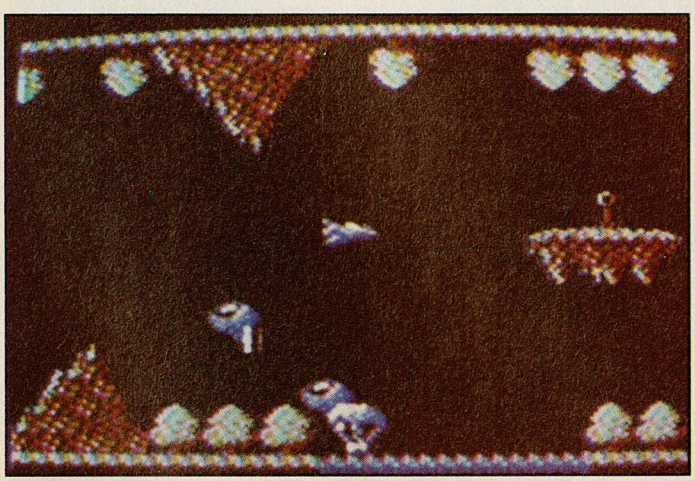
Many eons ago, the *Poltergeist* destroyed all life in the genesis star system but now its life force generators are causing evil mutants to grow which will eventually threaten your world. These ghostly apparitions and undead creatures will provide useful target practice but your main aim is to destroy the life force generators on each of the 32 levels. They appear as small flashing boxes which are hidden throughout the scrolling landscape which has a familiar "sheep in space" look to it.

The whole game gives you that *deja vu* feeling as it borrows from or was inspired by games such as *Nemesis* and *Scramble*, with some Rob Hubbard-style music to complete the mix.

Extra weapons can be selected once you have collected sufficient pods which look like lollies and appear on platforms and among the buildings, structures, trees and mountains at the top and the bottom of the screen. As each new pod is collected the next weapon system is highlighted at the bottom of the screen and includes a trio of forward-firing lasers, an up-and-down beam weapon, rear version of the trio, multi-forward-firing and missiles.

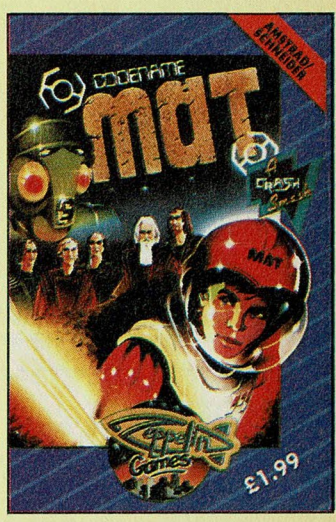
Unfortunately you can have only one system at once and since each level is designed for a different weapon you may find yourself looking desperately for pods to find the weapon which will give you any chance to complete the level.

The tactics you must employ will be second nature to Scramble and Nemesis players, since the game is a thinly-disguised copy of those two classics. Poltergeist may be a fast game and good value despite the appalling scenario but is it not about time there was something a little more original, even at £1.99?



**Reviewer:** Tony Hetherington
**Price:** £1.99
**Supplier:** Code Masters
**POPULAR RATING**
**Graphics:** 9
**Sonics:** 12
**Gameplay:** 29
**50**

## Software guide continued




### SPECTRUM

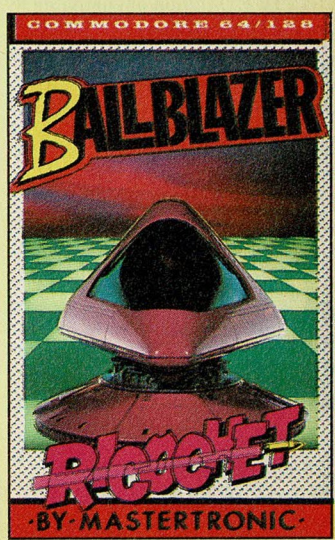
**Program** *Jasper* **Price** £1.99 **Supplier** Zeppelin Games, 28 Osborne Road, Jesmond, Newcastle-upon-Tyne NE2 2AJ.

A romp through a colourful cartoon world.

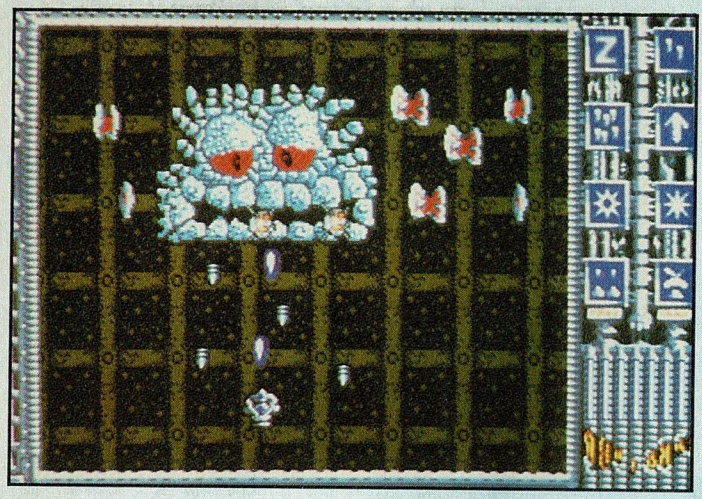
**Program** *Beach Head* **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul Street, London EC2A 4JH.

**Program** *Sword Slayer* **Price** £1.99 **Supplier** Players, Mercury House, Calleva Park, Aldermaston, Berkshire RG7 4QW.

**Program** *Hercules* **Price** £7.99 **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.



# SOFTWARE HOTLINES



## SOFTWARE HOTLINES

As we enter the silly season – when the software industry slows to make way for the public to spend hard-earned cash on meagre things such as holidays – we are still receiving plenty of information about some stunning impending games.

Take, for instance, the news of *Fire & Forget* from Titus. It is interesting that the address given is exactly the same as that of Eidersoft, although no mention of it is made. The new game looks very good. It is based on the idea of *Road Blasters,* soon to be released by U.S. Gold and available on Amiga, ST, Spectrum, C64, CPC and IBM PC very soon.

Playing on an ST or Amiga soon will be *Better Dead Than Alien!* It is another shoot-'em-up in which you must destroy some enormous and dopey-looking aliens before you are enslaved by the ugly beings.

Hewson has announced the release of *Marauder.* Featuring Captain C T Cobra, in his attack vehicle Marauder, avoiding airborne drones with their bouncing bombs and many other hazards looks set to make this game exciting. It is available from June 28 on Spectrum, C64 and Amstrad.

The 50-year-old Disney mouse finally gets his own computer game. *Mickey Mouse* is set in Disney Castle where four evil witches have stolen Merlin's wand. With the small cane they will be able to perform even more evil and devious deeds. An evil spell has been cast on the land and the wand broken in four pieces to prevent the spell being broken. Each piece of the wand is under guard by each witch in each tower of the castle. It is Mickey's task to retrieve the wand and break the spell.

Code Masters has a list of games as long as your arm, all due for release this year. The ones to watch for are *ATV Simulator* for the Amstrad, *Fruit Machine* for the PC, and the impending release of *Super Hero,* initially on the Spectrum and Amstrad, with other versions following closely.

Finally, Martech has announced *The Fury.* Take your anger out on the opposing planet's champion as you fight to the death at warp factor 10. Each champion has a price on his head, so you are not just playing for the fun of it.

Andrew Banner

### NEXT WEEK:

Business Special – A complete guide to choosing and using business software, including overviews of word processors, spreadsheets, databases and integrated systems.

Simulations – Lee Paddon reviews *Gee Bee Air Rally* and *Carrier Command.*

XZ Microfair report – Andrew Banner on what is new in the world of the ZX and Spectrum.

Watch for a special competition.

# DIARY DATES

## JUNE

June 21–23 1988
**Networks' 88 Exhibition**
Wembley Conference Centre, London
**Details:** Exhibition of computer networking systems
**Organiser:** On-line Exhibitions 01-868 4466

June 28–30 1988
**PC User Show**
Grand Hall, Olympia
**Details:** A show for users of IBM-compatible personal computers
**Organiser:** Emap Exhibitions 01-404 4844

## AUGUST

August 14 1988
**MSX Link International**
Market Deeping Centre, Nr. Peterborough
**Details:** The second MSX exposition in three years. From 10–5pm. 50 pence for adults, half-price for under-14s
**Organiser:** David Webb 0775 3433

## SEPTEMBER

September 14–18 1988
**The Personal Computer Show**
Earls Court, London
**Details:** The eleventh personal computer show with more overseas exhibitors than before plus an international conference to attract business visitors
**Organiser:** Montbuild 01-486 1951/01-487 5831

Please address any events to the Diary Editor at *Popular Computing Weekly* with full details.

# CHARTS

## Top Twenty

| | | | |
|---|---|---|---|
| 1 | (1) | Steve Davis Snooker | Blue Ribbon |
| 2 | (3) | Yogi Bear | Alternative |
| 3 | (4) | Ace | Cascade |
| 4 | (9) | Target Renegade | Imagine |
| 5 | (2) | Way of the Exploding Fist | Mastertronic |
| 6 | (8) | Ghostbusters | Mastertronic |
| 7 | (6) | Out Run | Sega-U.S. Gold |
| 8 | (RE) | Frank Bruno's Boxing | Encore |
| 9 | (5) | Soccer Boss | Alternative |
| 10 | (7) | Shanghai Karate | Players |
| 11 | (23) | Grand Prix Simulator | Code Masters |
| 12 | (13) | Trap Door | Alternative |
| 13 | (12) | We Are The Champions | Ocean |
| 14 | (10) | Fruit Machine Simulator | Code Masters |
| 15 | (20) | FA Cup Football | Mastertronic |
| 16 | (14) | Super Stuntman | Code Masters |
| 17 | (28) | Bruce Lee | Americana |
| 18 | (22) | BMX Simulator | Code Masters |
| 19 | (16) | Popeye | Alternative |
| 20 | (39) | Ikari Warriors | Elite |

All figures compiled by Gallup

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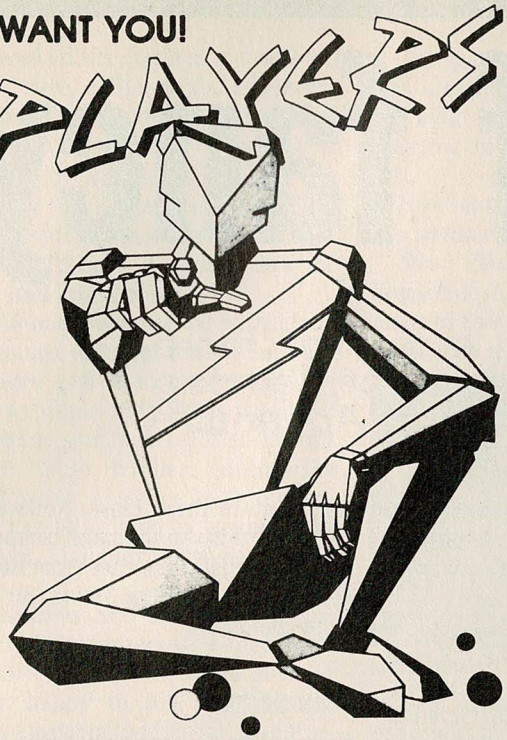

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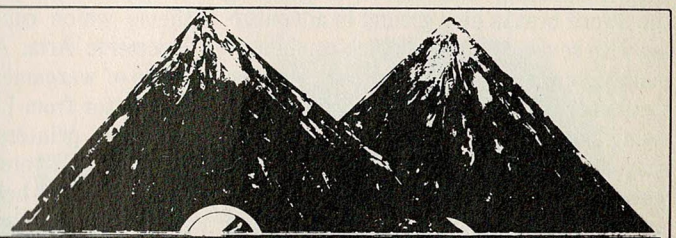

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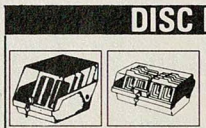

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# Flights of fancy

Ken Matthews takes us on a tour of more adventure games with details of, among others, *Legend of the Sword, Adventure Probe* and *Star Fleet 1*.

The months of waiting are over and *Legend of the Sword* has appeared and was featured as Game of the Week two weeks ago. The background was well-covered by Adrian Pumphrey but as the product is so exceptional I will deal with aspects of the gameplay and features of this marvellous adventure.

The plot is simple and none too original. You have been charged to recover the magical sword and shield which will defeat the evil wizard holding your country in thrall. To help you, a band of adventurers is formed and together you begin your perilous quest.

## New ground

Notwithstanding the theme, Legend of the Sword breaks new ground in adventuring with several features which combine to make a landmark product. First, the icon method of moving characters and manipulating objects is extremely pleasant and easy to use, although typed-in commands work just as well. Of particular note is the 'vocab' option which lists verbs understood by the parser, saving considerable time and effort.

The full-colour scrolling map drawn as you progress takes the idea first seen in *Beyond Zork* a step further and greatly enchances the buzz of exploration as you progress across the colourful and detailed landscape. You will perhaps need your own standard map to keep track of the objects and characters encountered, though, as only part of the huge landscape can be viewed at any time.

Rather than graphics for each location the game uses cameo-type pictures for some scenes and action sequences which, although small, contribute to the atmosphere and continuity.

Gameplay is fast and absorbing as you equip your band and do battle across the land. The descriptions of the battle sequences are particularly detailed and colourful and remind me of some seen in the better fantasy fiction. Taken overall, though, Legend of the Sword is an excellent game which has bridged the gap between the standard text/graphics adventure and the conventional role-playing game in an original and captivating way. It deserves to do well.

News of the moment is that *Rocket Ranger* has been released in the U.S. and will be with us soon, so I have included a few shots to whet the appetite for what promises to be the most exciting Cinemaware release to date.

I am playing the *Three Stooges* now and find it offers a great deal of fun and perhaps more gameplay than some earlier titles.

Electronic Arts has two items on the cards including a very special deal for adventurers in conjunction with Interplay and a new release from Interplay, designer of *Bard's Tale,* with a science fiction theme which could be another first for Electronic Arts. Also from EA is a new range of wargames for the C64.

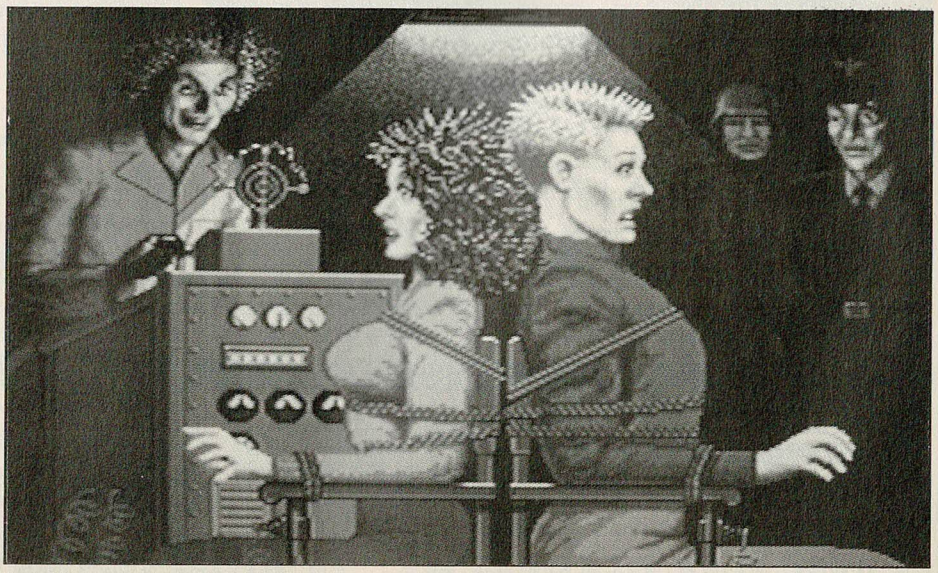
A letter from Linda Wright complained that the printers turned her company Marlin Games into Merlin Games and that, despite having her ST and STAC, she has not abandoned the Spectrum and is working on her third home-grown title for that machine. Those interested in this or her earlier well-received games, *Jade Stone* and *Cloud 99,* should write to Marlin Games at 19 Briar Close, Nailsea, Bristol BS19 1QG. Also on the small company front there is the latest release from Eighth Day Software, *Skellvullyn Twine,* for all Spectrum computers.

## Plus point

Four programs are included in the package. The first is a very detailed thoughtful introduction to the game and contains all the history leading to the event of the following adventure in both text and graphic form. There are clues to be found in the graphics which is a huge plus point, for me at least, and a wealth of scene-setting data.

The remaining three programs represent the stages of the game. They are text-only and, I would judge, of slightly more than average difficulty. It is well presented and has several neat twists which have commended recent Eighth Day releases to one and all.

Once again it has taken a theme which has been seen previously and presented it in an original and pleasing form. I will not deal with the detail to spoil things but will just advise Spectrum adventurers to send £5.50 to Eighth Day Software at 18 Flaxhill, Moreton, Wirral, Merseyside L46 7UH.



Rocket Ranger – released in the U.S.

Just arrived on the doormat is a copy of *Adventure Probe,* a lifeline for adventurers published by Sandra Sharkey and edited by Mandy Rodrigues, run as a non profit scheme by adventurers across the country. Sadly this is the first of the 20 or so monthly issues I have seen and it is clear I have missed a great deal of interesting and informative work.

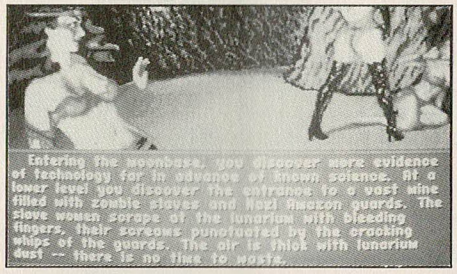
The 40 A5 pages are packed with hints, tips, puzzles and editorial work. There are contact pages and amusing articles on bugs. A few people have even published their telephone numbers to offer instant relief from those trickier adventuring problems. Costing £1.25 an issue, *Adventure Probe* can be ordered by writing to 24 Maes Y Cwm, Llandudno, Gwynedd LL30 1JE.

These fanzines are a tribute to the dedication of adventurers and their willingness to help newcomers to the hobby. I am always happy to see and promote worthwhile attempts to promote adventuring from large and small concerns.

Long ago, in a galaxy far away, users of the Commodore Pet played a strategy wargame, *Star Trek.* Played on a simple matrix of dots the player - a letter 'E' — made war on the Klingon and Romulan vessels - a selection of Ks and Rs - via cumbersome keyboard entries. Written in Basic, the game had nothing to recommend it - no graphics or sound to speak of, yet it was utterly compelling and everyone was an avid trekker. I was no exception, creeping bleary-eyed to the sleep of the just.

Now on the Commodore flagship Amiga the trekkers ride again.

*Star Fleet 1* has been released by Electronic Arts and is clearly a development of the earlier game. Naturally there have been a few changes, not least in the




Rocket Ranger - exciting Cinemaware release.

names of ships and enemies to avoid copyright wrangles.

Almost 200 pages of documentation accompany the product, building a detailed picture of the war against the Krellan/Zaldron Empire. Every feature of the Invincible class heavy cruiser is detailed from stem to stern. A separate manual is included, dedicated to strategy and tactics for commanders.

You begin your Star Fleet career as a cadet with stationary enemies and no invisible Zaldrons. As you progress, you can be promoted, provided you make the grade, and the bravest and most ambitious officers can win a huge selection of decorations and battle honours.

You have at your disposal a variety of weaponry and high-tech systems for navigation and targeting. Torpedoes and phasers destroy and disable enemies, while shuttlecraft lay mines to blast the invisible Zaldron craft. Tractor beams will grab a disabled foe to allow your marines to transport, board and capture the enemy craft, all of which adds to your command rating. Long-range probes scan for the starbases which re-supply your ship and crew.

As you qualify for higher-level missions, your foes will move and show intelligence by running in close to deliver costly hits and duck beyond range or may even beam saboteurs aboard your ship to damage vital systems. Each level presents a new challenge.

Star Fleet is designed for expansion and future releases will build on this background game, carrying the war to the heart of the Krellan Empire. Star Fleet is elaborate, compulsive to play and has a very realistic feel. Keep up your shields and your long-range scanners and enlist today. Your galaxy needs you. □

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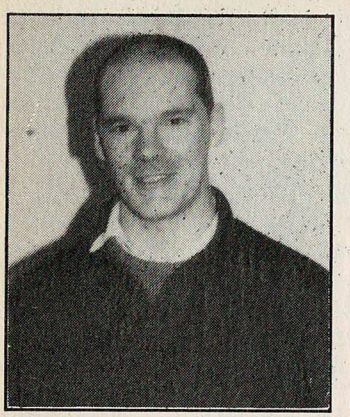


## Commercial advice

*A G Dudgeon, of London SW6, writes:*

**Q Can you help me directly or advise me where I can get advice, unbiased and uninflated, for commercial reasons? Unfortunately, I have to be as economical as possible.**

**I am a freelance author, untechnical – aged 72 but practical. Three to four years ago I acquired a computer, secondhand, solely to be used as a word-processor and it has now become invaluable to me. I have about 11 discs of 300K letters each for reference.**

**I am scared that the machine will finally die on me and I wish to be prepared, hence the questions.**

**The equipment in question is: U.S. Televideo TS-802 computer system with two 5.25in. floppy disc drives and a monochrome green screen.**

**It runs the CP/M operating system and has a Z-80A microprocessor, 64K RAM and an RS232C serial interface. The word-processor is *Spellbinder*, the printer is a Samleco DX-85 dot matrix.**

**Is there an inexpensive British computer which can 'read' my discs, my word-processing package and associated software?**

**If not, where can I go to get information and advice? Do firms exist which could convert my American material for British compatible hardware, e.g., Amstrad or similar, and is that kind of work costly?**

**Last, if all else fails, do you know of any firms around London which could service or repair and re-instate an American machine if disaster strikes? It weighs 541lb.**

**A** As the machine uses 5.25in. discs and runs CP/M, most other machines which do this should also be able to read your discs and run your software, since CP/M is a standard operating system.

I do not know of any which are reasonably cheap, so the best thing to do is get in touch with one of the CP/M user groups listed.

So long as you keep your machine relatively clean and take good care of it, it should last some time.

I have yet to see a computer wear out just from use but it pays to have a maintenance contract with someone who knows about the machine. Again, try one of the groups for more advice.

Sorry I can't be of more help.

## Repeated subtraction – inefficient

*John McCarthy, of Mansfield, Notts, writes:*

**Q In the solution to puzzle 13 given in the May 26 issue, the solver laments the difficulty arising from the inaccuracies of finite calculations. Although some calculations, most notably divisions, give imprecise results, the method suggested to overcome them is a classic case of over-kill.**

**Repeated subtraction as an alternative means of division is grossly inefficient, especially where the numerator is very large and the denominator is comparatively small.**

**It is a technique which has the rare property that the numerical size of the result is the perfect indicator of the effort applied to obtain it.**

**Avoiding this extravagance is simple. Consider INT(A/B) where A and B are positive integers greater than zero. Unless a computer is completely duff, the only time it would be prone to error is when A is an exact mutliple of B but the computer value is a tiny amount less than the correct integer value.**

**Applying the INT function would cause a shortfall of 1 in the answer.**

**The remedy is to add 0.5 to A before performing the calculation. That way a shortfall cannot happen.**

**Are you worried about overestimating the answer? Do not be.**

**If A is one less than an exact multiple of B, adding 0.5 to it will not fool your trusty computer.**

**If it does your computer truly is a fool and can lay claim to a great feat of very artificial intelligence. By the way, no computer to date is remotely as clever as a fool. In summary,**

**T MOD F=T–INT((T+0.5)/F)*F**

**A** This is the best method of any number situations, i.e., T and F are any value. There is a faster method which can be used on special occasions where F is a power of 2, i.e., 2,4,8,16,32,64 and so on.

Computers which allow bit-wise logic operations can use AND to obtain MOD. The trivial example is to check whether a number is odd or even with T AND 1. Where 1 is the result, the number is odd; 0 denotes even.

This is the equivalent of T MOD 2. ANDing with 3 gives the same results as MOD 4, i.e., 0 1,2,3. ANDing with 7 gives MOD 8, 15 gives MOD 16 and so on. This can sometimes be useful, especially in machine code where division requires a massive overhead.

## QL and ST computer transfer

*Sam Babiker, of Clifton, Bristol, writes:*

**Q Last December I wrote enquiring about transferring data between QL and ST computers.**

**I am now writing to let you and others who may be interested know that I have found the answer much closer to home. Plantir Products of 78 Leighton Road, Bedminster, Bristol supplies a cable and software to transfer ASCII files between the QL and ST at very high speed.**

## Dragon 32 manual missing

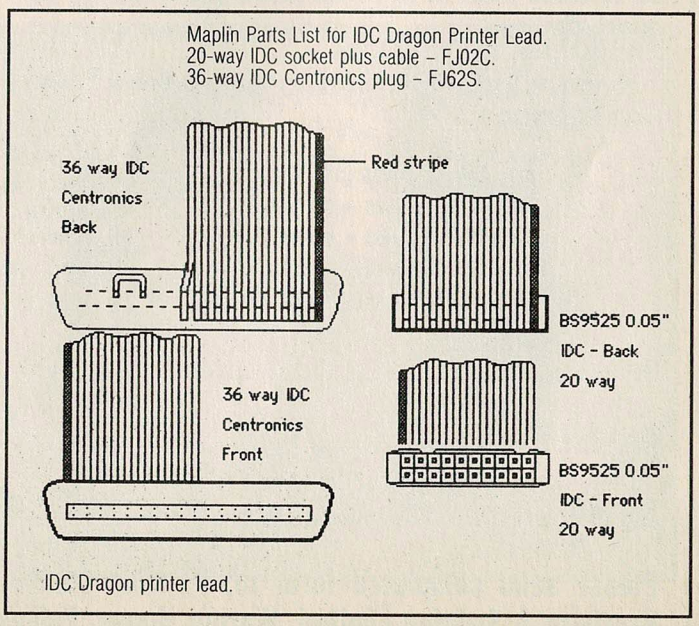
*L F Sinfield, of Luton, Beds, writes:*

**Q I have a Dragon 32 but no works manuals. I wish to connect a Centronics printer to its parallel printer port but have been unable to obtain data on the relevant connections. Can you help?**

**Also, is ther any source of supply for the manuals?**

**A** It has been many many years since I used a Dragon 32 but I remember using it directly with an Epson Centronics-compatible printer and that the cable was rather narrow. So I have guessed at the Insulation Displacement Connector connections shown. The parts for this are available from Maplin Electronic Components – 0702 554161 – which will also make a cable to your requirements.

For information about a local computer club with the necessary details, you might try the Association of Computer Clubs, 12 Poplar Road, Newtown, Powys. If any readers know the details and can shed light on a source for Dragon manuals, write to me and I will pass on the information.



IDC Dragon printer lead.

## Brotherly co-operation

*J Bentham, of Loughborough, Leicestershire, writes:*

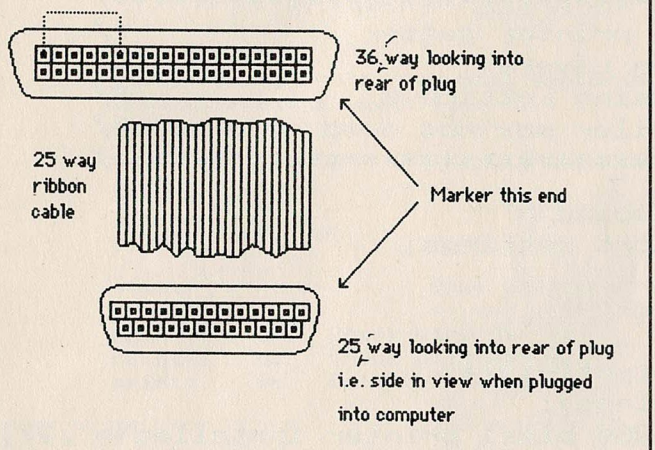
**Q With regard to M B Nailro's plea in the May 5–11 issue, I can assure him that a Brother HR5 will work with an Atari 520ST very well, as mine does. It also works with a Dragon and a BBC.**

**When I connected mine to my 520STFM I bought one metre of 25-way ribbon cable, a 25-way plug, and a 36-way plug. The plugs were of the squash-on type – insulation displacement – and were put on in my toolshed vice. They were fixed as shown in the figure below.**

**The parts should cost around £5 or so and can be obtained from a local radio spares shop or from Maplin. Note that this assumes that it is the Centronics version of the HR5 you have.**

A Thanks also to Alan Cox of Kent who also informs me that there is no trouble with the HR5 and the ST. In the diagram I have added a wire from line 13 to 18 (dotted) as I think this is necessary to select the printer. If you do not have a vice for fixing (insulation displacement) connectors a door jamb will do the job if you are careful.

The parts can be obtained from Maplin Electronic Components – 0702 554161 – which will also make the lead to your specifications. The part numbers are: 36-way IDC Centronics plug FJ62S; 25-way IDC D plug FV81C; 26-way IDC cable XR75S. The cost is about £8.




IDC Centronics printer cable for ST.

## Floating numbers

*Simon Groves, of Lincoln, writes:*

**Q I have been working with ZX Basic on my Spectrum 48K for several years but recently I have encountered a problem I cannot understand. It is illustrated in the program:**

```
10 LET X=?
20 PRINT LEN STR$ X;"=LEN STR$ X"
30 PRINT 10-LEN STR$ X;"=10-LEN STR$ X"
```

**Line 30 produces the result I cannot fathom. For values of x between 0.01 and .99 the result printed-out is negative. For any other value the equation works as it should. That is, for x=1.25, line 30 prints 6 and for x=21, it prints 8. Can you explain why it does not work if x is between 0 and 1?**

A It looks as if the problem, if it is such, is in the way in which the Spectrum performs its floating point calculations and, I think, in the way it stores floating point numbers.

Any number can be represented as $\pm m*2^E$ where m is shown as the mantissa and E is the exponent. The mantissa is the value of the number normalised so that it is a fraction with no zeros after the decimal or binary point. In base 10 (decimal), the value 12.23 can be represented by $.1223*10^2$ i.e. 0.1223 times 100. Here the mantissa is 0.1223 and the exponent is 2.

In binary, everything is done in powers of two, hence $\pm m*2^E$. To convert a floating point decimal number into binary the simplest way is to split the number at the decimal point and use the double dabble method to convert the left side (integer) and then convert the right side (fraction) with a fractional double dabble. I do not know the true name for this or even if it is the best method but it works. The first thing to realise is that the left side, i.e., xx in xx.yy, is represented as the sum of powers of 2, just as in decimal it is represented as a sum of powers of 10. For example, 23 is $2*10^1+3*10^0$. Note that $10^0$ is 1 and $10^1$ is 10, $10^2$ is 100, $10^3$ is 1,000. In binary the numbers are $2^0$ (1), $2^1$ (2), $2^2$ (4), $2^3$ (8) etc. Since there can only be 1s or 0s in binary, the value 1100 (12 in decimal) is $(1*2^3)+(1*2^2)+(0*2^1)+(0*2^0)$. So to convert from decimal to binary, use the double dabble method as follows for example take 23:

23 divided by 2 gives 11 remainder 1
11 divided by 2 gives 5 remainder 1
5 divided by 2 gives 2 remainder 1
2 divided by 2 gives 1 remainder 0
1 divided by 2 gives 0 remainder 1

Reading the remainders from bottom to top gives 10111, i.e., 23 in binary. What is happening effectively is that powers of 2 are being subtracted, i.e., $(1*16)+(0*8)+(1*4)+(1*2)+(1*1)$ or $(1*2^4)+(0*2^3)+(1*2^2)+(1*2^1)+(1*2^0)$.

For the right-hand side of the decimal the same process is performed, except that the value is multiplied repeatedly by 2 and then the integer part of the result (left side) is tested to see if it is odd or even. An even value gives a 0, an on value gives a 1. Fractional binary numbers are represented as $2^{-1}$, $2^{-2}$, $2^{-3}$, $2^{-4}$. Raising a number to a negative power is the same as dividing by the number raised to the same positive power, e.g., $2^{-3}$ is $1/2^3$ or 1/8. So fractional binary numbers are represented as 1/2, 1/4, 1/8, 1/16, 1/32, etc. For example, to convert 0.1 (decimal) to binary, the following method can be used:

0.1 times 2 gives 0.2 integer even so 0
0.2 times gives 0.4 integer even so 0
0.4 times 2 gives 0.8 integer even so 0
0.8 times 2 gives 1.6 integer odd so 1
1.6 times 2 gives 3.2 integer odd so 1
3.2 times 2 gives 6.4 integer even so 0
6.4 times 2 gives 12.8 integer even so 0
12.8 times 2 gives 25.6 integer odd so 1

The process can be continued for as many binary places as is necessary. To get the result set a point and read the 'so' results from the top, i.e., 0.00011001 which is: $(0*2^{-1})+(0*2^{-2})+(0*2^{-3})+(1*2^{-4})+(1*2^{-5})+(0*2^{-6})+(0*2^{-7})+(1*2^{-8})$ etc.

Converting back to decimal the result is 1/16+1/32/+1/256 = 0.09766 which is fairly close considering the few binary places evaluated.

The Spectrum, like many other computers, stores its numbers in the format $\pm m*2^E$ since it allows very large and very small values to be held in a few bytes, in the case of the Spectrum, 5. The storage is as follows:

The first byte contains the exponent +128 and the following four bytes hold the signed mantissa. So take the value 14.1 14 is 1110 in binary and $0.1_d$ is: $0.0001100110011001100110011001100_b$. Since the next digit would be a 1, the last is rounded up to a 1. This gives the floating point binary number:
1110.00011011001100110011001100110101

To make this a mantissa, it must be shifted right four places so that there is nothing before the binary point and a 1 after it. That is exactly the same as dividing by 16 which is $2^4$. So, to get back the value later, it will have to be multiplied by 16 which makes the exponent E=4.

Since the first bit after the binary point is always 1 in a mantissa – this is the binary definition of a mantissa – it can be used to indicate the sign + or – of the number. So, since 14.1 is positive, this bit will be set to zero. The exponent is 4 – the binary number has been shifted right four places – so the exponent byte is 4+128 or 10000100. This gives the five bytes:
1000010001100001100110011001100110011010

Note that now it is five bytes, the last bit was a 1 as was the one after it. Rounding up the last bit makes it two, so the bit is carried forward one place making the last byte 10011010.

This method allows values with exponents from +127 to −128 or approx $10^{38}$ $10^{-39}$ but with limited accuracy due to the curtailed number of decimal places.

To return to the problem on the Spectrum, what I think is happening is that the parser – the part of the program which evaluates calculations on a line of Basic – has trouble with positive exponents when coupled with the rounding up of the last figure of the mantissa. Since a calculation is involved in line 30 of your example program, the parser extends the length of the fraction to more than 10 figures, giving a positive result.

# Character Roll

Tim Warburton

This small program rotates the characters on-screen 90 degrees about their centre. Although, on the face of it, this seems pointless, many people will find a use for this routine. □

```
 5 MODE 4
10FOR P=0 TO 3 STEP3
20P%=&D00
30[
40OPTP
50LDA£0:STA&70:LDA£&58:STA&71
60.L3 LDY£7
70.L2 LDX£7
80.L1 NOP:NOP:ROR&72,X
90DEX:BPLL1
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130CLC:LDA&70:ADC£8:STA&70:BCCL3
140INC&71:BPLL3
150RTS
160]
170NEXT
180 ?L1=&13:?(L1+1)=&70
190 CALL&D00:GOTO 190
```

# 960

Darryn Lavery

Many people who own Epson-compatible printers will have encountered the problem of dumping screens using the Alternate Help keyboard commands. Unless modified, the printer prints at 1,280 pixels, which does not print the whole screen. This flag needs to be set to 960 and this little program is just the job. Normally, this task would be performed by the CONTROL, ACC desk accessory which eats memory - this just sets the flag and erases itself.

The program was written using Lattice C version 3.04 but should work on most C compilers with little modification. It is recommended that you put this in an Auto folder so that it is available on boot-up.□

```
/*****************************************/
/*960 pixel printer setter               */
/* by Darryn Lavery                      */
/*written using Lattice C                */
/*your compiler may not need void cast*/
/*****************************************/

#include "osbind.h"
unsigned short settings;

void main()
{
settings=Setprt(-1)|4;
Setprt(settings);
printf("%cE960 pixel printer installed\n",27);
}
```

# Disc Analyst

Darryn Lavery

This short program checks your disc to see if it has any bad sectors. If it has it reports them. It works with single- and double-sided discs, 9- or 10-sector and any amount of tracks. The program was written in Lattice C 3.04 and the void cast in front of all functions is to tell the compiler that the function has no return value. If converting to other compilers remember that Lattice C uses 32-bit integers. □

```
/*********************************/
/*Sector check by Darryn Lavery */
/*********************************/
#include"stdlib.h"
#include"osbind.h"

#define A 0
#define B 1

unsigned char *buffer;
short sectors,tracks,total_sectors,drive;


short get_details()
{
if (Floprd(buffer,0,drive,1,0,0,1)) return(-1);
```

```
total_sectors=buffer[20]*256+buffer[19];
sectors=buffer[24];
tracks=total_sectors/sectors;

return (0);
}


void do_a_check()
{
int ok,loop;

printf("%cE",27);

if (!get_details())
        {
        printf("This disc has %02d tracks\n",tracks);
        printf("           and %02d sectors\n",sectors);
        ok=1;
        printf("Please wait...Checking Disc...\n");
        printf("This will take some time!!\n");

        for (loop=0;loop<total_sectors;loop++)
        if (Rwabs(0,buffer,1,loop,drive))
                    {
                    printf("error track %02x sector %02x",loop/sectors,loop%sect
ors);
                    ok=0;
                    }

        if (ok)  printf("Disc ok\n\n");
        }

else printf("Can't read boot sector\n");
printf("Press a key\n");
Cnecin();
}

void message()
{
printf("%cE",27);

printf("               Disc checker\n");
printf("               ------------\n\n");
printf("  A:   Check Disc A\n");
printf("  B:   Check Disc B\n");
printf("  Q:   Quit to desktop\n");

}

void get_keypress()
{
short key;

do
   {
   key=Cnecin()%256;
   }
   while (key !='Q' &&key!='q' &&key!='A' &&key!='a' &&key!='B' &&key!='b');

if (key=='A' || key=='a') drive=A;
if (key=='B' || key=='b') drive=B;
if (key=='Q' || key=='q')
                {
                rlsmem(buffer,512);
                exit(0);
                }
}

void main()
{
buffer=(char *)getmem(512);

while (1)
    {
    message();
    get_keypress();
    do_a_check();
    }
}
```

# MICRO-FILE

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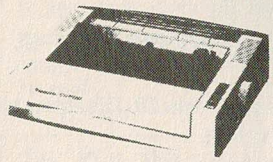

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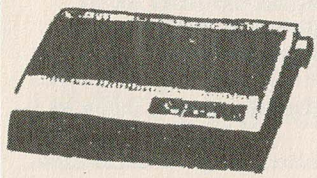

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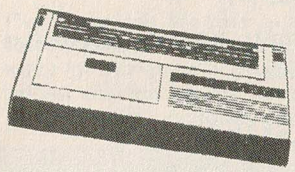

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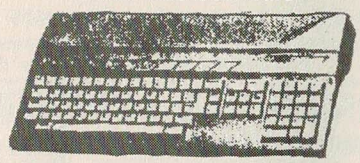

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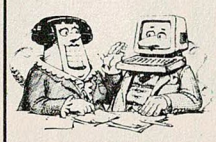

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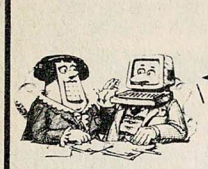

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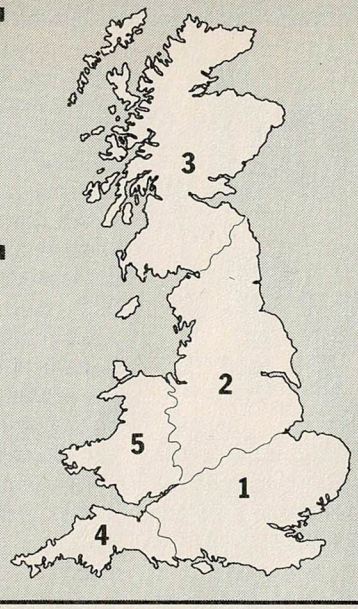


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# Piracy – good, bad or ugly?

Hundreds of people have put pen to paper on this topic through software, we have to look at exactly what it means. There are three classifications of pirates:

The home copier. This is by far the most common and I am sure everyone who is reading this either has copied a piece of software or knows someone who does.

The Sunday market pirate. This is the type who sells copies of games unashamedly – blank tapes with the name written on them, photocopies of the inlay card and so on.

The big-time con merchant. From the view of the software producers, he is the lowest of the low. He produces illicit copies of software, with inlay cards and packaging identical to the original product, and sells it as the original product.

In reverse order, obviously the last one is the most harmful to the software industry. He deprives software houses of revenue, and also cons the customers.

The Sunday market duplicator is more common. I cannot speak for other towns but in Glasgow there are several stalls at the Barras market dealing with copied tapes and discs. Those people are less serious, to a degree, than the big-timers because nobody is duped into thinking they are buying originals.

On to the most controversial definition of a pirate. Whatever wild figures the software industry quotes, this is the least damaging, to a point. This type of software piracy has often been defined as theft but that is open to question.

The dictionary definition of steal is to take someone's property. The software industry argues that the software on a tape is the property of the producer but that, too, may be held open to question.

The law is very fuzzy in this area, holding the view that if they cannot see the contents of a tape or disc, they cannot prove it has been copied. Hence there have been very few prosecutions for software piracy.

Before I say more, I feel I must point out that I am not condoning piracy in any form – just pointing out some facts which are commonly overlooked. I would like, however, to proffer a view which seems obvious, but which is rarely expressed. I believe that home copying does the industry a big favour, provided that those who copy software for themselves will also continue to buy original software on a regular basis. I know people who never buy software. Either they go to the stalls at the Barras and pick up a couple of new games for £5 or they get copies from their mates. This is wrong, and I have no time for people like this.

Let me take an example. A person I know has an Atari ST. He buys software for the machine at £20 a time every month. As yet, the 16-bit market is still in its infancy and, relative to the Spectrum market of 1984, much of the software is not worth the asking price. If he buys a bad game he might play it for two days and the put it in a cupboard. What happens for the next four weeks until he can afford another game? His ST is unused. Eventually he becomes disenchanted, after buying two or three bad games in a row, and stops buying software altogether, playing football instead.

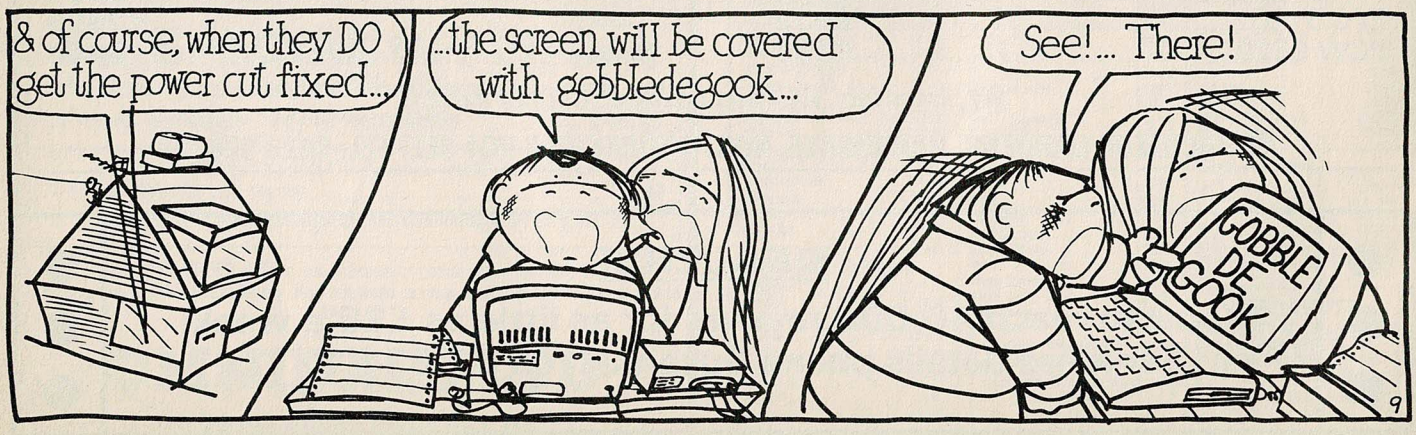
This is purely theoretical. If he was to receive a copy of a good game in the four weeks he waited before buying again, he might be less likely to put away his joystick in despair. If the situation gets out of hand and he buys nothing he is a lost cause. Most people like this are sensible when buying software. They might save their money for the more worthwhile games, while keeping themselves ticking over with copies of the less good ones. I see no harm in this, since they have no intention of buying the bad ones anyway.

Whatever your view of piracy, it cannot be stopped except by strictly-enforced, well-thought-out laws. This seems a long way off. At present the Commons is debating a new Copyright Bill which will give anyone the right to hire any software a year after its release without paying royalties. This could be the death-knell for business software.

There is no other way of halting piracy. New ways to slow it are being invented but with devices such as the Multiface on the Spectrum, Commodore and Amstrad, little can be done to check a determined pirate. Hackers will always strive to remove protection from software, allowing it to be copied freely – and, if all else fails, you cannot stop the age-old tape-to-tape copier. □

**Ewan Dalton**

## HACKERS



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At Silica Shop, we have a dedicated service department of seven full time Atari trained technical staff. This team is totally dedicated to servicing Atari computer products. Their accumulated knowledge, skill and experience makes them second to none in their field. You can be sure that any work carried out by them is of the highest standard. A standard of servicing which we believe you will find **ONLY FROM SILICA**. In addition to providing full servicing facilities for Atari ST computers (both in and out of warranty), our team is also able to offer memory and modulator upgrades to ST computers.

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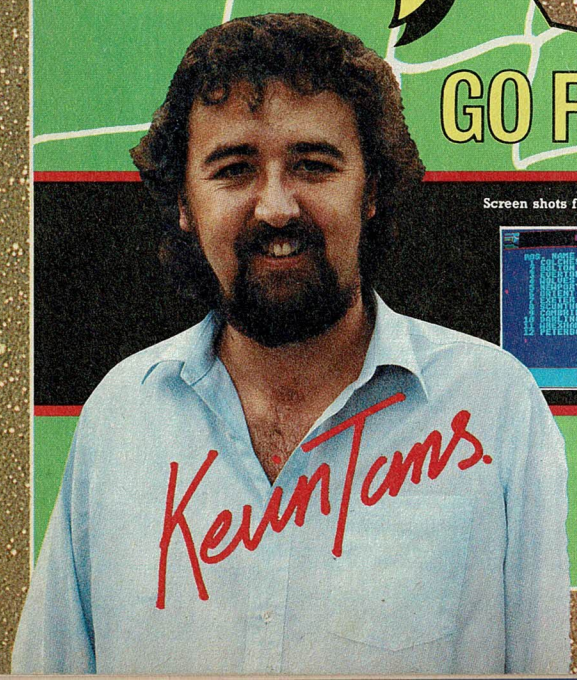


Screen shots from Atari St system.

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