

# POPULAR COMPUTING

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WEEKLY

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## Now Darling brothers help feed the world



Darling brothers to produce a Global Sports Aid game.

CODE Masters is to produce a Global Sports Aid game for the 1988 Sports Aid appeal.

This is the first time a game has been specifically written for charity and the copyright of the game will actually be owned by Sports Aid. The game will be sold and marketed throughout the world and all proceeds will go to Sports Aid.

According to David Darling, managing director of Code Masters, the game is based on the event preceding the world-wide *Race Against Time*. "It will probably follow the person who carries the torch and runs through all the cities before the race takes place," he explained.

The game will feature graphics digitised from real pictures. When

the torch-carrier runs through Paris, for example, the Eiffel Tower will appear in the background.

"It is basically an arcade game" continued David, "but is quite complicated. The runner has to resolve certain puzzles along the way."

David and Richard Darling began negotiating with Sports Aid last year, having approached the charity with offers of help. The Oliver twins, who write games for Code Masters, actually suggested the idea for the game since they had participated in the Race Against Time in 1986.

Nick Kator, on behalf of Sports Aid, was delighted with Code Masters' offer. "I'm sure it will be exciting and dramatic and that computer buffs world-wide will enjoy it," he commented.

Kator stressed that the support of the computer industry did not  
continued on page 5 ►

## Further Amiga price cuts?

COMMODORE U.K. chief Steve Franklin last week made it clear that further price adjustments to the A500 Amiga could be in the pipeline as the company aims to woo the small business user.

This will be the third instance of such adjustments in the year since the U.K. launch of the A500, with an offer on the machine and the 1081 colour monitor due to expire this week.

Speaking at the *Which Computer?* Show in Birmingham, Franklin told *Popular Computing Weekly*: "The first price adjustment was

ultra, ultra successful, and probably launched the Amiga as a serious product in the U.K. The new price promotion has only just started, and again that's proving successful.

"We'll probably be doing another promotion which will enhance the product to the small business community, around mid to end of February," he went on, although he wouldn't be drawn on precise details.

Such a promotion would appear to be part of a general attempt to woo the small business person, in

the same way that Amstrad has carved a niche in that market with the PCW and PC range.

A number of 'enhancements' are planned for the A500 and A2000 Amigas during 1988, both for the games and small business markets.

These should appear at the Hanover Fair, and are likely to include such things as hard disc drives.

Commodore also took the opportunity at the Birmingham show to launch its 80386-based PCs, the PC 60-40 and 60-80. **JB**



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3<sup>d</sup>

# DAN DARE

## MEKON'S II REVENGE

WINTER ISSUE 1955

The story so far . . .

The Mekon has returned, cunning as ever, to take revenge on the Planet Earth. In this bid to become ruler of earth the Mekon has developed a new genetically engineered race . . . the **SUPERTREENS!**

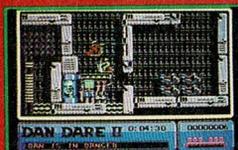
To save the earth someone must destroy the Mekon space ship before the Supertreens can be launched. There is only one way to defeat the Mekon – face to face. There is only one man for this mission . . . **DAN DARE!**



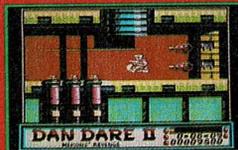
Commodore 64/128 cassette £8.95 disc £12.95  
Spectrum 48/128/+2 cassette £7.95/+3 disc £14.95  
Amstrad CPC cassette £7.95 disc £14.95

Play Dan Dare – or the Mekon in this follow up to Dan Dare – “The Pilot of the Future,” the game that was voted the ZZap 64 Arcade Adventure of 1986, and was declared a Crash Smash, C + VG Hit! A Sinclair User Classic, and your Sinclair Mega Game. **Dan Dare – Mekons Revenge is not to be missed!**

Available from all good retailers or direct from Virgin Games, 2/4 Vernon Yard, Portobello Road, London W11 2DX



Commodore Screen



Spectrum Screen



Amstrad Screen

The A500 Amiga was announced at its launch in March 1987 as the "ultimate home computer", and the major advertising campaign which began last summer emphasised its games-playing abilities, whilst also making slight mention of its use as a business machine.

This year Steve Franklin, head of Commodore UK, says that it will be aimed at that small business market as much as the games market in which it became established last year, and further enhancements will be made across the entire Amiga range, which sounds like some of the changes outlined in News Desk, December 10, 1987, could be on the cards.

What Franklin wouldn't admit to was the launch of a new Amiga, and so the next year looks like a time for further consolidation of the Amiga range and its expansion into new and existing markets alike.

It is not the job of this magazine, or this column, to tell Commodore how to run its business. But it is worth asking whether the Amiga is in danger of being spread too thinly, and of losing its identity.

Too many column inches have been wasted on the sterile argument over the ST versus Amiga. But a useful comparison can be made with the way the ST has been established over the past couple of years. Permanent price reductions have been made at the same time as its reputation as a very good games machine has been established.

With the Amiga on the other hand, numerous price reductions continue to be made, but only on a temporary basis. This gives the impression that the Amiga's high price point is something of an Achilles' Heel to Commodore, but not enough to warrant the more courageous step of a permanent cut - in short, it appears to the public like shilly-shallying.

This roller-coaster pricing policy is set to continue, while Commodore announces its intention to woo the small business market. It is difficult not to feel that the company might be better employed fully developing its stake of the games market before going off to fight more battles.

John Brissenden

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# Prestel hackers' case continues

THE CASE involving the Prestel hackers continues and a discussion on this issue will take place in the House of Lords next week.

The story began in October 1984, when Steve Gold and Robert Schifreen hacked their way into the Duke of Edinburgh's electronic mailbox, having used a false identification number.

While they did inform Prestel of the loophole in its security, six

months later the two men were arrested by the fraud squad and consequently charged under the Forgery and Counterfeiting Act.

At the Crown Court, Gold and Schifreen were found guilty and fined.

On legal advice they appealed and in July last year, Lord Justice Lane overturned the court's decision, saying it had been a "misapplication of the forgery act".

But the case did not terminate there. British Telecom was then given leave to appeal on technical points of law which has resulted in the forthcoming discussion at the House of Lords.

When contacted, BT refused to divulge why it was pursuing the matter when Gold and Schifreen had been cleared. "I am not prepared to discuss it," said a spokesperson. "Obviously they are going

to give you a one-sided account of their activities," he added.

Steve Gold remained unperturbed by the impending debate. "It makes life interesting," he commented, "if anything, it gives me more column inches to write about."

Gold is currently preparing a book about the whole issue, to be published after completion of the court case. NC

## Cubpack launched at show

LAST week, the annual British Education, Technology and Training Show took place at the Barbican in London.

The show encompassed all areas of educational products, from hardware produced by the leading manufacturers, Acorn and Atari, to smaller companies concentrating on special needs software.

Among those present was Microvitec, the well-known manufacturer of colour monitors. It was launching *Cubpack*, the first PC compatible package for schools which, Microvitec claims, "adheres to the vocational computing guidelines laid down by the Department of Science and Education."

With 512K of RAM, the computer operates using MS DOS and comes complete with Ashton Tate's First FrameWork software - providing database, spreadsheet, graphics and word processor facilities. Also included is the BBC Basic and BBC compiler option enabling most existing school software to continue running. A colour monitor is to accompany the system as standard.

Various systems aimed at disabled people were gathered together under the Simnetts' banner. Liberator, Speech Systems and Toucan were exhibiting products which were intended as communication aids or educational tools.

Concept keyboards, for instance, have a pressure-sensitive surface, providing an alternative to conventional keyboards. Even those without touch capability can progress with the use of a system which operates by a light sensor.

Minerva Products was also present, launching the latest in its line of Archimedes products. At £79.95, *School Administrator* caters for every size of school, offering a range of facilities from pupil records to producing exam entries, GCSE inclusive. For those interested in video shop management, Minerva is currently developing *Video Rental*, which will retail at £60.95. NC

## Incentive release

INCENTIVE Software will be releasing its popular adventure-creating program the *Graphic Adventure Creator* for the Atari ST. The product is an improvement on previous programs released for other machines. Ian Andrew of Incentive says: "Many people have been asking us to produce an adventure creator for the last year."

Andrew was vague as to what the packaging will contain but he revealed: "It will cost £29.95 and will probably be accompanied by one or two free adventures."

Andrew added that an Amiga version is being considered. LB

## New software house in budget market



The Zeppelin team.

A NEW software house, Zeppelin Games, has entered the highly competitive field of budget games releases.

Run by ex-computer programmer Derek Brewster, who had several chart hits including the adventure/strategy game *Code Name Mat*, Zeppelin Games will retail at £2.99 and they have three releases out now.

They are *Zybex* and *Sabotage* for the Commodore 64 and *Speed Ace* for the Atari 8-bit.

Brian Jobling from Zeppelin was confident on the success which he

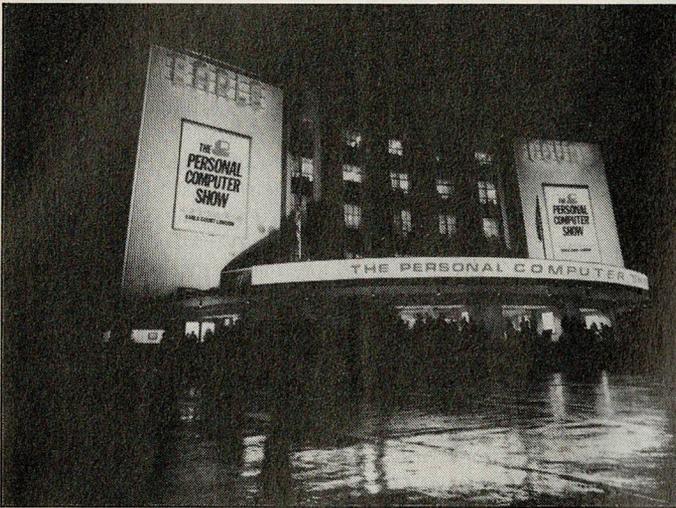
sees Zeppelin achieving:

"We've spent a lot of money on packaging and including things other software houses leave out," he said.

"We've got one guy just concentrating on music and another just on graphics. A lot of effort has been put into establishing Zeppelin in the 8-bit market."

Jobling was cagey about releases for 16-bit micros, but he did add that they were being considered. "There won't be anything until June/July and then it will be initially on the ST." LB

# PCW Show follows venue change with new name



BRITAIN'S leading personal computing event, the Personal Computer World has been given a new profile with a change of name and venue for this year's show.

Re-named The Personal Computer Show, it has moved to London's largest exhibition centre at Earls Court, to provide extra space so that the industry's main market sectors can be more clearly defined.

With 23,000 square metres and three separate halls, Earls Court will enable visitors to distinctly choose which sector of the industry they wish to visit.

"This year, the new Personal Computer Show will be divided

into three individual halls, all with their own exclusive entrances and ticketing arrangements," explained Mike Blackman, exhibition director.

The aim of the exhibition this year is to encompass the whole range of PC systems, from home entertainment to large business machines.

However, at the same time, each sector will have its own identity within one major generic computing exhibition.

"The new format and venue will strengthen even further the show's position as the definitive personal computing event," concluded Blackman. NC

## Nintendo to get new marketing push

NINTENDO Entertainment System is to be marketed and distributed in the U.K. by NESI UK.

Previously distributed by Mattel UK and GO!, the system has not yet reached its capabilities in Britain. "We haven't had the availability on the new titles we would have liked," a spokesperson for Mattel commented. "NESI will get the titles, however, since it is run by the same people who are responsible for Nintendo's success in the U.S."

NESI will certainly be hoping to match figures in the States, where Nintendo achieved sales of over 3 million units last year. If Nintendo's claims are to be believed, the companies nearest competitor (who remained nameless) only

managed 10% of this volume during the same period.

In an effort to achieve similar sales in the U.K., NESI will be implementing an extensive marketing plan, incorporating heavy TV advertising and elaborate in-store merchandising.

Bruce Lowry, of NESI was confident about the future, commenting, "Mattel has already made significant inroads into the computer games industry in the U.K. However, specialist knowledge in this product category can only be a great asset and we believe it's an asset we are well qualified to provide."

The Nintendo System will retail for £159.99, including robot, zappa gun and two games." NC

## Gargoyle range goes budget with Hewson

BUDGET label Rack-It has announced details of its acquisition of the Gargoyle games back catalogue.

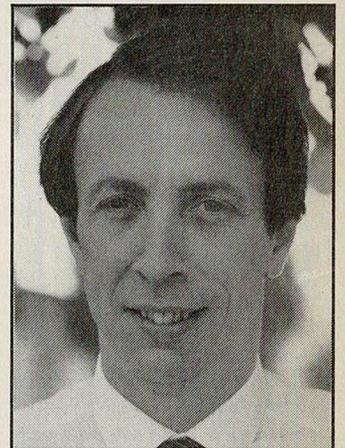
Titles included in the deal include such classics as *Tir Na Nog*, *Sveevo's World* and *Heavy on the Magick*.

These re-releases will start appearing in February and will culminate in a Spectrum disc compilation of *Tir Na Nog*, *Dun Darach* and *Marsport*.

The games will be released at the usual Rack-It £2.99 price point.

Rack-It chief Andrew Hewson is confident about the success the Gargoyle games will bring: "We've had a very positive reaction from the trade."

All Gargoyle games will be re-



Rack-It chief: Andrew Hewson.

leased on two formats only - the Spectrum and Amstrad. LB

## Now Darling brothers help feed the world

◀ continued from page 1

reside with Code Masters alone. For instance, ICL will be providing computer equipment for the offices at Sports Aid to enable the charity to communicate more effectively world-wide.

"Sports Aid is about interaction and informing people what can be done to help children. Children especially want to communicate with others in the world and with the help of ICL, electronic mail,

Telecom Gold etc, we can create these kinds of possibilities," he added.

The main global program for Sports Aid will be launched in April, and the release of Code

Masters' game has been timed to coincide with this. Although the game is still under development at this stage, all involved are confident that the game will sell over one million across the world. NC

## Write to reply?

I would like to clarify a point made in the "Adventure Bugs" article in your January 7-13 issue.

While there was a bug in early copies of the Amstrad version of *Rigel's Revenge* which prevented you from playing Part Two, there is no such bug in current versions. Spectrum or Commodore versions have never had this problem. The photograph of a Commodore inlay that accompanied your article has already led several Commodore owners to contact Smart Egg Software with enquiries.

Amstrad owners may be interested to know that *Rigel's Revenge* was the Number One selling adventure in December on the Spectrum (Sinclair User/Gallup Poll) and that their version is a faithful conversion of this one.

Incidentally, BUG is a generic term for anything that goes wrong with a piece of software. What went wrong with early Amstrad copies happened at the very last stages of mastering. One tiny error here spoilt the weeks of work put in by our dedicated game-testers.

Smart Egg apologise to anyone who's experienced problems with the Amstrad version of *Rigel's Revenge*. It won't happen in our next Mastertronic adventure - the *Quest for the Golden Eggcup!*

Nigel Brooks,  
Smart Egg Software.

## Einstein fan

I presume that M T Eldon's letter was an edited version, and that his regret was that the only mention of the Tatung Einstein in *Popular Computing Weekly* for the whole of 1987 was the reference to the then forthcoming exhibition on 14th November.

Now this is a problem that arises from the meaning of the word *Popular*. How do you define it? I too have an Einstein, bought for under £100, complete with internal 3" disc drive from Dixon's in mid-1987.

Since then I have upgraded with a second drive, an 80-column card, a colour monitor and a Brother HR-5 printer - all brand new, and for a total cost, including the computer, of less than £430. Needless to say, this makes Albert very *Popular* with me. And judging by the turnout at the 14th November exhibition, very popular with others.

So while the Einstein cannot expect to gain much, if any, coverage, in a magazine devoted to

computing on 'popular' computers, using popular in the sense of most widely owned, it can at least bask in its popularity amongst its own owners, of whom there is quite a number.

F Bale and his tale of the Brother HR-5 interested me. I bought mine recently from A Computer Specialists for £65. It was a German import (the manual was in German) and, despite teething troubles, has settled down admirably. I can foresee possible problems obtaining the tape cassette but F Bale's reference to heat-sensitive A4 opened my eyes.

The printer itself is a Thermal Transfer Printer, which means it uses heat to transfer the image, by means of dot-matrix, from the tape to the paper. Without the tape the printer should work directly on to heat-sensitive paper. Perhaps it tells you this in the manual, but my German isn't that good.

Anyway, as long as I can obtain heat-sensitive paper or tape cassettes, the HR-5 will continue to be another welcome bargain.

C M Pickles,  
London N9.

**If any Einstein owner has ideas for articles or reviews which he or she feels would be suitable for publication, then give us a call on 01-834 1717, and ask for me, John Brissenden. I'll be happy to discuss it.**



## Doomdark's Pokes

I recently returned to playing *Doomdark's Revenge* and thought your readers would be

interested in some aspects of the layout of the game and some useful Pokes.

As you may know there are 128 characters in the game starting with Luxor and continuing with Morkin, Tarithel, Rorthorn, Shareth, Imgarorn etc. I will show you shortly how to obtain the complete list.

These 128 characters are in blocks in RAM, each block determining some aspect of each character, such as the number of troops a character has, the location of each character on the map published by "Crash" in March 1985, the loyalty of each character, what each one is carrying and so on. Remember that in *each* block the 128 characters are always in the same order.

To break into the programme either use Multiface One, one of the M/C routines or you can use the SAVE option of the game and whilst saving press BREAK. Sometimes the programme crashes but if not, you are in!

The block starting at 41728 controls the loyalty of each character. 0 is loyalty to Luxor, the Moonprince, 1 to Shareth, 2 to the Giants and so on. To see the list of all the characters on the screen POKE 0 into each address from 41728 to 41855 and then press the SELECT button of the game. You can have any combination of loyalty you wish; e.g. POKE 41728, 1 makes Luxor loyal to Shareth and POKE 41732, 0 makes Shareth loyal to Luxor!

Block 40704 to 40831 controls the number of troops each character has multiplied by a factor of 5. Therefore, POKE 40705, 200, for example, gives Morkin (who starts with no troops)  $200 \times 5$  i.e. a thousand troops.

Block 40960 to 41087 determines what sort of troops each character has: 0 is Moonguard riders, 6 is Fey, 14 is Iceguards etc. So POKE 40964, 0 makes Shareth's troops Moonguard riders.

Blocks 41216 to 41343 and 41344 to 41471 are interesting as they determine the location of each character on the map mentioned earlier. The first block contains the X co-ordinates from 0 to 63 and the second the Y co-ordinates from 0 to 95. However, the Y co-ordinates start at the top left hand of the map. Hence the location of Luxor at the Gate of Varenorn is indicated by co-ordinates 5, 91.

By PEEKing into the address containing the X and Y co-ordinates for a particular character you can determine the location of that character before starting the game, or during play. PEEKing e.g.

into the addresses for Morkin (41217 and 41345) reveals 29 and 1 thus placing him in the City of Imiriell at the start of the game.

You can, of course, also move characters to different sites. Shareth, for example, who starts at location 56, 8 can be moved to the Gate of Varenorn by POKEing 41220, 5 and 41348, 91. Make her loyal to Luxor (POKE 41732, 0), take away her troops (POKE 40708, 0) and the first night has not even come! You can even place her in the icy wastes where she cannot move at all.

Block 42496 to 42623 describes what each character is carrying. At the start each one has nothing (each address has 255). POKEing 0 gives the Crown of Varenand, 1 the Crown of Carndrium etc. You could give each character the Crown of Varenand by POKEing 0 into each address and, if you remember, the possession of that Crown gives a character the power of persuasion! It makes for an interesting game.

Block 41472 to 41599 controls night and day. The value held in each address (corresponding to a character moving) drops to 0 and night falls. The rougher the terrain the character is traversing the quicker the value drops and the quicker night falls.

Block 41856 to 41983 controls how weary a character is from 255 ("not at all tired") to 0 ("utterly tired"). A character who is "utterly tired" cannot move but this can be remedied by POKEing 255. Any troops, incidentally, with the character, reflect the weariness of their leader.

Block 42368 to 42495 controls how reckless a character is from 255 ("not at all reckless") to 30 ("utterly reckless"). But POKEing 0 kills off the character although you can, with some exceptions, bring them back to life by POKEing 255. Other blocks control the character's foe (42112 to 42239), liege status (42240 to 42367), qualities such as strong, good, evil (42752 to 42879) and state of despondency (42880 to 43007).

I leave some blocks for the readers to discover for themselves what they control. These blocks start at 40832, 41088, 41600, 41984, 42624, 43008, 43136, 43264, 43392 and 43520.

Finally I would be interested if someone could discover which addresses control the co-ordinates for the underground tunnels.

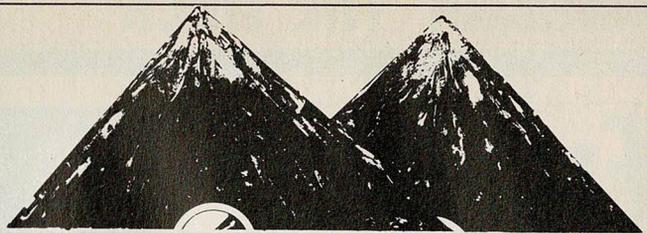
May we all meet in Icemark in 1988 although it would have been tremendous if we could have met in the land of the Eye of the Moon!

Dr V M E Montegriffo,  
Potters Bar, Herts.

"You've heard of Silicon Valley?  
Now you have . . ."

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## Frying tonight

What do you get if you cross Graham Everett with Steve Cain, of *Star Trek* fame, and add a dabble of Fred Grey as seasoning? The answer, *Black Lamp*, the latest ST sensation from Rainbird.

This is the story of Jack the jolly jester, his love for Princess Grizelda, and the evil befalling the kingdom of Allegoria. Jolly Jack's job is to entertain the court of King Maxim of Allegoria, which has proved rather difficult of late.

A set of enchanted lanterns has been stolen from the treasure room, bringing bad luck and woe to the kingdom. Worse still, the thieves are reputed to be Dragons. Now Allegoria is being swept by strange and monstrous beings, local wildlife, and hordes of Nicolas Parsons lookalikes.

Being desperate to rid the kingdom of its troubles, the King has agreed to give the hand of Grizelda to Jack if he can locate and return nine lanterns, including the most famous one, the black lamp, to a special chest.

The task is set, will you take up the challenge? Should you do so you will find *Black Lamp* a game in the style of Psygnosis' *Barbarian*. Except the graphics are better, the scenery more varied, the action is thick and

fast, and the animation is in a different class.

Your character, Jack, appears as a nicely designed jester, that tramps heavily along in response to the joystick, keyboard or mouse control.

Jack can perform various manoeuvres, some of which are context dependent, so that a diagonal right will make him jump to the right most of the time. If however, there happen to be stairs to the right, he will simply plod up them.

On his travels Jack is continually assailed by all manner of beasties. Dragonflies and wasps are little more than a nuisance, vampire bats swoop down and go for your neck, werewolves lope along, crows and buzzards flap by overhead, in the outdoor scenes, dropping exploding thistledowns and skulls. There are goblins galore, flying imps, ugly trolls that hammer the ground to produce sparks which race towards Jack, slime witches who puff up their cheeks and then spit out globs of gooey green slime, slayers, and of course dragons.

A first encounter with a slayer

leaves a lasting impression. They stride along slashing a sword through the air. Jagged bolts of lightning flash and hurtle towards you.

If the design of the slime witches and the slayers is brilliant, the dragons are nothing short of magnificent. You haven't seen anything until you have seen one of these beautifully detailed creatures flapping its wings, flying around a chamber and breathing fireballs all over the place.

In Jack's defence he can launch magic bolts of his own, at a great rate thankfully, and he starts with a number of lives. Also, along the way are jewels, musical instruments, and weapons. If you collect five jewels you will be rewarded with extra armour for 30-40 seconds, enabling you to stand up to some fairly wicked punishment.

The musical instruments produce extra bounce, which results in Jack being able to survive large drops, and making him scale ladders quicker. The weapons naturally endow Jack with extra firepower.

Also worth picking up are various artefacts to enhance your score, and pieces of food and drink to restore Jack's rapidly dwindling health.

Believe me, it can be utter chaos with nasties bom-

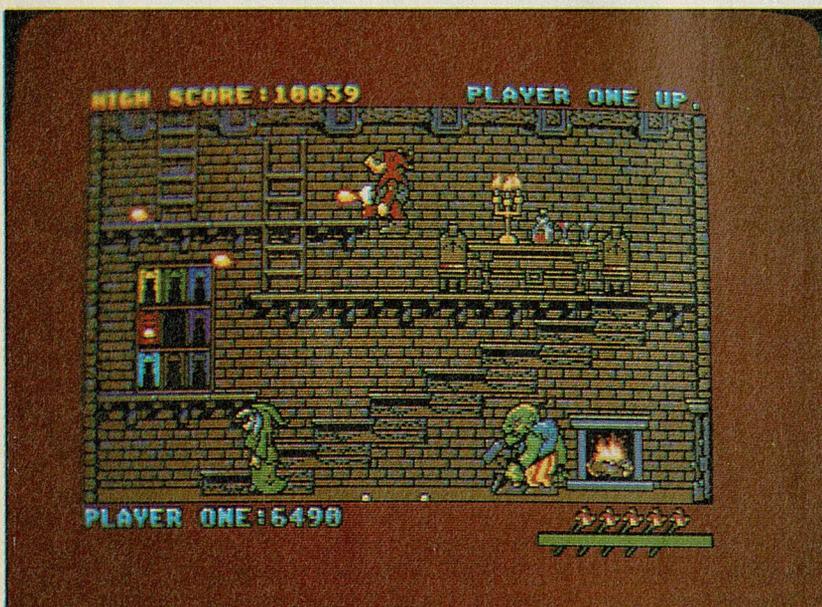
barding you from every side.

To make life even more difficult Jack can only carry one lamp at a time, so careful planning needs to be done to optimise his resources, otherwise like me you will find that the end comes with only three lamps safely restored. When Jack does finally peg it and go to the great jesting court in the sky he flings out his arms and burns to ashes before your very eyes.

Another interesting feature is that although all the indoor scenes are only one screen wide, when outside the screen actually scrolls along horizontally. Quite surprising really, but welcome nevertheless.

If there is one complaint against *Black Lamp*, it is that the control is a trifle unresponsive. That and scrolling Jack through one character at a time instead of moving one pixel makes trying to make some of the jumps harder than it should be.

However, the fantastic graphics, brilliant designs, engaging animation, and pleasing music, make *Black Lamp* the game that *Barbarian* should have been. Although I imagine that you are already minus one granny after purchasing Rainbirds UMS, no ST owner should miss out on this fabulous program. So the question is, who is next to go? I leave the choice to you. □



Program: Black Lamp  
 Reviewer: Duncan Evans  
 Rating: 18  
 Micro: Atari ST  
 Price: £19.95  
 Supplier: Rainbird

### Popular Rating:

1-5 Gobble, gobble, gobble. A turkey. Avoid at all costs.  
 6-10 Serious flaws make this one for the committed only.  
 11-15 Good, but not that good. Should be worth the readies if you like that sort of thing.  
 16-20 So good it makes good look bad. Run down to the shop and buy immediately.

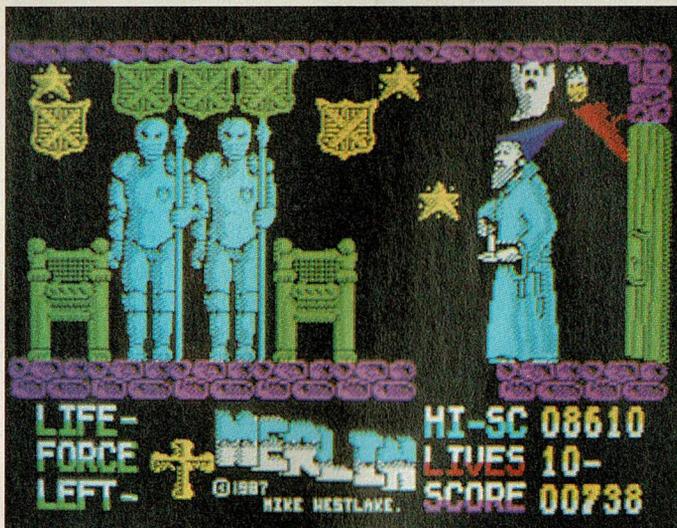
## Merlin

**M**erlin is the latest budget release from Firebird for the Spectrum. The object is simple. All you have to do is guide Merlin round the mystical Kingdom of Camelot collecting stars to recover the lost magic powers.

What is amazing is the large graphics and the detail of them. Unfortunately this is let down by the attribute problems encountered when playing the game.

Whenever Merlin moves into an object or passes an object there will be a colour clash.

The game is simple in gameplay and consists of walking left and right or jumping and ducking. Despite the fact there are various nasties lurking around



the screen there is no way they can be killed, which makes the game a little difficult to survive. What is the point of releasing a game which features no shooting and it is impossible to dodge the nasties?

The initial impressions of the game are good but after a time playing you are soon left with the impression that there is no substance to it.

Given the fact that this is a budget game, Firebird can justify it as a release as the game

looks and plays like a budget release.

There are worse things on which you can spend £1.99. *Merlin*, while having no lasting interest, is a game you will enjoy playing for a few hours on a rainy Sunday.

Reviewer: Leslie Bunder  
 Rating: 12  
 Micro: Spectrum  
 Price: £1.99  
 Supplier: Firebird

## 3D Starfighter

**T**he Oliver twins have been knocking out product like there's no tomorrow, and if they come up with any more like *3D Starfighter*, there probably won't be.

This is a simple shoot the alien ship and dock with your mothership affair, and for the hard of thinking there's a dabble of sampling to kick things off with.

First up though, select which system to fly to, you are guided

round until having cleared all the systems the mission objective will be in sight.

Firing consists of waving an unresponsive cursor all over a screen filled with stars rushing from the centre of the screen outwards. The enemy arrive and grow larger as they close in. Considering that your position in space never changes at all, the illusion of 3-D space warfare fails completely.

A jab of the fire button and twin blasts of energy surge out,

but the enemy will probably have gone by the time they get to their intended destination.

Should one of the foe get too close and attempt to cook your energy cells then the only recourse is to put up the shields and deflect it.

Having scoured a sector clear of alien infection, the ship accelerates and then slows down again in time for a quick dock with the old mothership.

After that exciting experience your computer, Blinky, will give you info about the next destination.

Talk about dull. Graphics and sound that wouldn't look out of place if this was 1984, uninteresting gameplay, and a lack of ideas combine to numb even the most easily satisfied gamer. Are the Oliver brothers spreading themselves too thinly? *3-D Starfighter* would seem to indicate yes.

Reviewer: Duncan Evans  
 Rating: 5  
 Micro: Amstrad CPC  
 Price: £1.99  
 Supplier: Code Masters



Your complete guide to all the software released this week

## Amstrad CPC

Program *Bravestar* Price £9.95  
 Supplier GO!, Unit 2-3, Holford Way, Holford, Birmingham B6 7AX.

The evil Tex Hex leaps onto the Amstrad and attempts to take over New Texas. Sounds like a job for the Lone Ranger. But since he's occupied, it's down to Marshall Bravestar.

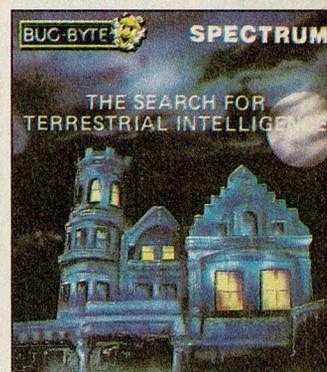
A reasonable game but rather overpriced.

Program *Tank Busters* Price £1.99  
 Supplier Firebird, 74-76 New Oxford Street, London WC1A 1PS.

Design Design designed the game, which is basically *Battlezone*. Old hat, but if you like that sort of thing then this is a good version.

Program *Mega Bucks* Price £1.99  
 Supplier Firebird, 74-76 New Oxford Street, London WC1A 1PS.

Looks suspiciously like David Jones' Knight Tyme series, but hey, let's not hold that against it. Serviceable graphics and a playable game.



## Atari XE/XL

Program *Space Shuttle* Price £1.99  
 Supplier Firebird, 74-76 New Oxford Street, London WC1A 1PS.

Soar into the world of astronauts in this realistic space shuttle simulator. Who's kidding who? Hardly riveting stuff, and the plain graphics don't help.

continued on page 10 ►

## Software guide continued

◀ continued from page 9

### Commodore 64

**Program** *Droid Dreams* **Price** £2.99 **Supplier** Grand Slam, Victory House, Leicester Place, London WC2H 7NB.

Interesting horizontal scroller firmly in the *Nemesis* mould, but why is the playing area so small? A good budget arcade adventure.

**Program** *Star Soldier* **Price** £2.99 **Supplier** Grand Slam, Victory House, Leicester Place, London WC2H 7NB.

This was a good buy at full price, blending arcade blasting with commercial strategy. Go on missions to earn the readies necessary to buy extra weapons and shields.

At budget price *Star Soldier* is excellent value for money, and a pretty good game.

**Program** *Little Green Man* **Price** £2.99 **Supplier** Grand Slam, Victory House, Leicester Place, London WC2H 7NB.

You are the king of all the little green men and must jump, duck, fly and shoot your way to safety. The graphics for the background scenery are a little dull, however, the green man is fairly cute.

Hmm, rather a good collection of releases from Grand Slam this week. Check them out.

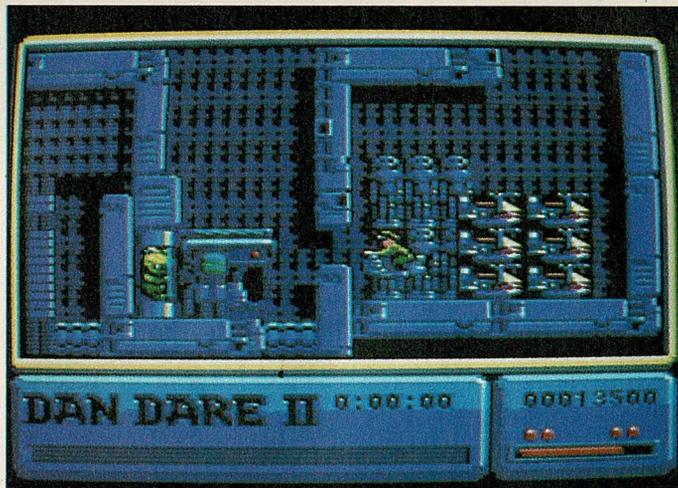
**Program** *Rastan* **Price** £8.95 **Supplier** Imagine, Unit 2-3, Holford Way, Holford, Birmingham B6 7AX.

Worthy arcade adventure that is licensed from the Taito coin-op. *Rastan* is a multi-load game, which is tiresome, but it does mean there's a lot of scenery to wade through, and the appeal lasts longer.

**Program** *ATV* **Price** £1.99 **Supplier** Code Masters, PO Box 200, Banbury, Oxon OX16 7GA.

Commodore version of the well received Spectrum game. One of the better releases in a disappointing collection this week from Code Masters.

continued on page 15 ▶



### Dan Dare II

**D**an Dare returns, as we knew he always would, in *Dan Dare II: Mekon's Revenge*. The Mekon has been hard at work since last year's defeat and has engineered a new race, the Supertreens.

In a spaceship headed towards Earth, the Mekon's Supertreen army sloshes about in specimen jars, waiting for the moment when the correct altitude is achieved and the invasion begins.

Enter Dan Dare and his Space Fleet. There are four levels to the

Mekon's ship, each with Supertreens secreted about the place and Dan must locate them all. Once found, they can be blasted. Unfortunately after the first has been shot a level destruct sequence slams into gear and Dan must eliminate the remaining Supertreen control boxes - on the sides of the tanks - and the computer force field generators before access to the next level is provided.

Should Dan not make it in time - and time is very limited - Dan becomes pigeon pie.

If you choose to play Dan the services of the Space Fleet are on hand to provide back-up firepower but generally they are not so helpful.

The inside of the ship has gravity in the sections where there is a floor. If there is not Dan's hoverbike plunges into the next level. Considering that the bike has poor acceleration and braking it can be difficult to get it in the proper position.

Another problem is in the form of the exits to other screens. The graphics are very colourful and detailed but all the walls look the same, regardless of whether there is an exit or not. It is trial and error time, with much banging of Dan's head against steel walls.

That said, this is a good enough sequel. You can even play the Mekon and, with excellent graphics and gripping gameplay, it is one Dan you should dare take.

**Reviewer:** Duncan Evans  
**Rating:** 14  
**Micro:** Amstrad CPC  
**Price:** £9.95  
**Supplier:** Virgin

### BMX Kidz

**F**irebird has produced a real corker in *BMX Kidz*. The game has everything - a fabulous soundtrack and brilliant gameplay.

*BMX Kidz* is a BMX racing game. If you thought *BMX Simulator* from Code Masters was the best game of its type on the market, think again. *BMX Kidz* is horizontally-scrolling and you must race across a track to beat the other computer-controlled BMX bikes to the finishing line.

Along the way there are various items you can collect which give you bonus points and extra spokes for your bike. If you want to be a real show off - and you need to be one to play this game - you can attempt to do wheelies and stunts to boost your score.

If you attempt a stunt and fail while doing it you will lose some spokes from your bike. When your spoke level falls to 0 the game ends. Along the way the other bikes will get in your way, so you must try to steer clear of them so that you can be first.

There are six levels each re-

quiring more skills. On the first you do not need to do stunts, but from the second you must do a wheelie and stunt and then it gets more and more difficult as you proceed. Despite the fact the game is a budget release, no expense has been spared on the music soundtrack which is out of this world. It has possibly the best soundtrack for a C64 game. It is complete with some voice sampling shouting Go! on top of the music, something which I think has not been done previously.

This is one game which stopped the office chatter in its tracks. The music is amazing and shows what can be achieved from the C64 when you put your mind to it.

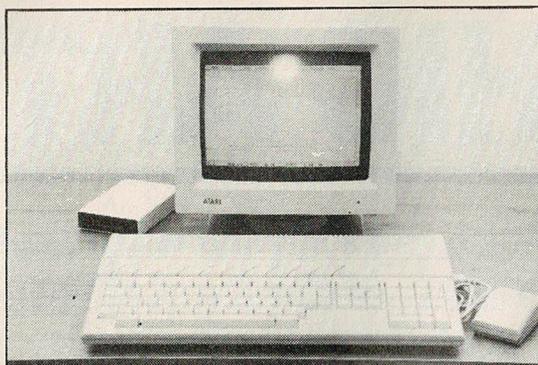
What makes *BMX Kidz* really shine among the batch of budget releases which reach the office every week, is the playability. It is extremely addictive, fast and great fun. For £1.99 it must be the bargain of the year.

**Reviewer:** Leslie Bunder  
**Rating:** 17  
**Micro:** C64  
**Price:** £1.99  
**Supplier:** Firebird



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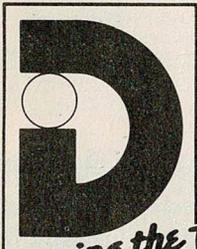
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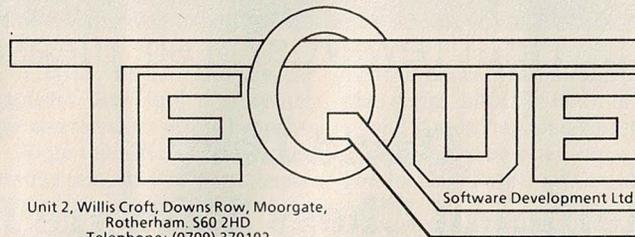
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## Formula 1 Grand Prix

Tynesoft has some impressive titles in its MicroValue range, *Mousetrap* and *Liberator* for example, but *Formula 1* isn't one of them.

This is a two disc affair, probably because of the sample of the definitive racing music as the game loads. A digitised picture of a racing car appears as well, promising more than the program ultimately delivers.

There are five cars to choose from, and six courses to hurtle round. Probably the best feature is being able to race in a championship series around all of the tracks, against the best the computer has to offer. You too can pretend to be Nigel Mansell, and fail to win the championship every time.

Although you are driving a six gear car, once into sixth, there is little need to change down, certainly not at Imola anyway. The main problem is avoiding blowing the engine. This is done by changing up a gear when the revs counter begins to flash.



A little too late and the car explodes. Run into a computer car and the same effect happens.

While the effect for the track moving towards you is well implemented, the racing ability of the other cars isn't. If you stop still they crawl past. If you speed up they crawl past. It is necessary to go flat out in 6th to crawl past them in turn.

*Formula 1 Grand Prix* is a reasonable game with the option

of different cars and a championship series, but falls down in the racing simulation department. It all depends on how desperate you are to play *Pole Position* style games.

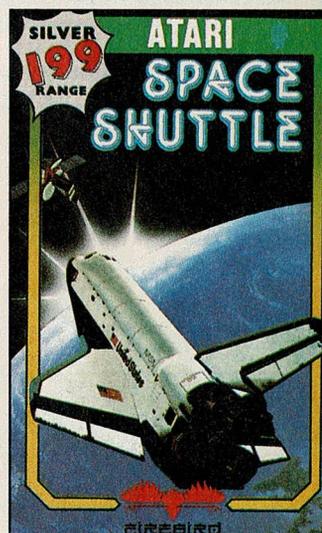
Reviewer: Duncan Evans  
 Rating: 11  
 Micro: Atari ST  
 Price: £9.95  
 Supplier: Tynesoft

## Software guide continued

◀ continued from page 10

**Program** *CODE Hunter* **Price** £1.99 **Supplier** Firebird, 74-76 New Oxford Street, London WC1A 1PS.

A little different than the usual save the world game. Use a droid to decipher codes in the heart of the enemy battlecruiser. It may prove unbelievably boring for some people, but thinking gamers should take a look.



## MSX

**Program** *Galaxian* **Price** £2.99 **Supplier** Grand Slam, Victory House, Leicester Place, London WC2H 7NB.

Err, I'm not sure about this little lot for the MSX at all. Are you willing to pay almost three pounds just to play *Galaxians*?

**Program** *Mappy* **Price** £2.99 **Supplier** Grand Slam, Victory House, Leicester Place, London WC2H 7NB.

Platforms and ladders with lacklustre graphics.

**Program** *Pac-Man* **Price** £2.99 **Supplier** Grand Slam, Victory House, Leicester Place, London WC2H 7NB.

Oh no, not *Pac-Man*. If it was April I could see the reasoning behind this. I can remember *Pac-Man* listings appearing in *Spectrum* magazines in 1983!

continued on page 17 ▶



## Firezone

The latest in the PSS war-gamers series turns the clock forwards to the 21st century where super powered tanks roam across the half ruined landscape. The main protagonists are the European League and the Pacific Combine, and you can command either against a human player, or the computer.

The main difference between *Firezone* and the preceding titles in this range is that the battles are short, sharp affairs.

The style is the PSS hex system with big colourful graphics. Exactly the same as the last release, *Sorcerer Lord*. However, the graphics for the various types of terrain are poorly designed for the most part, and look very uninteresting. Another problem that falls in the department of presentation is that the game is controlled by manipulating the keypad. Using the joystick would have been much simpler, especially considering how easy the game is to play.

Each game turn consists of two phases. Combine round

where the Combine player moves, and then everyone in range fires, and the League round where the League moves and both players mete out destruction again.

There are three preset scenarios on the tape version, and nine on the disc, all nicely varied, to provide lasting interest. Let's face it, when you've won at a few of the scenarios, they are so simple that there is little incentive to play them again.

What really does bolster the playability of *Firezone* is the provision of a game designer program to enable you to produce your own scenarios.

*Firezone* is fairly simplistic, and as such is ideal for beginners to get to grips with. While the simple scenarios are not particularly interesting, the more complex ones do free the commander from having to worry about small detail and concentrate on the overall strategy aspect of the game.

Reviewer: Duncan Evans  
 Rating: 12  
 Micro: Amstrad CPC  
 Price £14.95 (tape), £19.95 (disc)  
 Supplier: PSS

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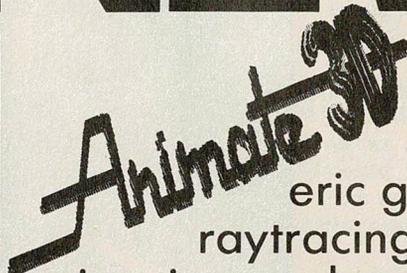
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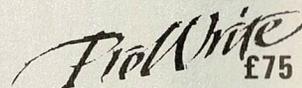
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## Super Stunt Man

**S**uper Stunt Man places you in a would be fall guy role. As a super stunt man, you must fight your way through the hostile terrain that each screen greets you with. There will be bush fires, cannonballs and other obstacles to be overcome for you to progress onto the next screen.

All together there are seven screens to be attempted each one harder than the previous. The first screen is a car chase. It is played as a vertically horizontal shoot 'em up with a time limit for you to complete the screen. Other screens include; a Power Boat Race, Fight out in New York and racing through a forest.

You are allowed to crash twice without losing a life. If you crash well enough you can gain extra bonus points for 'amazing action'.

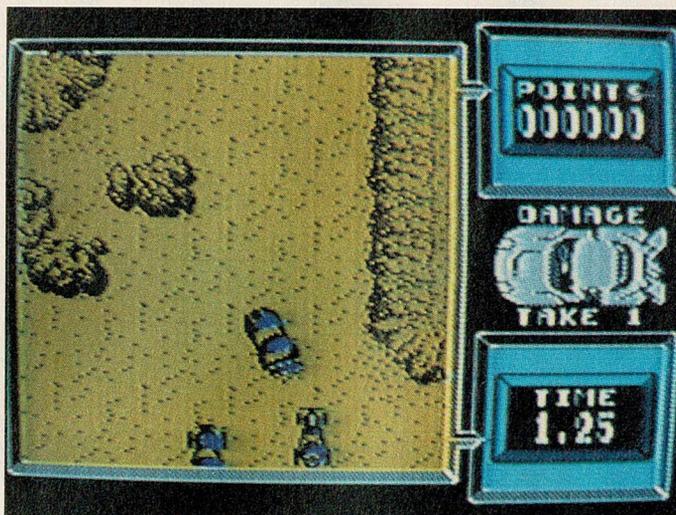
The game is fairly smooth with a little colour crash on the screen when you merge with another colour.

Graphics are nicely drawn especially the loading screen, but unfortunately the sound and music leave a bit to be desired.

The music that is played is quite frankly, very bland and not very interesting, and made me immediately turn down the volume.

The game looks and plays like

software is about. *Super Stunt Man* may not break any ground in programming but it is quite a fine game to while away a few hours with.



several other Code Masters budget games, and represents something of a departure from the originality of their earlier games.

For £2 Code Masters has delivered the goods. Which is what

Reviewer: Leslie Bunder

Rating: 11

Micro: Spectrum

Price: £1.99

Supplier: Code Masters

## Software guide continued

◀ continued from page 15

### Spectrum

**Program S.T.I.** Price £2.99 Supplier Grand Slam, Victory House, Leicester Place, London WC2H 7NB.

Over 130 locations, a truly massive vocabulary and 20 pseudo-intelligent characters claims the blurb on the inlay. Given the huge volume of adventures with graphics flooding the market, it's hard to find a reason to buy this text only affair.

**Program Space Shuttle** Price £1.99 Supplier Firebird, 74-76 New Oxford Street, London WC1A 1PS.

Gobble, gobble. See the Atari XE/XL listing for the reasons to avoid this.

**Program Piggy** Price £1.99 Supplier Grand Slam, Victory House, Leicester Place, London WC2H 7NB.

Despite the disgusting inlay, this arcade adventure has quite pleasant scenery, even if it is on the small side.

**Program Dane Dare II** Price £9.95 Supplier Virgin Games, 2-4 Vernon Yard, Portobello Road, London W11 2DX.

This version of the game features less impressive graphics than the Amstrad version reviewed this week, but then again they are clearer so it makes the game easier to play.

Decent FX and entertaining gameplay make this one to go for. There is also a Spectrum +3 version for owners of that black beastie.

**Program Captain America in the Doom Tube of Dr. Megalomann** Price £9.99 Supplier GO!, Unit 2-3, Holford Way, Holford, Birmingham B6 7AX.

The winner of the longest title of the week award is a reasonably good game when you get into it. Alas, dodgy instructions mean you must play hunt the key before getting on with the game.

## Enduro Racer

**A**fter seeing the graphics early last year it has been a long wait for the ST version of *Enduro Racer*. Finally it has arrived but I can not say the wait was worthwhile.

lating track. The object is to race through each of the five tracks, ranging from tarmac to desert to aquatic, and finish before a timer counts down to zero.

Lined up against your fearless biker are track-based obstacles such as piles of rocks over which

bike flies into the wide blue yonder, clearing the rocks and landing safely. Fail to pull a wheelie and the odds begin to mount against seeing the end of the course.

There are other bikers on the track but they present little danger, since all you lose is time as your motorbike slows.

While the landscape undulates for the most part it is extremely disappointing to note that your biker does not move vertically at all. So, even though you can see the track rising and falling ahead, there is no sensation of driving over the undulations.

The graphics are pretty but then I always knew they would be. Animation is fair and so is the control but there is something wrong somewhere. There is nothing drastically wrong with *Enduro Racer* but it fails to grip the attention and raise any real excitement.

Reviewer: Duncan Evans

Rating: 12

Micro: Atari ST

Price: £19.95

Supplier: Activision



*Enduro Racer* is a 3D motorbike racing game, licensed by Activision from Sega, whose main claim to fame is the undu-

it is advisable to jump by using the ramp which usually precedes them. Pull a wheelie while you are going up the ramp and the



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# Worm your way out

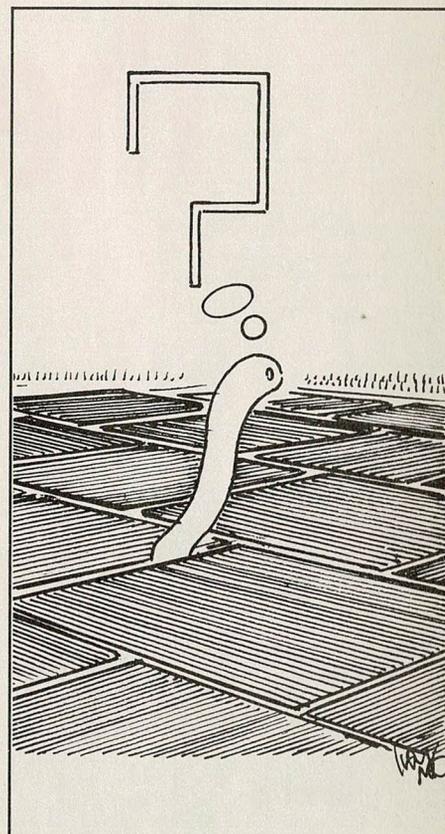
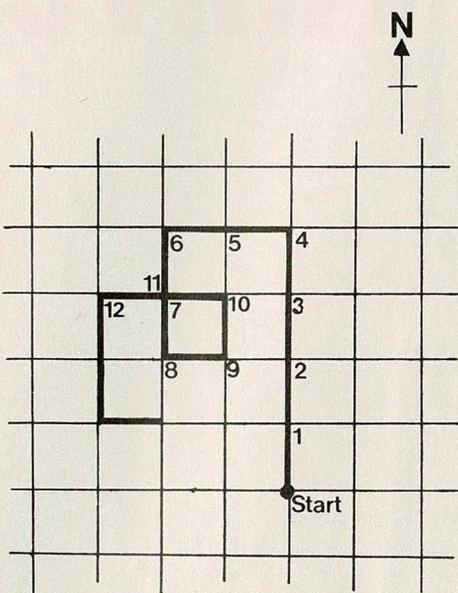
**W**alter, the mathematical worm, wishes to find his way out of the paved patio area and onto the surrounding lawn. The patio is paved with one-foot square slabs in a regular 20 by 20 arrangement. Walter is at a point at the exact centre of the patio in the intersection between the slabs. Because of the dangers which menace the unsuspecting worm, the safest method of travel is along the spaces between the slabs.

Because of a primaeval instinct rooted in the mists of time, Walter moves around in the following manner. Moving along the space between two of the slabs he arrives at an intersection.

If the total number of feet travelled since he began his journey is prime, he moves straight ahead. If it is not, he turns to his left before continuing. The first few moves have been marked in the diagram.

This will, not surprisingly, result in a very tortuous journey, but can you say at which point on the perimeter he will emerge onto the lawn, and say how far his journey will have taken him?

NOTE: I know that worms are hermaphroditic and I have used the terms 'he' and 'his' purely for convenience!



## PUZZLE SOLUTION

### Solution to 'At the market place' puzzle of January 21-27

**Answer:** The box contained the following items:

- 7 bottles of 14 grams @ \$1.75 each
  - 4 bottles of 30 grams @ \$3.20 each
  - 3 bottles of 54 grams @ \$5.65 each
  - and 1 bottle of 120 grams @ \$12.00 each
- (There were none of the 75 gm size).

This makes a total capacity of 500 grams and a cost of £54.

**Solution:** The program listing evaluates all possible permutations of capacities and costs. The five FOR/NEXT loops represent the number of each size of bottle purchased, the maximum number in each loop being set as the highest number that could be bought of that particular size without exceeding 500 grams.

Each loop starts at zero (to represent zero bottles of that particular size) except

for the largest size as we were told that at least one of these was included.

Using this information the program finds the total capacity and price for each combination of sizes.

The respective capacities and prices are stored initially in the DATA line, from where they are read into the arrays. These are then used with the loops to find the relevant data.

At each stage the capacity is checked against the target of 500 grams and the cost (in pounds) is checked to determine if it is integral.

There is just one set of figures which pass these tests and this is printed out at line 150.

```
10 DIM V(5),P(5)
20 RESTORE
30 FOR F=1 TO 5
40 READ V,P
```

```
50 V(F)=V:P(F)=P
60 NEXT
70 FOR A=0 TO 35
80 FOR B=0 TO 16
90 FOR C=0 TO 9
100 FOR D=0 TO 6
110 FOR E=1 TO 4
120 TV=V(1)*A+V(2)*B+V(3)*C+V(4)*D+V(5)*E
130 TP=P(1)*A+P(2)*B+P(3)*C+P(4)*D+P(5)*E
140 TP=TP/100
150 IF TV=500 AND TP=INT(TP) THEN PRINT A,B,C,D,E,TP
160 IF TV>500 THEN E=4
170 NEXT: NEXT: NEXT: NEXT: NEXT
1000 DATA 14,175,30,320,54,565,75,765,120,1200
```

# Storming through the universe

The story of Gremlin Graphics began in June 1984, the brainchild of Ian Stewart and Kevin Norburn. Co-owners of Just Micro, a computer retail outlet in Sheffield, they had always wanted to enter the manufacturing market but, until 1984, had never made any real effort to do so.

Their entrance into this sphere almost happened by chance: "A man called Peter Harrap kept coming into the shop because he was having trouble with his Spectrum", recalls Norburn. "We got to know him well and one day he brought in a game he had written."

### Entrepreneurial

It was that game which prompted the entrepreneurial Norburn and Stewart into action. Under their direction the platform game evolved into *Wanted Monty Mole*. Since it was at the time of the miners' strike, Stewart had the idea of setting it in a coal mine and, for added realism, even included an Arthur Scargill character at the end.

The topicality of it won Gremlin considerable coverage and launched the company well and truly into the software race. Two other early games were also forerunners in their fields, *Percy the Potty Pigeon* for its horizontal, two-way scrolling, and *Suicide Express*, for the high-speed and high-tech gameplay usually associated with arcade machines.

From its humble beginnings, Gremlin, according to Norburn, "just grew and grew". It is now ranked among the top five software houses in Britain, with a turnover of more than £3 million in 1987.

Originally employing only two programmers, the company now employs more than 40,

Nikki Carvey traces Gremlin's development, from its humble inception in a shop to its rapid growth into an international company.

including freelance workers. From Sheffield, it has proliferated so that today it also operates from Birmingham, Derby, Bristol and Lincoln.

Gremlin is more than just a British software house. Just as the computer industry has expanded through the years, so has Gremlin.

According to sales manager Jeremy Smith, "Gremlin's outlook now is to write for the world". Since it is already exporting its titles to most European countries, Japan and the U.S., Gremlin is well on the

way to having the international market tied-up.

One sign of its success is its ability to take others on board. In September, it began handling Hewson, after the demise of its sales director Debbie Sillitoe. "When she went, it did not really know what to do, so we put together a package for it", comments Gremlin public relations man, Richard Barclay.

Gremlin now markets and distributes Hewson exclusively. "Since it is a well-established software house, this gives business an extra profile", Barclay adds.

### More deals

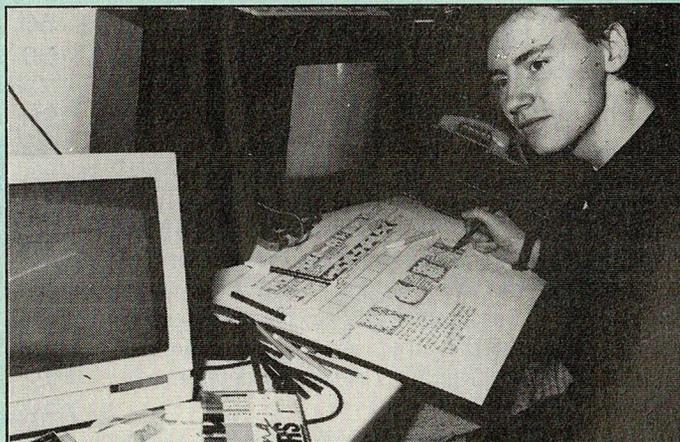
An extra profile will also be provided by the recent signing of the German company, Magic Bytes. Distributed previously through Ariolasoft, it had been looking for a new sales and marketing team and Gremlin clinched the deal. Gremlin is excited about the products Magic Bytes has in the pipeline, including *Tom and Jerry* and the *Pink Panther*.

Those cartoon characters will fit well into the Gremlin framework, since it already holds an exclusive licence for Disney products.

One has only to look at the type of games Gremlin produces to see that the company has benefited from the use of established youth images, whether it be highly popular cartoon figures or screen heroes.

Last year, Gremlin did well, riding on all the publicity surrounding two major film tie-ins, *Basil The Great Mouse Detective* and *Masters Of The Universe*.

Norburn assures us that this will not be a main area for progression in the future. "We try to keep away from film



Gremlin programmer John O'Brian in action.

**"From its humble beginnings, Gremlin, according to Norburn, just grew and grew. It is now ranked among the top five software houses in Britain."**

licences on the whole. We like to do original software", he said.

Having captured the British consumer successfully, Gremlin has now set its sights on the international market. This is no easy task, however, especially so far as the U.S. market is concerned.

## US market

Smith concedes that "Gremlin has only just started to tap into the American market" and that it is a difficult market to break. Consequently, Gremlin is licensed to

**"Gremlin attributes its meteoric rise not only to the intimate knowledge of its directors, but also to the insight and creativity of its production teams. From graphics to programming, Gremlin offers some of the best."**

American companies which know more about the way the market works.

## More sophisticated

"They love sports and flight simulations, they are not too keen on platform games," Smith explains. "The user is much older and they tend to have more sophisticated machines, such as PCs or Apples. Our

which has led to Gremlin pursuing more advanced projects, such as *FOFT*. Having been in development for nearly nine months, it was designed as a space game, similar to *Elite* but more intricate. As well as flying an airship, the player can also land and explore planets.

Paul Blythe, who wrote the game, described his handiwork. "It has many things which have never been done before. For example, the ship's computer is a computer with a language and an editor, so that you can run programs while you are flying through space."

Not all future Gremlin projects are destined to be so complex. *Mickey Mouse*, due for release next month, is a humorous platform game. Exciting graphics make it, according to managing director Stewart, "a game aimed at anyone aged eight to 80".

Other games being developed include the Alternative World Games series, *Dark Fusion* and *Venom Strikes Back*. The latter once again teams the player with Matt Tracker in a bid to rescue his stepson.

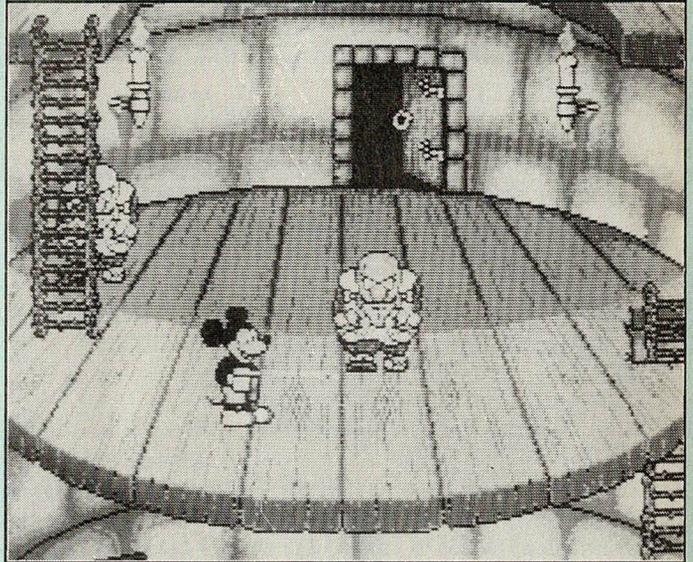
This should prove a successful combination, since the original, *Mask*, was one of the Gremlin best-selling games of 1987.

In a bid to continue creating the games children want, Gremlin will be setting up a games panel next month. Each month four children from Sheffield will be invited to Gremlin to test the games and enable Gremlin to "keep its finger on the pulse".

Gremlin hopes the success it has had with software will carry through into board games,

result of chance rather than long-term planning, since the authors of the computer game had designed it originally as a board game.

Stewart is in the States, where he has been negotiating the possibility of a Gauntlet board game.



*Mickey Mouse* due for release next month.

This has yet to be finalised, although Gremlin hopes it will be available for the 1988 Christmas market.

If the Gremlin story is to continue its present trend, perhaps we will see Gremlin ranking high among sellers of board games.

## Insight

Gremlin attributes its meteoric rise not only to the intimate knowledge of its directors, but also to the insight and creativity of its production teams. From graphics to programming, Gremlin offers some of the best.

The man behind the music, Ben Daglish, is even hailed as an industry figure - "the top computer musician", says Smith.

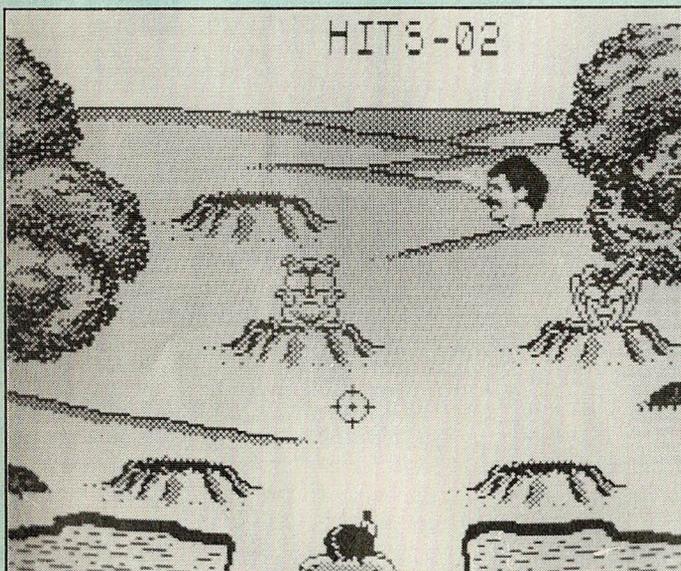
Smith rejects the threat of budget software and its attempts to out-price full-price software from the market.

Since product development costs vast amounts of money, he does not think budget can offer the same degree of graphics, music or programming. He concedes, however, "Budget has given full-price a good kick to improve quality."

## Quality

Quality has always been a major concern for Gremlin.

Throughout the company's history, its principles have been basic but clearly-defined "to produce quality products from concept to packaging". This policy has clearly stood it in good stead so far. □



*Alternative Summer Games*: being developed.

game, *Bounder*, was regarded as a budget title in the States because it was not complicated enough."

It is the desire to infiltrate the market

an area in which the company is expressing interest. The first venture was a Gary Lineker licence which was a dual promotion with the computer game. This was a



# From little Acorns . . .

Tony Joseph reports on two new educational packages for the BBC.

Following the sad demise of its Acorn BBC Micro, now into its fourth (or is it fifth?) major reincarnation as one of the leading home market micros, the software emphasis seems to be shifting to the educational market once more. The turn in the tide seems to be more in line with what the British Broadcasting Corporation had in mind when it commissioned the BBC from Acorn in 1981.

*Window* and *Prompt/Writer* are two excellent packages written carefully by the Microelectronics Education Support Unit which is based at the University of Warwick. They are both aimed at the special needs niche of the educational software market for children with learning difficulties, although both packages perform well in mainstream primary education.

## Concept

*Window* allows children to develop inferential skills when faced with stimulating visual material and *Prompt/Writer* provides two graduated if simple word processors which are highly suitable for group-based post-*Window* class work.

Both packages allow input from the Concept pseudo keyboard as well as the traditional BBC QWERTY. *Window* also supports a plethora of screen-based pointing devices including the Microvitec Touch Screen, AMX mouse and Marconi Rollerball. Output is to old printer favourites like Epson, Taxan and Citizen with special fonts available to *Prompt/Writer* depending on the printer.

## Skills

What *Window* sets out to do specifically is to develop skills in analysis by allowing the users to explore a picture or series of pictures through teacher-defined windows. The group then analyses the clues on the screen and makes guesses about the whole picture.

Unfortunately *Window* lacks the ability to create its own pictures and relies on importing third-party-generated screens. Importation from all the graphic modes is supported, including the teletextual Mode 7 but only in the format of what are

described as true screen dumps. In practice, this means that if you can create a graphic screen with a Basic drawing program and \*SAVE the correct bit of memory you can use the screen dump in *Window*. This also applies to the AMX type screen dump, minus the icon border.

## Window

*Window* is on three 40-track discs, easily copyable to 80-track if needed, with more than 20 pages of graphic screens and their associated windows ready for use in demonstration mode. The pages are divided into five types - Collections, Complex



Software for children with learning difficulties: exploring a picture.

objects/figures, Scenes, Groups and Text, with each type lending itself to different uses in the classroom.

The comprehensive 96-page manual describes all you need to know about the system and covers the contents of each disc in detail, with useful comments about each one from teachers and users.

*Prompt* and *Writer* are two linked word processors cast remotely from the *Word-wise* mould, designed specially to make it easier for children to put their ideas in writing. In addition, they offer new features to enhance appeal to younger users.

Both can make extensive use of the Concept keyboard, getting well away from the sometimes frightening array of buttons available on the normal QWERTY key-

board and enabling children to be creative without being restricted. Customising Concept overlay files to meet the needs of individuals and groups is simple.

Once through the opening menu system the main text body is in double-height Mode 7 characters, which provides the opportunity for coloured effects and makes the text easier to read. Graphics are possible but it is advisable to use a specialised Teletext package for good results.

*Prompt* can make use of the Votrax and Namal speech devices, although there is no mention of the excellent and inexpensive *Speech!* program from Superior Software,

while *Writer* offers an enhanced set of functions, including block manipulation - move, copy, rub out - and search and replace.

One of the most exciting uses for *Prompt/Writer* is filling the spaces in a pre-determined text. The stimulus could easily be provided by discussions based on a previous *Window* session. *The need for unnecessary typing would then be alleviated by the use of a*

*Concept keyboard and a corresponding overlay could be produced to contain the missing words.*

## Sensible software

The integration of *Window* and *Prompt/Writer* makes a sensible software combination for classroom use.

The stimulation of verbal or written material by visuals is a natural process. To take that process and put it into the reach of educationally-disadvantaged children and primary school pupils can only be a good thing.

So far as education is concerned, this is what computers should be used for, speeding the learning process and smoothing the bumps. □

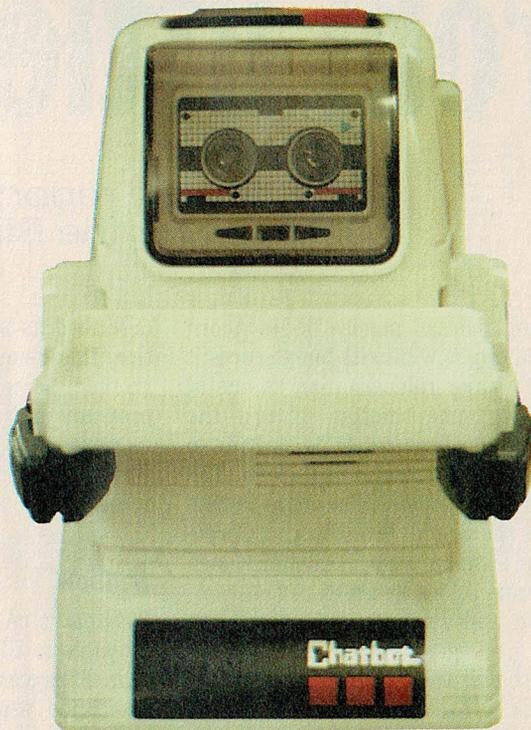
# COMPETITION

How would you like to win a robot? Well those kind folks out there at Mastertronic have kindly given us two terrific Chatbot robots to give away. The Chatbot which retails at £60 can record messages and deliver them at your command. Imagine you are in your room and don't want to leave it for dinner, well all you have got to do is get your Chatbot, give it a message and tell it to deliver that message. Soon, the Chatbot will become an integral part of your life.

It's not only Chatbots we're giving away, we've also got 25 copies of the new space chiller *Road Wars* game. *Road Wars* allows you to become a space highway star as you control your Battlesphere in battle to clear the roadways circling the Moon of Armageddon. From previews of this game, here at *Popular*, we reckon this game will be a real smash hit.

What we are going to do is give away a Chatbot and a copy of *Road Wars* to the first two correct entries and then 23 runner up prizes of *Road Wars* alone.

*Road Wars* runs on the Spectrum, Commodore 64, Atari ST and Amiga, please state which machine you want a game for.



## Questions

1. Which film scored you points if you ran down pedestrians?

- a. Car Wash
- b. Cannonball Run
- c. Deathrace 2000

2. Who starred in Carquake?

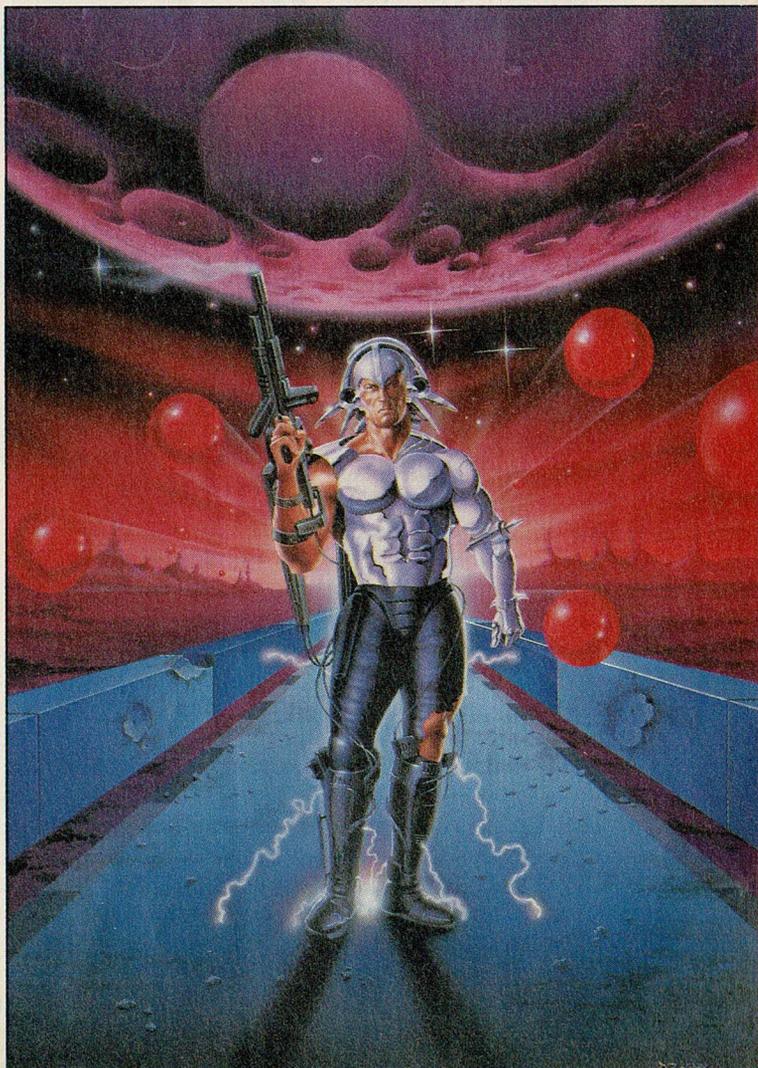
- a. Mark Phillips
- b. David Carradine
- c. Theresa Lawson

Send your answers on a post-card to:

Road Wars Competition, Popular Computing Weekly, Greencoat House, Francis Street, London SW1P 1DG.

Competition closes last post, Monday 15th February, 1988.

**Rules:** Correct answers do not guarantee a prize. All winners will be placed in a future issue of *Popular Computing Weekly*. The competition will be judged by John Brissenden, deputy editor of *Popular Computing Weekly*. Multiple or incomplete entries will be disqualified. The judge's decision is final, and no correspondence will be entered into.



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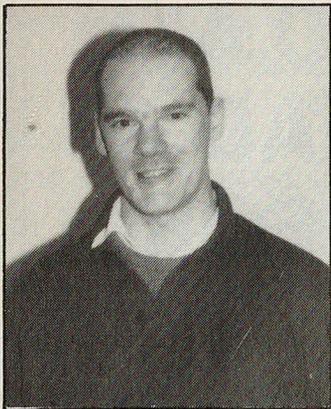
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## Angry hornets

Val Abraham, of Bedford, Herts, writes:

**Q** My C128 power pack, after about 15 mins of use begins to buzz like a hive of angry hornets. The noise gets louder and more frantic giving the impression of something about to explode. After about five minutes (seems like five years) at overload pitch, it begins to die again and settle down to a nice steady background noise - tolerable by comparison - and often fades completely. My nerves are becoming a bit shot. The local shop says there is nothing wrong with the power supply (whatever that means) but it didn't behave like this when new and I refuse to believe this is normal and that I am stuck with it.

I cannot rid myself of the feeling that it's about to burst into flames and consequently cannot concentrate on the matter in hand.

How can I find out what is causing the rumpus or is this a common fault of the 128 power supply: that is the only thing that stops me getting another power pack?

Hope you can recommend a remedy.

**A** The buzzing of the power pack (Power supply unit or PSU) in this way is generally caused by its transformer vibrating in time with the mains current it is converting for the machine. The transformer is built up from a set of plates which, if loose, can vibrate against each other giving the loud buzzing you can hear. After a while, it warms up and the plates expand slightly reducing the amount of vibration until a point is reached where there is no room left for manoeuvre, and the thing shuts itself up.

The best solution is to get the power pack exchanged, if it is still

under guarantee, or if it isn't then a good thump can sometimes do the trick (not really recommended). The alternative, of course, is to buy a new power pack and hope that it is of sturdier construction. I am not sure whether this is a common fault with the C128 power pack but the older Commodore 64 power supplies occasionally suffered in this way and sometimes packed up altogether.

## A dabble in C

Antony Bradley, of Portsmouth, Hants, writes:

**Q** I have got an Atari 1040 ST and I want to learn assembly language/machine code using this machine. I have got several books on 68000 assembly and machine language but they seem to be of a reference material nature, rather than a guide for tyros such as myself. Is it safe for me to dabble on a "let's see what happens if..." basis at this low level?

I'm attempting, without success, to learn to program in the C language using the Megamax system. I suspect that where I'm going wrong is in the development steps from module to module. Could you please give me a step by step guide to construction using this system?

Could you also supply me with the details of the cartridge port. I would also be interested to know what would be the result of two or more cartridges being run simultaneously on the same bus. This is a purely hypothetical question as I have no intention of attempting to discover the answer from actual experience.

**A** Probably the best way to learn machine code and about a machine is to use your suggested method of "lets see what happens if..." You can do no damage to the machine itself since the worst that will happen is a crash - simply press reset and try again. The only possible way of damaging a computer from a programming point of view is to set up one of its output ports so that it is connected to another output and then set one high and the other low. The only machine I have heard of where this was possible was the old Commodore PET. Modern machines will not allow this possibility so you should have no worries about fiddling around with machine code.

The diagram shown gives an outline of the program design pro-

cess. Basically think up the idea and then break it down into sections that can be easily understood and therefore programmed. Once a section has been written, run it to see if it works and then alter it until it does. When a number of sections have been written they can be put together and tested. Alterations can then be made to make them fit together until they work in concert with each other. Continue this process until the program is complete.

The idea of breaking a program idea down into component parts applies across the board for all

computer languages from the lowest levels of machine code, all the way up to high level languages such as C, Pascal etc.

The cartridge port is shown in Fig. 2. Using more than one cartridge at a time is not simply a matter of placing them on the same bus. The system needs to be able to switch between them for example by addressing them at different places in memory or by using the ROM select lines to overlay them. The address space is from \$FA0000 to \$FBFFFF giving a 128K area set aside exclusively for ROM firmware.

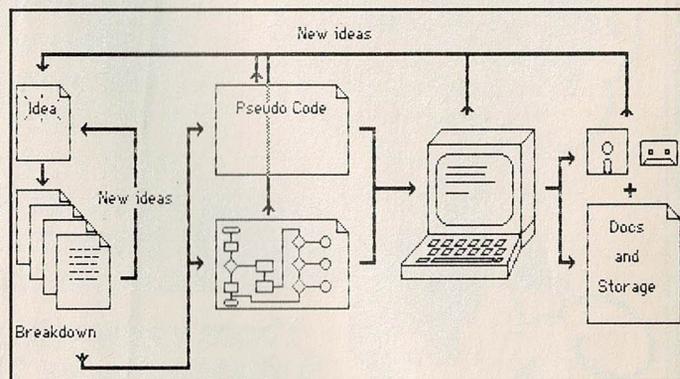


Fig. 1 - Program design strategy.

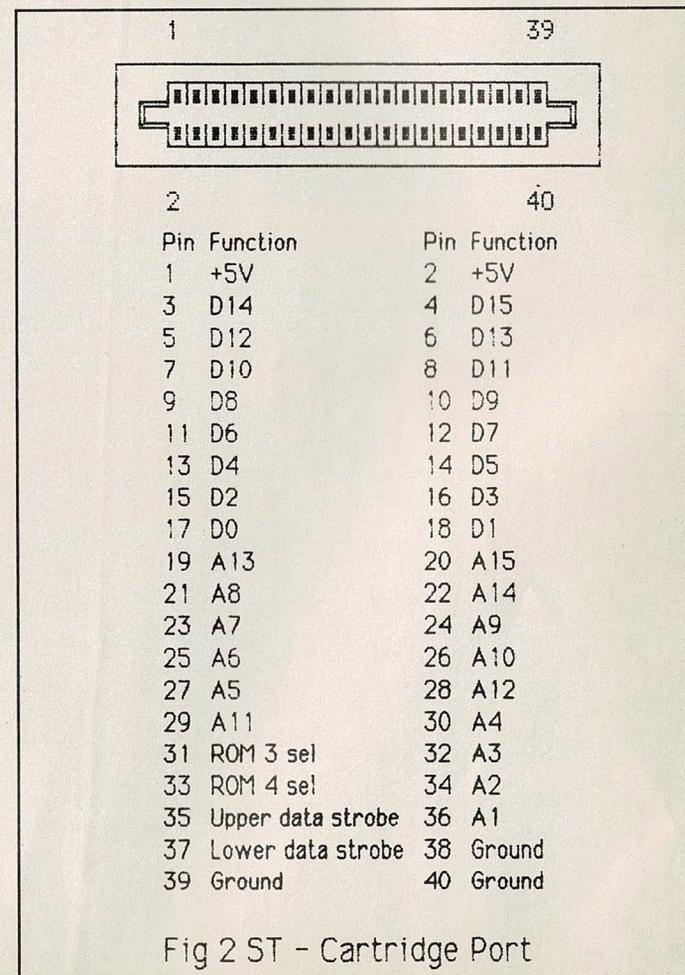


Fig. 2 - ST Cartridge Port.

## Sound advice

Tom Evans, of London W11, writes:

**Q** I am quite impressed by some of the tunes which emerge from my IV speaker, but I suspect that the speaker was never designed for computer music.

So, although I am sure you have covered it before, how can I make my 520ST output its sound directly to my stereo amplifier.

I'm sure it is possible but I hope it does not involve too much technical wizardry.

**A** The sound output from the ST is available on the monitor socket (pin 1) and can be connected as shown in the following diagram. Most of the parts are available from Maplin, or anyone

else who sells electronic components. All you need are:

An RCA Phono plug (Maplin No. HQ54J).

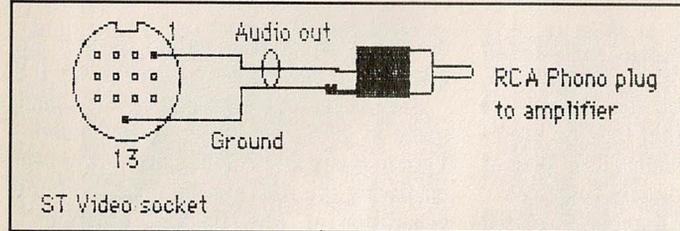
A length of screened cable (Maplin No. XR16S).

A plug for the ST's video socket which is available from:

Videk, 26 Queensbury Station Parade, Edgware, Middx HA8 5NR.

The shield of the cable should be connected from pin 13 (ground) to the outer connection on the phono plug, and the core from pin 1 to the inner phono connection.

To get the sound through your amp, simply plug the phono plug into either AUX, TUNER, or CD, but *not* PHONO as the impedance will be wrong for this input. Note that the output will be mono only since the ST does not supply stereo sound.



ST to amplifier connection.

## GEM on the ST

addq.l #4,sp

Correct the stack

M Annable, of Watford, Herts, writes:

**Q** Can you tell me how I can access the clear screen routine (ESC E) through the GEM interface?

Are the other VT52 emulator instructions also available through GEM?

Also, is there a book which lists the VDI opcode 5 escape functions and explains how to use them?

(They are not in the Abacus GEM or ST internals books which I have).

**A** The simplest way of using ESC E is to print it to the screen with CONOUT i.e.

```
move #char,-(sp) ASCII code to be printed on stack
```

```
move #2,-(sp) GEMDOS CONOUT code
```

```
trap #1 Call GEMDOS
```

Simply send 27 followed by 'E' (69).

To do this via GEM VDI the clear workstation command should be used.

The VT52 emulator routines are not part of GEM and can only be used with CONOUT as shown, a full list of the emulator commands can be found in Anatomy of the Atari ST from 1st Publishing.

For VDI commands, The Concise Atari ST Programmer's Guide from Glentop is probably the best book to get since it lists all of the VDI Opcode 5 instructions and gives details of the various arrays needed.

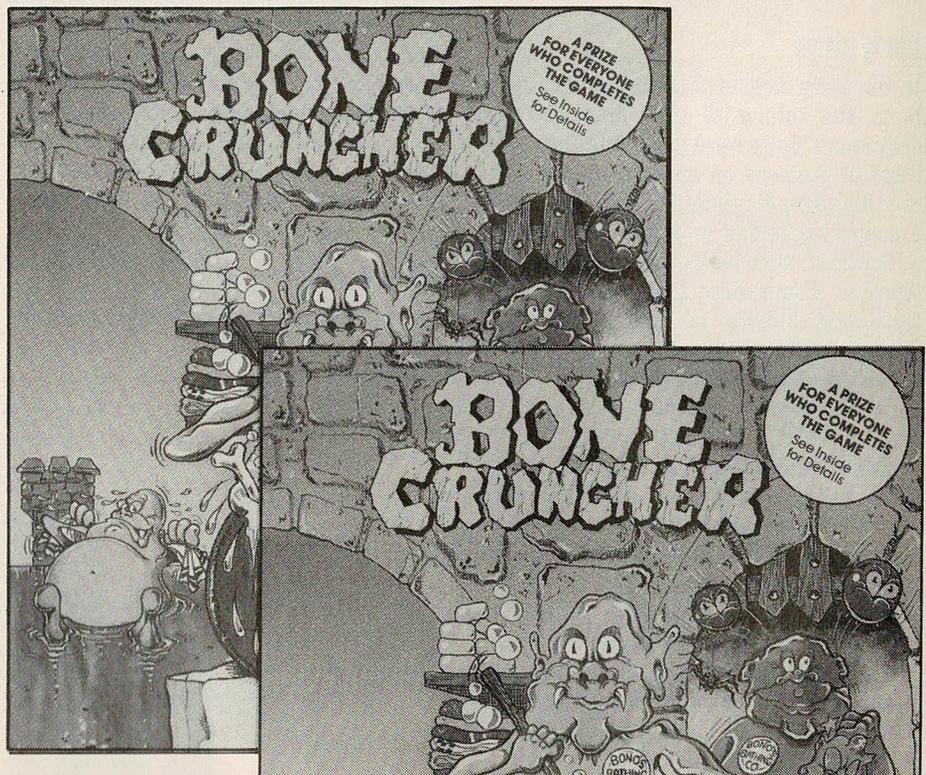
The problem is that it doesn't really explain how they are used, in fact, I do not know of any books that explain GEM VDI and AES programming in any great depth.

You might like to look at the September–November editions of (the now sadly defunct) ST Update where GEM AES is discussed as this should give you some ideas on how to go about using GEM on the ST.

## COMPETITION WINNERS

Here are the winners of the Bonecruncher competition:

A Cattanach, of Sanlesbury, Preston; G Fotheringham, of Kingoodie, Dundee; J Shaw, of Dukinfield, Cheshire; N Chandi, of Kirklee, Glasgow; L Savage, of Tadley, Hants; K Moon, of Wishaw, Lanarkshire; R Morris, of Burnley, Lancs; T A Hill, of Quedgeley, Glos; Iain McKie, of Kidsgrove, Stoke-on-Trent; L S Horner, of Leyland, Preston; N Wright, of Irlam, Manchester; Thomas O'Connor, of Paisley, Renfrewshire; Stuart Adamson, of Hedon, Hull; F Pirie, of Fraserburgh, Aberdeenshire; P Young, of Morpeth, Northumberland.



These will receive their prizes in due course from Superior Software.

# CHOP CHOP!

With telephone charges rising continuously, any method of reducing comms bills is welcomed by modem users. Here, Steve Gold looks at ways of cutting program download (and telephone cost) times by as much as 50 per cent . . .

Interactive communications with bulletin boards and online systems is great fun, and is useful for messaging and the exchange of public domain and shareware software. Unfortunately, as many modem users have found, the cost of making all those telephone calls can work out to be quite expensive.

Whilst the cost of messaging can often be reduced by preparing, reading and replying to messages offline, software file transfers are a finite commodity when it comes to downloading telesoftware from your favourite bulletin board (BBS) or online system.

## Early days

In the early days of computer communications, the volume of most programs was very small. Such were the limitations (and cost) of memory on most machines, that anything greater than 16K was considered a memory-gobbling program.

Contrast that with today's machines. Atari ST, Commodore Amiga and PC users have vast volumes of Ram in their machines to fill. Typical programs for these machines occupy 200 or more kilobytes of disc space.

Add to this the problem of there being several files (or modules) in a typical package, and it's not difficult to see why many computer owners despair at the thought of spending an hour or more downloading software from a BBS. To make matters worse, the download will often require the user to be present to type in the filenames as they are selected and downloaded one by one.

In the early 1980's, as BBSs and online

systems flourished in the U.S. (and later in the U.K.), computer owners devised several methods of solving the problem of multiple-file programs that took an age to transfer over a typical modem link. Most of the solutions served two main functions:

- To pack and unpack a number of related program, text and similar data files together into a single file; and
- to compress and decompress files. A compressed seven-bit file can easily be compressed to half its size by representing a group of seven-bit characters as a single eight-bit character.

In the early days of online communications, when most home computer users had CP/M machines, a system known as LU - short for Library Utility - was favoured by modem users. Since the need for filename extensions when using a compression system is removed (all the files are compressed to a single file), LU-encoded files were given the suffix .LU, eg. MEX.LU.

## Library utility

The LU system of compressing multiple

developed by a firm called System Enhancements Inc., of New Jersey in the U.S.

Since ARC first appeared on the comms scene in 1983, two online programmers - Vernon Buerger and Wayne Chin - have been modifying the ARC system until the latest generation of ARC/Un-ARC programs - still in the public domain and/or shareware - are slick and very fast in operation.

## ARC-ing

ARC-ing is now the generally accepted file format for the Atari ST, Commodore Amiga and IBM PC (and compatible) machines. Versions of the ARC encoding/decoding system also exist for several other machines, notably the Apple and Atari eight-bit computers, as well as the CP/M operating system. The exception to the rule seems to be the Apple Macintosh which, although an ARC system is available, often uses a non-standard system known as Packit (PKT) to encrypt and decrypt multiple files.

Whilst the benefits of using PKT are the same as those of ARC, both systems are incompatible, so Apple Mac users may find it necessary to have both programs in their library of utilities.

Most bulletin boards and online systems which uses the ARC system of file compression have one or more utility packages available for download in their telesoftware areas. There are currently several programs around for the Amiga, PC and ST computers.

Some of the packages are in the public domain, whilst others are shareware programs. The shareware concept allows us-

Path: \

<pre> LICENSE .DOC PKXARC .COM PRCMDQCP.ARC PRCMUTIL.ARC PROCOMM .ARC READ .ME         </pre>		<pre> FILE: *.* DISK: B: Available Bytes: 46,080 DISK Statistics Total Files: 6 Bytes: 312,969 Matching Files: 6 Bytes: 312,969 Tagged Files: 0 Bytes: 0 Current Directory \ Bytes: 312,969         </pre>					
DIR	Available	Delete	Filespec	Log disk	Makedir	Print	Rename
COMMANDS	^Showall	^Tag	^Untag	Volume	eExecute		
scroll	RETURN	file	commands	ALT	menu	F1	quit F2 help

Diagram 1: Disc dir of Procomm ARC files.

files into a single squeezed file soon gave way to an IBM PC-based system known as ARC-ing. The ARC system was originally

ers to freely copy and distribute a software package, but holds them to their honour of registering as a licensed user of the software if they like and use the package. Most ARC utility shareware registrations cost between \$10 to \$20 and are worth registering with their U.S. authors to obtain updates free of charge or at low cost.

## Theory into practice

Enough of the theory, let's look at ARC-ing in practice. For the purposes of this article, I have chosen to look at the PK system of ARCing developed by Phil Katz, working on the ideas of those before him.

The PK (short for Phil Katz) system runs on a PC compatible - a low-cost clone in my case - and I have chosen Procomm, the popular shareware comms package as my example.

In its un-ARC-ed format, Procomm occupies a single 360K PC disc. Looking at diagram one, we see that the six basic files (including the Pkxarc.com ARC-ing program) which comprise the Procomm suite occupy some 312K of the PC's 360K disc surface. Of the six files, three are ARC-ed.

## Un-ARC-ed

Procomm.arc and Premutil.arc are normally un-ARC-ed and copied to one disc (disc A), whilst the remaining ARC-ed file - Prcmdocp.arc - and the license file are normally un-ARC-ed (where appropriate) and copied to a second disc (disc B).

From diagram two we see that the first two ARC-ed files mentioned above (Procomm.arc and Premutil.arc) now occupy some 243K of the disc surface, spread out over 15 files on disc A.

Over on the disc B, we see that the remaining ARC-ed file on the original Procomm disc have also spread to occupy two files over 278K of the disc surface. This is shown in diagram three.

By simple calculation, we see that our original 312K of ARC-ed files have turned into 521K of program files and documentation. This latter figure does not take account of the Pkxarc utility program or the license and read.me files which occupy

several K of the original disc.

## Simple mathematics

Applying simple mathematics (summarised in diagram four and diagram five, which is on page 30) I calculate that the ARC-ed version of Procomm would take

Path: \		FILE: *.*
\ PROCOMM.DOC READDOC.ME		DISK: B: Available Bytes: 83,968
		DISK Statistics Total Files: 2 Bytes: 278,099 Matching Files: 2 Bytes: 278,099 Tagged Files: 0 Bytes: 0 Current Directory \ Bytes: 278,099
DIR Available Delete Filespec Log disk Makedir Print Rename COMMANDS ^Showall ^Tag ^Untag Volume eExecute scroll RETURN file commands ALT menu F1 quit F2 help		

Diagram 3: Disc dir of Procomm Disc B (documentation).

41.82 minutes to download at 1200 baud, whilst the complete set of 17 files which spread over two discs when Procomm is un-ARC-ed would take 72.59 minutes to download under similar conditions - a clear half-hour longer.

As bulletin boards and online systems

continue to proliferate, so the use of telesoftware downloading and uploading will increase. Already, there are a number of computer users who obtain most of their applications and utility programs over the phone. Even as modem speeds move inexorably higher, the use of ARC-ed program files will still be useful.

## Other ARC applications

We have seen how ARC-ing can be useful in cutting the cost and nuisance involved in transferring programs and files to (and from) BBSs and online systems. The ARC facility serves another useful purpose for all computer users - for archival back-up of data.

Floppy and hard discs do fail, and most seasoned users of computers take backups of their programs and associated data. In the case of floppy discs, this may necessi-

ty arise. Floppy and hard discs do fail, and most seasoned users of computers take backups of their programs and associated data. In the case of floppy discs, this may necessi-

Diagram 4: Xmodem bloc calculations for ARC-ed version of procomm.

PROCOMM.ARC Blocks in file: 1065 blocks (of 128 bytes). Bytes in file: 136320 bytes (rounded to next higher whole block). Time to send or receive (approximate): 2400 baud : 9.47 minutes. 1200 baud : 18.93 minutes. 300 baud : 75.73 minutes.
PRCMDDCP.ARC Blocks in file: 953 blocks (of 128 bytes). Bytes in file: 121984 bytes (rounded to next higher whole block). Time to send or receive (approximate): 2400 baud : 8.47 minutes. 1200 baud : 16.94 minutes. 300 baud : 67.77 minutes.
LICENSE.DOC Blocks in file: 79 blocks (of 128 bytes). Bytes in file: 10112 bytes (rounded to next higher whole block). Time to send or receive (approximate): 2400 baud : 0.70 minutes. 1200 baud : 1.40 minutes. 300 baud : 5.62 minutes.
READ.ME Blocks in file: 30 blocks (of 128 bytes). Bytes in file: 3840 bytes (rounded to next higher whole block). Time to send or receive (approximate): 2400 baud : 0.27 minutes. 1200 baud : 0.53 minutes. 300 baud : 2.13 minutes.
PRCMUTIL.ARC Blocks in file: 226 blocks (of 128 bytes). Bytes in file: 28928 bytes (rounded to next higher whole block). Time to send or receive (approximate): 2400 baud : 2.01 minutes. 1200 baud : 4.02 minutes. 300 baud : 16.07 minutes.

Diagram 2: Disc dir of Procomm Disc A (Procomm files).

Path: \		FILE: *.*
\ CMDCNVT .EXE COMPUSRV .CMD FIDO .CMD PCP-MENU .CMD PRCM242 .NEW PRCMSORT .EXE PROCOMM .DIR PROCOMM .EXE PROCOMM .KEY PROCOMM .PRM PROCOMM .XLT RBBS .CMD		DISK: B: Available Bytes: 110,592
		DISK Statistics Total Files: 15 Bytes: 243,594 Matching Files: 15 Bytes: 243,594 Tagged Files: 0 Bytes: 0 Current Directory \ Bytes: 243,594
DIR Available Delete Filespec Log disk Makedir Print Rename COMMANDS ^Showall ^Tag ^Untag Volume eExecute scroll RETURN file commands ALT menu F1 quit F2 help		

tate maintaining a duplicate set of program discs. In the case of hard disc-wielding computer users, the cost of backing a hard disc up to floppies can be quite high.

Provided users spend a few minutes ARC-ing their programs and data up into disc-sized chunks, then up to a half of the discs required for back-up purposes can be used for other things.

I rarely need more than 50 floppies to back my hard disc up now. For me, ARC-ing saves money on disc purchases as well as telephone costs. □

# COMMUNICATIONS

◀ continued from page 29

CMDCNVT.EXE	Blocks in file: 150 blocks (of 128 bytes).	Time to send or receive (approximate):	2400 baud : 0.02 minutes.
	Bytes in file: 19200 bytes (rounded to next higher whole block).		1200 baud : 0.04 minutes.
	Time to send or receive (approximate):		300 baud : 0.14 minutes.
	2400 baud : 1.33 minutes.		
	1200 baud : 2.67 minutes.		
	300 baud : 10.67 minutes.		
PRCM242.NEW	Blocks in file: 41 blocks (of 128 bytes).		
	Bytes in file: 5248 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.36 minutes.		
	1200 baud : 0.73 minutes.		
	300 baud : 2.92 minutes.		
PROCOMM.EXE	Blocks in file: 1292 blocks (of 128 bytes).		
	Bytes in file: 165376 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 11.48 minutes.		
	1200 baud : 22.97 minutes.		
	300 baud : 91.88 minutes.		
COMPUSRV.CMD	Blocks in file: 12 blocks (of 128 bytes).		
	Bytes in file: 1536 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.11 minutes.		
	1200 baud : 0.21 minutes.		
	300 baud : 0.85 minutes.		
FIDO.CMD	Blocks in file: 16 blocks (of 128 bytes).		
	Bytes in file: 2048 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.14 minutes.		
	1200 baud : 0.28 minutes.		
	300 baud : 1.14 minutes.		
PCP-MENU.CMD	Blocks in file: 109 blocks (of 128 bytes).		
	Bytes in file: 13952 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.97 minutes.		
	1200 baud : 1.94 minutes.		
	300 baud : 7.75 minutes.		
PRCMSORT.EXE	Blocks in file: 77 blocks (of 128 bytes).		
	Bytes in file: 9856 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.68 minutes.		
	1200 baud : 1.37 minutes.		
	300 baud : 5.48 minutes.		
RBBS.CMD	Blocks in file: 15 blocks (of 128 bytes).		
	Bytes in file: 1920 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.13 minutes.		
	1200 baud : 0.27 minutes.		
	300 baud : 1.07 minutes.		
README.TEF	Blocks in file: 2 blocks (of 128 bytes).		
	Bytes in file: 256 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.06 minutes.		
	1200 baud : 0.12 minutes.		
	300 baud : 0.50 minutes.		
SOURCE.CMD	Blocks in file: 12 blocks (of 128 bytes).		
	Bytes in file: 1536 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.11 minutes.		
	1200 baud : 0.21 minutes.		
	300 baud : 0.85 minutes.		
TEF.EXE	Blocks in file: 123 blocks (of 128 bytes).		
	Bytes in file: 15744 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 1.09 minutes.		
	1200 baud : 2.19 minutes.		
	300 baud : 8.75 minutes.		
PROCOMM.PRM	Blocks in file: 5 blocks (of 128 bytes).		
	Bytes in file: 640 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.04 minutes.		
	1200 baud : 0.09 minutes.		
	300 baud : 0.36 minutes.		
PROCOMM.XLT	Blocks in file: 2 blocks (of 128 bytes).		
	Bytes in file: 256 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.02 minutes.		
	1200 baud : 0.04 minutes.		
	300 baud : 0.14 minutes.		
PROCOMM.KEY	Blocks in file: 4 blocks (of 128 bytes).		
	Bytes in file: 512 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.04 minutes.		
	1200 baud : 0.07 minutes.		
	300 baud : 0.28 minutes.		
PROCOMM.DIR	Blocks in file: 49 blocks (of 128 bytes).		
	Bytes in file: 6272 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.44 minutes.		
	1200 baud : 0.87 minutes.		
	300 baud : 3.48 minutes.		
PROCOMM.PDOC	Blocks in file: 2167 blocks (of 128 bytes).		
	Bytes in file: 277376 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 19.26 minutes.		
	1200 baud : 38.52 minutes.		
	300 baud : 154.10 minutes.		
READDOC.ME	Blocks in file: 7 blocks (of 128 bytes).		
	Bytes in file: 896 bytes (rounded to next higher whole block).		
	Time to send or receive (approximate):		
	2400 baud : 0.06 minutes.		
	1200 baud : 0.12 minutes.		
	300 baud : 0.50 minutes.		

Diagram 5: XModem block calc for un-ARC-ed version of Procomm.

## PROGRAMMING: C64

### Graphics utility - 3

Adrian Purser

#### List of the graphics variables

This is the third and last part of the graphics utility listings.

1 CLMAP	49675	\$C20B
Routine to clear the hires screen.		
2 CLS	49544	\$C188

This routine will set up the screen colour to the value in COLOUR for the hires screen and set unused parts of the screen

to background. It will also display the three character sets ready to accept the hires screen.

3 SETUP 49372 \$C0DC

Set up the raster interrupts ready to separate the three characters sets for the hires screen.

4 LINE 49152 \$C000

Draw a line from X,Y TO X1,Y1 ON/OFF and patterns have no effect. To remove a line, store a value of 81 in location 49306. This exclusive ORs the line with the existing one next time it is drawn. To return to normal, put 17 in 49306.

5 CIRCLE 50831 \$C68F

Draw a circle at centre coordinates XC and YC. The X radius is in RX and the Y

radius in RY. Varying these values will give ellipses. ON/OFF and patterns cannot be used.

6 PLOT 50988 \$C72C

Plots a point at X,Y in the pattern specified by PATTERN. To unplot a point put a 0 in ON/OFF, return to normal with a 1 in ON/OFF.

7 BOX 51220 \$C814

Draw a box with X,Y as the top left hand corner and X1,Y1 as the bottom right. ON/OFF and patterns may not be used.

8 BOXFILL 51055 \$C76F

Similar to box but the PATTERN is used as is ON/OFF.

9 DISPLAY 50215 \$C427

Displays a 3D object on the hires screen

CALCULATE must be used before DISPLAY since it sets up the screen coordinates. Use XP, YP, and ZP as the position coordinates of the while object. Be careful not to let the object move off the edge of the screen otherwise the coordinates wrap around and distort the picture. It is best to set XP and YP to 0 and move the object closer with ZP to start with.

10 CALCULATE 50145 \$C31E

This rotates the object through the angle stored in ANGLEX, ANGLE Y and ANGLEZ and stores it as a 2D object ready to be DISPLAYed. The angles are not in degrees but vary from 0-355. To convert from degrees to 0-255 use:

$$X=(256/360)*A$$

where X is the angle to be stored and A is the angle in degrees.

When you rotate an object, it will rotate from its origin the amount stored in the ANGLEn variables but will not be restored

by being rotated i.e. the variables are not updated. This means that if you want to rotate the object continuously by a set amount, you will not store a constant for the angle but will increment the angle each time.

11 TEST 50263 \$C457

This displays and rotates a 3D object by the amounts stored in ANX, ANY, and ANZ. It is used to test an object while you are designing it. Note that it does not set up the screen so you use it like the other routines.

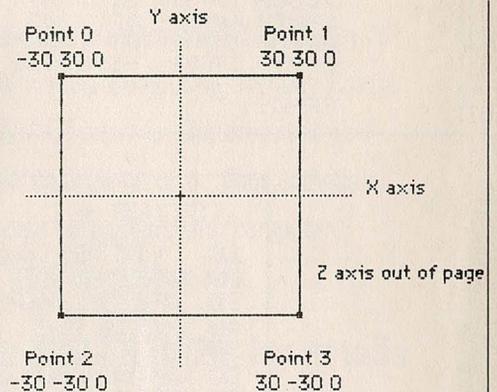
## 3D Design Program

To create an object you must first draw it. Once this is done, calculate the coordinates of all the points (see diagram below) then use listing 3 to enter them. When the coordinates have been entered, you must

tell the computer which points are to be joined by a line.

To do this, store the values in listing 3 starting at line 20000 e.g.

To draw a line from point 0 to point 1 enter DATA 0,1.



Designing a 3D object - this is a flat plane.

### LISTING 3

```

10 PRINT"3D PERSPECTIVE GRAPHICS EDITOR."
20 PRINT"ENTER YOUR 3D DATA INTO THE APPROPRIATE DATA STATEMENTS."
30 PRINT"00 [1] .. MOVE DATA TO MEMORY."
40 PRINT" [2] .. ENTER DATA."
50 PRINT" [3] .. TEST GRAPHICS."
60 PRINT" [4] .. QUIT."
70 INPUT"ENTER YOUR CHOICE (1-5)":A
80 IFA<10RA>4 THEN10
90 ONA GOTO110,310,320
100 END
110 :
120 REM MOVE DATA TO MEMORY.
130 :
140 PRINT"READING DATA."
150 A1=0
160 READXX,YY,ZZ
170 IF XX=-60000 THEN230
180 IF XX<0 THEN XX=256+XX
190 IF YY<0 THEN YY=256+YY
200 IF ZZ<0 THEN ZZ=256+ZZ
210 POKE51872+A1,XX:POKE52000+A1,YY:POKE52128+A1,ZZ
220 A1=A1+1:GOTO160
230 POKE 51334,A1-1
240 A2=0
250 READL1,L2
260 IF L1=-60000 THEN290
270 POKE52256+A2,L1:POKE52384+A2,L2
280 A2=A2+1:GOTO250
290 POKE 51333,A2-1
300 GOTO10
310 PRINT"J":LIST10000-
320 PRINT"TEST GRAPHICS."
330 PRINT"ENTER ROTATE STEP SIZE FOR X (-128 TO +128)"
340 INPUT XR
350 IF XR<0 THEN XR=256+XR
360 PRINT"ENTER ROTATE STEP SIZE FOR Y (-128 TO +128)"
370 INPUT YR
380 IF YR<0 THEN YR=256+YR
390 PRINT"ENTER ROTATE STEP SIZE FOR Z (-128 TO +128)"
400 INPUT ZR
410 IF ZR<0 THEN ZR=256+ZR
420 POKE 50319,XR:POKE50328,YR:POKE50337,ZR
430 PRINT"PRESS RUN/STOP + RESTORE TO QUIT TEST."
440 PRINT"PRESS A KEY TO START OR C TO CALCEL."
450 GETA$:IFA#=""THEN460
460 IF A#="C" THEN10
470 SYS 49675:SYS 49544:SYS49372
480 SYS 50263
10000 :
10010 :
10020 : XPOINT , YPOINT & ZPOINT DATA.
10030 :
10040 :
10050 : X Y Z
10060 DATA -30 , -30 , 00
10070 DATA 00 , 30 , 00
    
```

# PROGRAMMING: C64

```

10000 DATA 30 , -30 , 00
10090 DATA 00 , -20 , 00
19999 DATA -50000.0,0
20000 :
20010 :
20020 :LINE POINTS (POINT A TO POINT B)
20030 :
20040 :      A      B
20050 DATA 00 , 01
20060 DATA 01 , 02
20070 DATA 02 , 03
20080 DATA 03 , 00
29999 DATA -50000.0

```

READY.

## \_LISTING 4

```

10 I=16384:B=0
20 READ A:IF A<>256 THEN POKEI,A:I=I+1:B=B+A:GOTO20
30 IFB<>13464 THEN PRINT"DATA ERROR",B
40 SYS16384
50 DATA 169.64,160.64,32.30,171.32
60 DATA 228.255,240.251,162.1,201.49
70 DATA 240.6,162.8,201.56,208.239
80 DATA 32.210,255.169,13.32,210.255
90 DATA 160.255,138.32,186.255,162.107
100 DATA 160.64,169.15,32.189,255.169
110 DATA 0.133,251.169,192.133,252.169
120 DATA 251.162,160.160,202.76,216.255
130 DATA 13.69,78.84,69.82,32.68
140 DATA 69.86,73.67,69.32,78.85
150 DATA 77.66,69.82,32.40,49.61
160 DATA 84.65,80.69,32.56,61.68
170 DATA 73.83,75.41,32.58,18.32
180 DATA 146.157,0.71,82.65,80.72
190 DATA 73.67,32.85,84.73,76.73
200 DATA 84.89,32.32,256

```

READY.

## \_LISTING 5

```

100 *=16384
110 !
120 ! SETUP LABELS
130 !
140 SETUP      = %C00C
150 CLMAP     = %C208
160 CLS       = %C188
170 CALCULATE = %C3E1
180 DISPLAY   = %C427
190 ZP        = %C888
200 ANGLELY   = %C893
210 ANGLEZ    = %C894
220 ANGLEX    = %C895
230 AMOUNTL   = %C885
240 AMOUNTP   = %C886
250 !
260 ! GRAPHICS UTILITY EXAMPLE OF
270 ! ROTATING A 3D OBJECT
280 !
290 ! WRITTEN BY ADRIAN PURSER (C) 1987
300 !
310 LDA #180
320 STA ZP
330 LDA #0
340 STA ANGLELY
350 STA ANGLELY
360 STA ANGLEZ
370 LDA #3
380 STA AMOUNTL
390 STA AMOUNTP
400 JSR CLMAP
410 JSR CLS
420 JSR SETUP
430 LOOP LDA ZP
440 CMP #45
450 BCC SKIP
460 SEC
470 SBC #2
480 STA ZP
490 SKIP JSR CALCULATE
500 JSR CLMAP
510 JSR DISPLAY
520 LDA ANGLELY
530 CLC
540 ADC #6
550 ! AMOUNT OF ROTATION
560 STA ANGLELY
570 LDA ANGLELY
580 CLC
590 ADC #6
600 ! AMOUNT OF ROTATION
610 STA ANGLELY
620 LDA ANGLELY
630 CLC
640 ADC #6
650 ! AMOUNT OF ROTATION
660 STA ANGLELY
670 JMP LOOP
680 ! POINT DATA
690 *=%CBA0 ! XPOINT
700 BYT 236,0,20,0
710 *=%CB20 ! XPOINT
720 BYT 236,30,236,246
730 *=%CBA0 ! XPOINT
740 BYT 20,20,20,20
750 ! LINE DATA
760 !
770 *=%CC20
780 BYT 0,1,2,3
790 *=%CCA0
800 BYT 1,2,3,0

```

READY.

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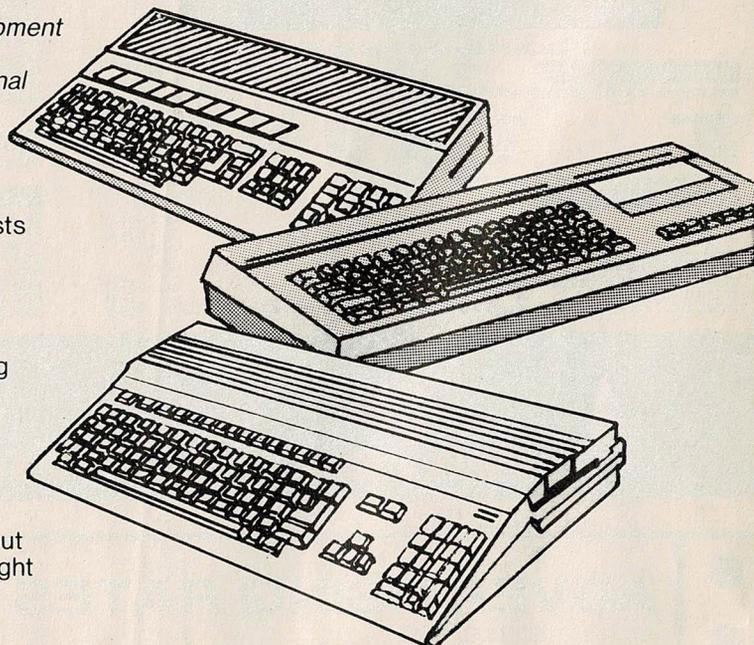
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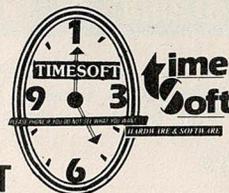
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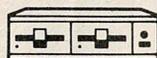


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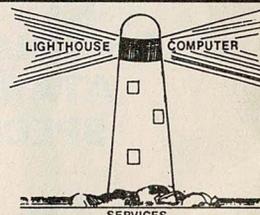
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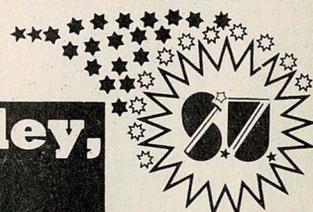
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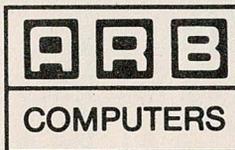


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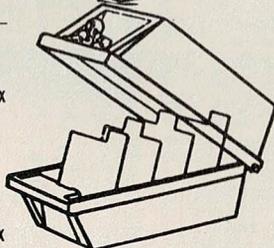
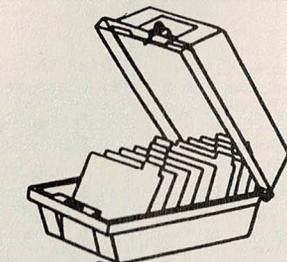
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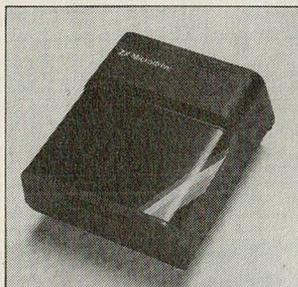
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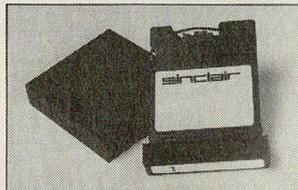
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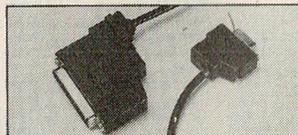


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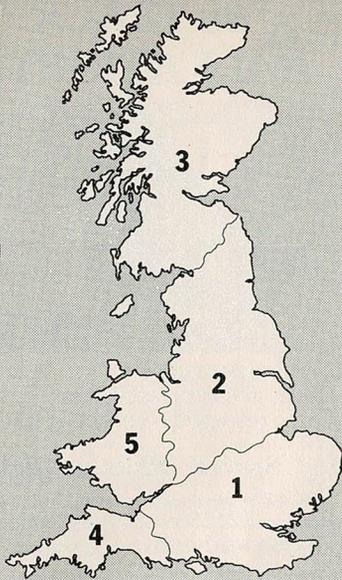
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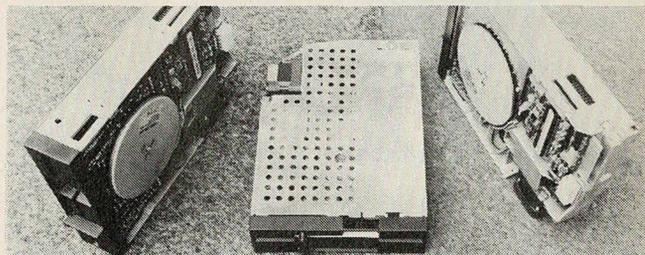
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# Licence to destroy

The computer industry is very slowly being eroded. Not by piracy - I think we have all heard enough on that subject. The problem to which I am referring is the growing genre of games linked to films and arcade games via licences. "How can these games erode an entire industry?" you ask. There are some very good reasons, which I will explain.

Arcade and film tie-ins are destroying originality in games, because for a game to be a true tie-in, and therefore to satisfy the film or arcade company, the game must go some way to emulate the plot of the film or coin-op. As such, playability of the game will suffer as the author(s) are restricted in the type of game they can write. A slow-paced but innovative game will not suit a fast-moving film such as *The Living Day-lights* or *Back to the Future*.

Almost all film tie-ins are just dressed-up shoot-'em-ups with poor gameplay. The same can be said for arcade conversions. Some big name coin-ops are poor games made good by mind-blowing state of the state-of-the-art graphics and sound. When a game like this is converted to a home computer which cannot produce those graphics, you are left with poor graphics and an even worse game.

Apart from that, the games are produced on a very low budget, as most of the company's financial resources has been taken by the licence. So the money remaining with which to produce the game is very little and the game suffers as a result.

To prove my point I give an example. Activision was once well known for producing excellent original games such as *Zenji*, *H.E.R.O.*, *Master of the Lamps* and *Tour de France*. In the last year, it has decided to release a string of tie-ins, none of them particularly good. Look at *Quartet*, *Wonder Boy* and *Enduro Racer*.

No doubt Activision is taking much more money now than it was previously since more people will buy a licence than a stand-alone original game, because the buyer will have been influenced by the film or the graphics of the arcade version. When they finally get the game home it will last only five "novelty" minutes before it is relegated to the back of the software shelf.

If the software companies really cared about their public and its reputation, they would boycott the idea of licences and start spending more time and money to produce an original game with good gameplay, as well as attractive graphics and sound.

Obviously all they really care about is annual turnover.

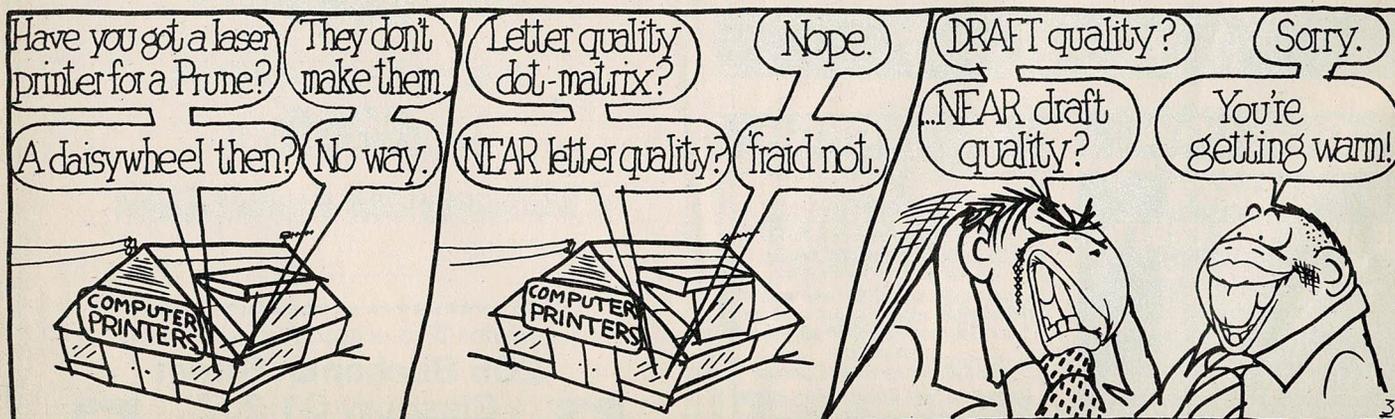
Licences put a stop to original software in another way, too. As the big conglomerates release more tie-ins they earn more money, and dominate more of the market. This makes it much more difficult for small companies which produce good games to get started in the industry and become well known. The only aspect of their games which prevents them from selling well is the fact that they are not linked with a well-known film or personality.

What makes it worse is that the only reason those companies continue to release the tie-in games is that we, the games-playing public, buy them. Even the most ardent fans of the Pet Shop Boys or Michael Jackson would not rush to buy their new singles until they have heard them. If they do not like the tune, they will not buy. So why do so many computer fans snap up the latest licence without waiting for a review or a demonstration?

If we do not stop buying games on the strength of the name without looking at it properly first, the big companies will produce more and more tie-ins and we shall see the end of originality in games.

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