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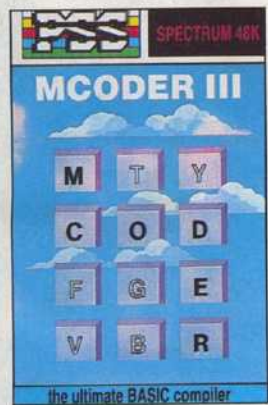
19-25 December 1985

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Vol 4 No 51

THIS WEEK

Clive's wafer project cash on the cards



MCoder III special offer



Commodore's Sound Expander Module reviewed

SIR CLIVE Sinclair has claimed he is close to clinching a deal with a venture capital company for over £5m to help set up Sinclair's wafer scale integration company.

The £5m falls far short of the £50m Sinclair was seeking last summer, just before its

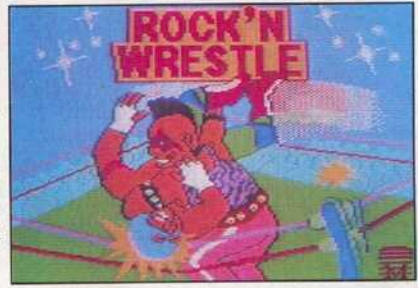
well-publicised financial crisis. It has now had to plan to sub-contract out initial manufacturing of the silicon wafers. Production 'in-house' will not begin for another three years, when a substantial sum, probably about £40m would need to be raised.

Sir Clive has also publicly announced that he hopes the wafer scale chips to be in production and used in Sinclair's portable computer project by 1987.

A Sinclair spokesman said, "I cannot confirm whether or not this deal will be going ahead; it is still in negotiation. Nor would it be fair to name the venture capital company."

Sinclair Research is also still looking for around £10m
continued on page 4 ▶

MELBOURNE House's Rock & Wrestle, now due out on the C64, January 7, at £9.95. A Spectrum (£8.95) and Amstrad version (£9.95) are due out at the end of January.



MICRO MAGIC

Find out if you have won an Amstrad 6128 this week or at least some special Popular Computing Weekly cassette labels.

Enter your Micro Magic number into our computer program on page 33.



INSIDE

Readers' Poll

Vote for the best and worst of 1985

N.O.M.A.D



ocean

In the vastness of space lies the heart of an Intergalactic Criminal Network, TALOS and at its head the evil CYRUS T. GROSS.

A last ditch attempt by the Free Worlds to rid the Universe of this seemingly unstoppable force has called on the services of the NEMESIS ORGANISATION, a hardened cadre of humanoid and robotic free booters who have assigned NOMAD (Nemesis Organisation Mobile Attack Droid) to penetrate GROSS's heavily armed homeworld and destroy this vile despot once and for all. Your mission must SUCCEED. You are the NOMAD controller.

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Ocean Software is available from selected branches of W.H. SMITH, WOOLWORTH, LASKYS, Rumbelows, Greens, Spectrum Shops and all good software dealers. Trade enquiries welcome.

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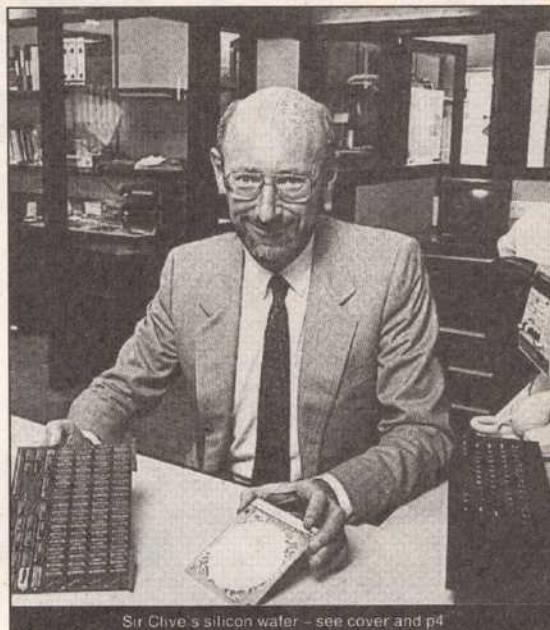
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EDITORIAL

People talk of this Christmas being 'crucial' to the home computer industry, just as those same people talked of last year being 'crucial.'

When it comes to micros, it seems everything either has to be astoundingly successful or appallingly terrible - doom-laden adjectives abound. Obviously, whilst poor sales at Christmas of micros and software will be a pretty bad thing, the overall effect this might have on the industry is not, in fact, the do or die affair it is being painted.

Last Christmas is not a useful point of comparison for this one. Then the absurd overstocking of computers, which led more or less directly to the troubles of Acorn, Sinclair and, to a lesser extent, Commodore UK, should not be repeated.

The most significant point of difference is that the character of the industry has changed - largely for the better, and some hard lessons appear to have been learnt. Not only are the companies that have survived the harsh times intrinsically stronger and better run (if also larger and less charmingly idiosyncratic) but last year's lessons have led to more conservative estimates of sales and cash flow.

Cautious realism pervades the industry as never before. Alan Sugar's Amstrad may have taught the industry a good few lessons on how to do it, and stock levels and expectations are cooler.

With only a modicum of luck there shouldn't be too many unpleasant surprises this Christmas; in fact there is some early evidence to show that there may even be a few pleasant surprises.

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ABC

66,062 copies sold every week
(Jan-June 1984 ABC).

Popular Computing Weekly. Tel: 01-437 4343.

How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here - so please do not be tempted. **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

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'With the power and flexibility of its graphics and sound, the Enterprise deserves to be a runaway success' - Abersoft



Atari admits to delay on 260ST

ATARI has now admitted that its 260ST machine will not now appear until next year. The company had earlier hoped it might appear before the end of 1988.

Rob Harding, sales and marketing manager of Atari UK, said the long-awaited machine should arrive "early in the New Year".

The equally long-awaited

hard disc for the ST series will be launched around the same time. Reasons for the delay are unknown - Atari had several working hard discs on its Comdex stand in Las Vegas in November. The price has also still to be decided - Harding says it will be "competitively priced" which means that it should appear for less than £1,200.

The other major peripheral still on the waiting list is the CD-Rom laser-driven disc system. A prototype was shown as far back as June at CES in Chicago when Atari said it hoped to launch the product by the end of 1988.

Harding now says there are no immediate plans to release the product as the company believes the technology is too expensive.

However, there is brighter news on software. Atari announced more than 100 packages at Comdex and Harding says they are becoming available now.

Happy families for Amstrad owners

DAVID Computer Software (DCS) has announced a genealogy package for all Amstrad machines - both the CPC range and the 8286.

The family tree database program can store ancestral details under name, sex, date of birth, place of birth, baptism, death or burial, can file under marriages, children,

occupations and so on. It will also cope with most usual database features with search, printer dump, incomplete data matches etc.

The program, called *Genny*, costs £35 on disc only, so 464 owners need to have a drive. Details from DCS at 38 South Parade, Bramhall, Stockport (061-439 4841).

Lucasfilms latest

THE LATEST game designed by Lucasfilms, *Koronis Rift*, is due out in Britain from Activision at the beginning of January.

The game, graphically similar to its stablemate *Rescue on Fractalus*, casts the player as 'techno-scavenger', making a living by searching for abandoned technological systems scattered around deserted parts of the galaxy.

It will be available for the Atari XE/XL series on disc only at £14.99 and the on cassette at £9.99 and disc at £14.99.

CPC 6128 arrival in States held up

THE US launch of Amstrad's CPC 6128 computer has suffered heavy delays, and is not yet on sale.

The machine was jointly previewed by Amstrad and Indescomp at last summer's CES in Chicago. At the time, it was due to go on sale around September in the US.

"There have been heavy delays on it because of FCC tests," said Loren Willey, Indescomp US's marketing director. "Not only the computers but the peripherals



that come with it had to be separately tested, and then the full kit when put together had to be ratified.

"However, it has now passed all the tests and is ready for shipment." Indescomp expects the 6128 to be available in the US in volume by March.

It is being targeted as a cheap business machine in the States, and is being bundled with *Wordstar*, *Mail Merge* and *Multiplan* at \$699 for the colour monitor version, and \$499 for the monochrome model without the software.

Printer dump for Apple II

APPLE Dumps is a new software program from D-Soft, which enables owners of Apple II and III series machines to print graphic screen dumps on any type of printer, including daisywheels.

Hi-res graphics, partial or complete text screens or side



Graphics with Dumps

views print can all be successfully dumped. The package costs £19.95 from D-Soft at 60 Chancellors Road, London W6 9RS (01-748 9202).

Sinclair's wafers

◀ continued from page 1

in external finance for working capital and to help pay for new products, such as the 'Pandora' portable and successors to the QL and Spectrum. Sir Clive hopes that would-be investors will be organisations and wealthy individuals.

However, it looks as though Robb Wilmot, who joined forces with Sir Clive to raise finance for the semiconductor scheme earlier this year, has now been ruled out, despite the fact he has recently resigned his post as chairman of ICL to concentrate on his own enterprises.

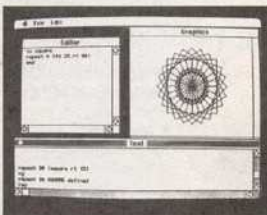
Microsoft Logo to enter schools market

MICROSOFT, the company more widely known for its own version of Basic and professional packages, has, somewhat surprisingly, launched a package designed for the schools market.

The package in question is Logo, which runs only on Apple's Macintosh micro.

However, the Macintosh is nowhere near as commonly used in schools and colleges as Acorn or Research Machines' micros, for instance. A Microsoft spokesman said: "There are around 200 educational establishments

equipped with Macs at the moment." And Apple added:



Microsoft Logo

"Over the past year the Mac has been doing incredibly well in schools, colleges and polytechnics."

However, Microsoft admits that the market is still a small one and it is looking for side benefits to compensate for initial sales levels. Among these are the added impetus to Apple's Mac, and the hope that Microsoft-loving students will turn into Microsoft-loving business users.

MS Logo is a full implementation of the language offering data-handling as well as the familiar turtle graphics. It was written for Microsoft by Logo Computer Systems Inc and employs the full power of the Mac's graphics, windows and variety of typefaces.

Firebird lines up twenty firms for US invasion

ULTIMATE'S titles *Sabre Wulf* and *Underwulde* have already been lined up by Firebird for export to the US under the Firebird Licensees label (see *Popular Computing*

Weekly, November 14). The British Telecom division already has Commodore 64 rights to these two titles in Britain.

Firebird's John Fletcher, who is co-ordinating the move into the States from the UK, said, "We are also talking to CDS, Virgin, Melbourne House, Novagen, Odin, Shards, PSS and Softechnics (the division of Softek concentrating on 88000-based machines) with a view to marketing their titles in the US. We are holding discussions with about 20 companies in all."

Firebird Licensees has taken a stand at January's CES show in Las Vegas, where it will display both its own programs and also those from third parties, for sale in the US from early next year.

Metacomco win award

METACOMCO, the Bristol company which wrote the Amiga's operating system, AmigaDos, and a number of languages for the QL, has won an export award. The company was nominated Supreme Champion in the 1985 South West Export Awards, which are sponsored by the Institute of Export, the British Overseas Trade Board, the Bristol Chamber of Commerce, Midland Bank and HTV.

MSX price cut again

TOSHIBA has reduced the price of its HX-10 MSX computer again, this time down to £89.99 (see *Popular Computing Weekly*, September 26).

The new £90 HX-10 Entertainment Package is the same as the previous £99 starter pack, but substitutes the data recorder for a joystick.

The two packages will both be available through into the New Year, while Toshiba's



enhanced MSX micro, the HX-22 is still only available in limited quantities.

Soviet style networks

IN AN unusually open article, the Soviet newspaper *Pravda* has described the problems within the Soviet Union of linking personal computers to central terminals.

Pravda says that 30 cities in the Russian republics, the largest of the Union's 15 republics, now have organisations linked to databases.

Paradoxically, the report continues, authorities have catered only for large-scale systems with central networks, but have 'forgotten' to make available devices for small subscribers.

The Soviet leader Mikhail Gorbachev has called for a major program to bring the country's communication systems more up to date.

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Pen-pal Service

I run a pen pal service for Spectrum users and would like anyone who wants a pen pal to write.

They should tell me a few details about themselves and the sort of person they want to write to, and send them to me with an SAE. I'll get in touch as soon as I can. Also, if there are any females out there - please write, as half the replies are asking for you.

Even if you don't own a Spectrum, write anyway and I'll see what I can do.

Anna Peters
20A Esmond Rd
London W4 1JQ

An enigma

In *Popular*, 5-11 December, John Minson's review of *Swords and Sorcery* fails to give credit where credit's due. Since 1982, adventure game commentators have expressed the opinion that a full role playing game would be impossible within the constraints of a home micro, until the arrival of cheap(ish) disc drives and/or expanded memories.

It is ironic that PSS has achieved the impossible just as this hardware is becoming a reality. Surely PSS can be forgiven for having "taken a little longer".

MICRO MAGIC

Congratulations to Ian Brunage of Luton, C M l'Anson of Liverpool and Ron Ebbrell (pictured below) of The Wirral, who have all won Amstrad CPC 6128s in our Micro Magic competition so far.

This does mean, however, that there are still nine 6128s to win, and that nine people out there somewhere have Amstrad winning numbers, so keep typing each week's listing in.

All prizes, including cassette labels and extra cards with documentation, will be despatched shortly.



The limitations of the game are those imposed by the memory available and more sophisticated games can only be achieved from disc or on the 128K machines. These will, of course, come close to John Minson's expectations but will be denied to those of us who cannot spend £400.

The enigma of the game is that nothing is fully explained and you have to find out for yourself what you are supposed to do. This is why your reviewer 'was unsure what was going on'. He was meant to be!

The conversation routines are fascinating but you cannot just barge into a room and expect to engage the inhabitant in polite chatter.

John Minson makes no mention of the magic which plays such an important role in the game nor of the risks involving the meagre supply of food, which, in true 'table-top' role playing games, will thwart your bravest efforts if you do not plan your strategy very carefully.

I cannot see how he fails to 'empathise' with a character to which he has given an identity by naming it and then training it.

Swords and Sorcery combines strategy, combat, and puzzle-adventure and forms the basis of a further three levels of 'environments'; as such it represents better value for money than anything else in 1985.

However, it does rely on the player supplying one thing which John Minson has clearly failed to do - imagination.

Hugh T Walker
7 Burnet Avenue
Burfham

John Minson replies: While I recognise PSS's persistence in chasing the micro role-playing dream, *Swords and Sorcery* just didn't work for me.

My comment on not being sure of what was going on was a criticism of the confusing display and yes, I would expect to have to draw a map, as I always did when I was an r.p.g. player.

It was not my lack of imagination that led to the review, but *Swords and Sorcery's* failure to stimulate it.



```
GOTO 20 40 FOR F=1 TO
LEN B$: FOR G=1 TO LEN A$
50 F B$ (F) = C$ (G) THEN
LET C$ (G) = " ": LET A=1:
GO TO 80 20 NEXT G: IF A=0
AND B$(F) <> " " THEN
PRINT AT 8,0; "LETTER";
B$(F); "Not Found": BEEP 2,4:
PRINT AT 8,0; "(18 spaces)":
GOTO 15 85 LET A=0: NEXT
F 95 LEY A$=C$ 100 LET
W$=W$+B$ PRUNT AT 4,0;
"Your phrase": AT 5,0; W$:
LET A=0: GOTO 20.
```

Robert Burgess
Rotherham

In agreement

I have never found myself agreeing 100% with a magazine before - not, that is, until I read John Minson's review of *Swords and Sorcery* in the 5-11 December issue.

I find it hard to believe that PSS can claim that its program has 'stunning 3D graphic animation simulating video disc games'. The graphics are 1983 standard and have about as much atmosphere as the moon. I'm sure that the majority of people buying this program will have played role playing games and will realise it is impossible to capture this kind of experience in a computer game.

Richard Hewison
Luton

Phrase composer

While attempting to compose a phrase for your Readers' Chart competition I got fed up at having to write:

```
"ELITE HYPER SPORTS"
"WAY OF THE EXPLODING FIST"
```

every time so I wrote this small program for the Spectrum to do the job for me.

It inputs the game titles phrase and then asks for a word. Then it scans through the phrase deleting letters in the word and printing both up. Should a letter in a word not be contained in the titles phrase, the phrase is restored to the way it was before that word.

```
5 POKE 23658,8=LET A=0
=LET W$=" "
```

```
10 INPUT "Input the top three
titles-";A$
```

```
11 LET C$=A$
```

```
30 INPUT "Word to remove
from phrase-";B$ 35 IF B$=
"QUIT" THEN LET A$=Z$=
LET W$=" " =CLS =
```

Roller price

A few weeks ago you carried a review of the IBICO LTR-1 printer in which you state the price of the ink roller for the LTR-1 is £2.50. I phoned Saga Systems in Woking this morning to find out that they charge £4.95.

I have had one of these superb little printers for a while and I always buy my ink rollers from IBICO direct. They charge £3.00 + VAT which is a lot less than Saga.

David Cummings
London W1

Reliable QL

I have had my QL for 18 months. It is being used at least three hours a week keeping records and accounts for my farm. Never have I needed to use the backups which I always make. The Microdrives are reliable.

Callum Burnett
Aberdeenshire

Amstrad Club

We are a newly formed club in Manchester dealing mainly with Amstrad computers, called the Amstrad North West Users Club. We meet at the Eileen Wilkinson School on Hyde Road, Manchester, Wednesday evenings, 7.00-9.00pm. Any interested readers should contact me.

P Clarke
Secretary, ANWUC
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Gorton
Manchester

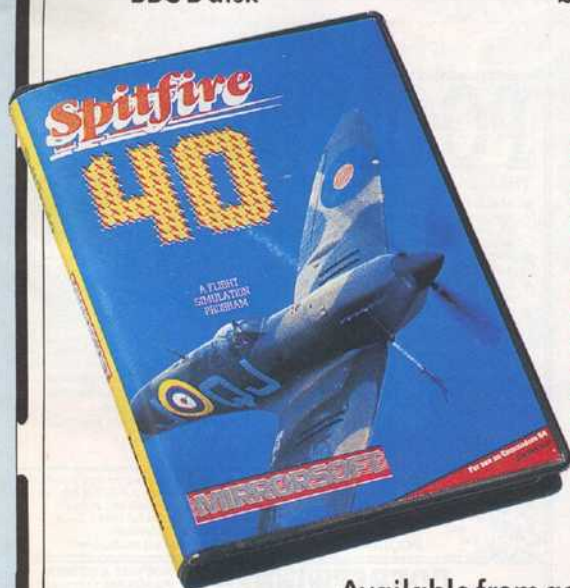
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Discover the Atari ST



Jeremy Vine's Atari ST Companion will tell you all you need to know if you're wondering whether to invest in the most talked-about new micro of 1985 — the Atari 520ST. Jack Tramiel's new wonder-machine offers you the "power without the price" — a 68000-based window, icon, mouse micro with the GEM graphics environment from Digital Research, all for £750.

The Atari ST Companion has been written with the benefit of full hands-on experience of the machine. Jeremy Vine begins with an overall look at the ST, followed by a detailed introduction to the GEM (Graphics Environment Manager) system. This offers facilities comparable with the much more expensive Apple Macintosh, including windows, pull-down menus and the facility to use a mouse to point to icons to replace typed commands.

Also covered is the Atari Intelligent Keyboard Controller, the very sophisticated sound system of the ST (which includes the industry-standard MIDI interface), the TDS operating system and the graphics LINE "A" interface.

So, whether you are already the proud owner of a new ST, or just thinking of learning more about this revolutionary new micro, send off today for this great new Sunshine book.

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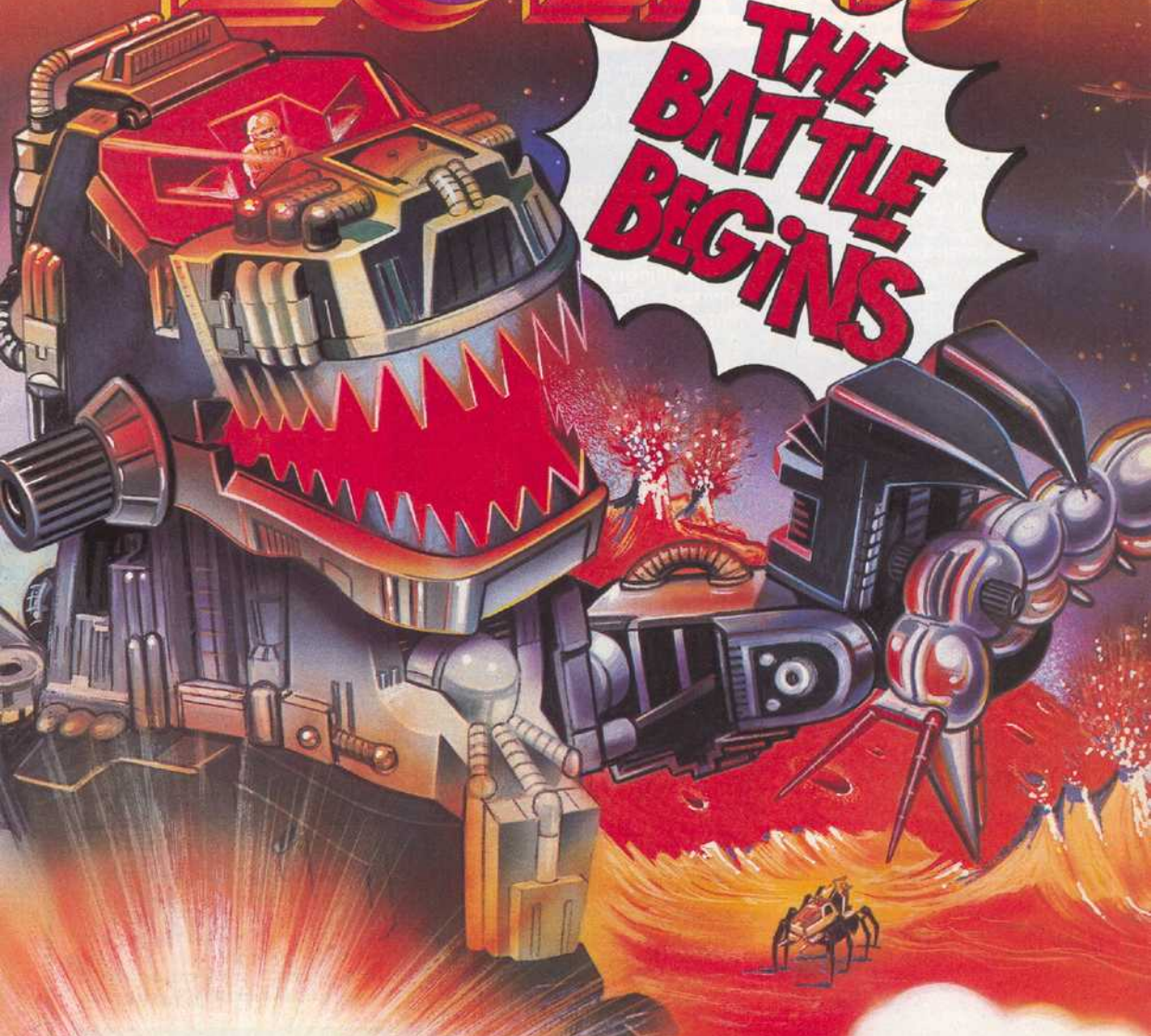


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Popular's Xmas Crackers

Let's face it, Christmas presents are pretty dodgy things. Aunties and Uncles, even parents (who might be expected to know better), are quite capable of making the most horrendous lapses of judgement and buying the most unspeakable things in the belief that it was 'just what you wanted'. I remember, for example, that one infamous auntie, who, on being told that I liked rock music, bought me *Heavy Junction Plays the Bits of Deep Purple*.

When it comes to computer programs, the situation is fraught with danger. I mean, suppose you're a noted Dragon basher much given to wielding mighty power swords of Tharg and somebody lovingly presents you with *Travels with the Mr Men* - try maintaining a fixed grateful smile then . . .

With these things in mind we present the *Popular Christmas Crackers* - hot off the press games you may not have already got that you can reliably instruct a relative to buy. Don't leave things to chance, study the lists below and issue precise details to potential present buyers. Then they have no excuse.

Incidentally, an Ad is a mighty axe wielder as Arc is fond of jumpy-runny-jumpy a bit more, blast dodge games, and Ut is for those who like really useful practical sorts of things.

Spectrum Sweevo's World

The latest program from Gargoyle Games is a departure from its previous devious graphic adventures so it may not be suitable for a purist Ad, but an Arc should bounce around gleefully if finding this one under the synthetic tree.

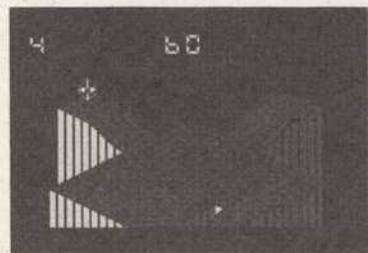
It owes a lot to *Alien 8* and *Knight Lore* in its 3D presentation and 'how the hell do I get from there to there' puzzles but goes beyond those games in both wackiness and technical brilliance. It features an inept robot who has to move around dozens of different screens collecting objects like old tin cans and boots and sneaking up on occasional geese. Getting through the screens involves not only putting the tin cans to good use and ascending on little platforms, but also dodging pineapples, a nasty little girl and, most horrendous of all, giant fingers that shoot up through the floor to poke you. All this in high res graphics and with the most ludicrous scoring system ever devised - what more could you want?

Price £7.95 Suppliers: Should be around in both computer specialists and chain stores. If not: Gargoyle Games, 74 King Street, Dudley, West Midlands DY2 8QB.

Gyroscope

Another one for Arc fans. Whatever Melbourne House says, this game is, in fact, a variant on the arcade classic *Marble Madness*, which requires control of a gyroscope that is, if anything, even more difficult to keep in check than a marble.

The game is all down to timing and split



second reactions as you move the spinning gyroscope across a geometric landscape, down channels, across tiny bridges over

chasms, over slippery bits and sticky bits towards a goal. The whole thing is done on a strict time limit and is, to begin with, fiendishly difficult.

Graphics are excellent as is the sound (on a Spectrum!) and the logic to recreate the sense of centrifugal force, particularly when the gyroscope starts to run out of energy, cleverly realised.

Price £7.95 Suppliers: Specialists and chain stores, if not: Melbourne House Castle Yard House, Castle Yard, Richmond.

The Art Studio

Certainly a Ut but all Arc and Ad fans should be quite happy with it. It is certainly the best graphics program ever designed for the Spectrum and you really don't need to have any great artistic talent to produce professional looking results.

It goes beyond the usual features of *Line*, *Circle*, *Arc*, *Fill* and lets you manipulate areas of design in a variety of ways. You can cut and paste an area defined by a window into another area of screen. Shapes can be distorted by 'forcing' them into a particular window shape and the whole screen can be magnified temporarily for some precision work.

The text font is similarly flexible; a large number of styles are provided and you can easily define your own. Text on screen can be moved around and distorted in exactly the same way as shapes or filled with a large variety of textured shades. The program can also be used with an AMX Mouse or a joystick and all the commands are issued via a user friendly Icon and menu system.

Price £14.95 Suppliers: specialist stores, most chains; if not: Rainbird, Wellington House, Upper St Martin's Lane, London WC2.

Think!

An unusual thing, a computerised board game which is both original and not merely computerised for the sake of it. This program also has the virtue of potentially appealing to the whole family, force them to have a go at it and they may even be prepared to give up TV to computer playing rather than watching the *Two Ronnies Christmas Special*.

The game is played on a grid of six by six

squares and the task is to complete a row - horizontally, vertically or diagonally across the board. Pieces are placed from the bottom or right hand of the board, and as each piece is placed it shunts along any other pieces on the same row or column. The end result is a fantastically devious game which can be played by six year olds easily but which can reach a complexity close to that of Chess.

Nicely presented with the Spectrum playing an extremely good game if you can't find any real people to play against. A surprise perhaps but not a disappointment for any Arc, Ut or Ad fan.

Price £7.95 Suppliers: Specialists and most chains if not: Ariolasoft Asphalte House, Palace Street, London SW1E 5HS.

Commodore The Human Race

This is a classic Arc game of the most fiendish, just one more go, I think there's a bug in this program, this screen is impossibly kind. Over several screens you try to evolve from ape to human, each screen requires much joystick twitching and careful timing as you dodge birds, dinosaurs and sundry other mammals. You also get to negotiate steaming lava pits and generally have a bad time.

There is some marvellous music from Rob Hubbard and best of all the whole thing costs £1.99 so even tiny relatives could afford it.

Price £1.99 Supplier: All computer outlets; if not: Mastertronic, Paul St, London EC1.

Gyroscope

See the comments on the Spectrum version. This version features a fully scrolling screen and a proper music score (which could have been better).

Price £7.99 Supplier: As Spectrum version.

The Music System

This is a must for Ut fans who also like music. An extremely complex music creation system that takes the Sid chip to new heights and lets you compose music on screen using conventional notation and real time. The Advanced music system extends this to include midi compatibility and score print out and is very worth while

Popular's Xmas Crackers



if you have a Midi equipped music keyboard.

Price £14.95 cassette, £17.95 disc. Advanced system disc only £34.95 Suppliers: Most specialist shops, some chains, also music shops. If not Rainbird, Wellington House, Upper St Martin's Lane, London WC2.

Transformers

A game that looks rather boring from the box shots but is, in fact, quite ingenious. Based on the famous toys and television program featuring robots that can transform into cars, the game continues their adventures and so is a good bet for younger Arc fans.

The game involves zooming around a futuristic setting of tubes and girders hunting out parts of an Energorm cube. You have a team of Transformers to accomplish this task which involves much blasting as you are constantly assaulted by the evil deceptions. Not only blasting but some strategy too as you must decide what transformer to use where and when to change from robot to car. Nice music and slick scrolling graphics.

Price £8.95 Suppliers: Retail everywhere, if not: Ocean, 6 Central Street, Manchester M2 5NS

Little Computer People

Suitable for young fans of every hue as well as a few old ones prepared to suspend cynicism and enter into the spirit of this remarkable program.



You get, simply, a little man whom you see 'living' in a three storey house. You see him watch TV, play the piano or records, feed himself and scraggy dog, do aerobics and generally live out a full if confined existence. You can ask him to do things, pet him, play cards with him and even get him

to type you rather strange little messages.

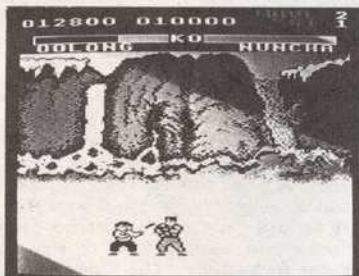
The whole thing is beautifully done with a real sense that the little man exists. An astounding technical achievement.

Price £9.95 Supplier: Most chains and specialist shops, if not: Activision, 15 Harley House, London NW1.

Amstrad Yie Ar Kung Fu

Although any Kung Fu game bears inevitable comparison with *Way of the Exploding Fist*, this is a good choice for Amstrad owners because it shows off the high resolution graphics and animation of which the machine is capable.

As with any Kung Fu game the whole thing is about kicking your opponent's brains out as quickly as possible. *Yie Ar Kung Fu* features two robed competitors who can kick, punch, slide and tumble under joystick control. The computer can prove a fierce competitor but the best fun is had by beating up a friend. Price £9.95 Supplier: Most specialist shops, some chains; if not: Imagine Software, 6 Central Street, Manchester M2.



Sorcery Plus

A superb Arc game with some astoundingly good use of graphics. This is the disc based enhanced version of the original Amstrad *Sorcery* with more screens.

You control a little wizard whose task it is to release a number of other wizards locked in various dungeons. Truly cartoon-like, it remains addictive even after dozens of plays.

Price £14.95 Supplier: Some specialist shops and chains; if not: Virgin Games, 2-4 Vernon Yard, Portobello Road, London W11 2DX.

Tasword 6128

Definitely a Ut, this is an extremely professional word processor for a relatively low price. It has all the main word processor features like block move, search and replace, left and right justify and so on but is very easy to use with an excellent manual. It is also compatible with *Tasword's* spell check and mail merge programs as well as programs like Campbell System's *Masterfile*.

Price £24.95 Supplier: Mostly specialist shops; if not: Tasman Software, Springfield House, Hyde Terrace, Leeds LS2.

Graphics Adventure Creator

A superb Ut that is also perfectly suitable for all Ads. It lets you create very complex adventures with quite detailed illustrations for each location. See this week's Adventure Corner for a more detailed look.

Price £24.95 Supplier: Some specialist, some chains; if not, Incentive Software, 54 London St, Reading RG1 4SQ.

BBC

Dr Who and the Mines of Terror

This is a major new arcade game for the BBC. It features not only the program but also a 16K Eprom which you have to fit internally into the BBC. This provides more memory for what is, basically, a souped up platforms and ladders game.

In his attempt to destroy an alien mining base, the Doctor gets to do lots of running, jumping and scrolling in all directions. There are objects to collect and use and puzzles to solve. The BBC is fairly starved of good arcade material so all Arc fans will want to have a crack at this one.

Price £18.95 (cassette) £19.95 (disc) Suppliers: Some specialist shops; if not: Micropower, Northwood House, North Street, Leeds LS7 2AA.

Revs Four Tracks

Revs is undoubtedly the best car racing game on any micro, certainly in terms of being an accurate simulation of what it's like to race a real machine. This package gives your existing *Revs* package an additional four tracks around which to test your nerves and responses. Included are Brands Hatch and Donington Park.

Price: £9.95 Suppliers: Some specialist computer shops; if not: Acornsoft, Fulborn Rd, Cherry Hinton, Cambs.

QL

The Pawn

One of the very few games for the QL, that actually look like they are running on a sophisticated 68000 based machine. This is a must for Ad fans particularly purists since it is a text adventure of the classic sort. What sets *The Pawn* apart is the great flexibility of the language interpretation. The parser allows for complex sentences in almost conventional English.

The above coupled with a large magical kingdom, chock full of magic objects, dwarfs and quests makes this heaven for QL adventurers everywhere.

Price £19.95 Supplier: Some specialist shops, if not: Sinclair Research, Stanhope Road, Camberley, Surrey GU15 3BR.

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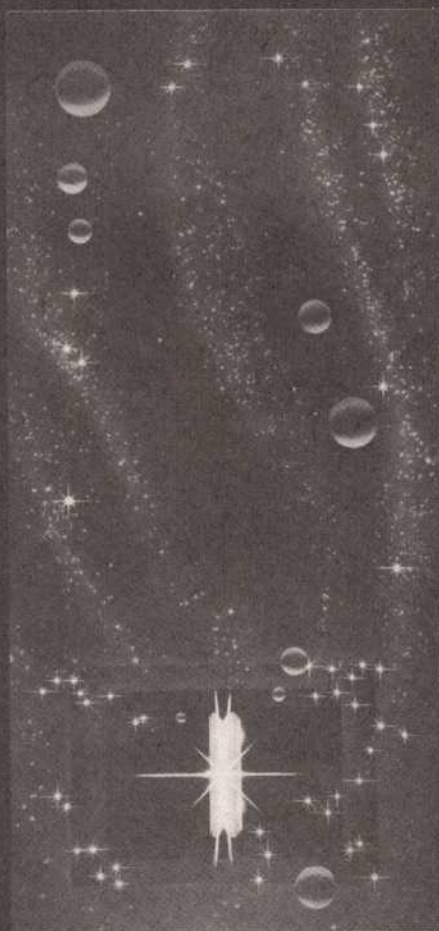
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Sound Expander

Hardware Sound Expander Module
Price £99.99 **Micro** Commodore 64
Supplier Commodore, 1 Hunte's Road, Weldon North Ind. Est., Corby, Northants.

For £99.99 it's now possible to turn the Commodore 64 into an FM music computer similar to Yamaha's popular CX5. The Sound Expander Module, developed by Music Sales but to be released by Commodore itself, offers eight-note polyphonic playing of present FM sounds, with all the life and realism associated with that technique.

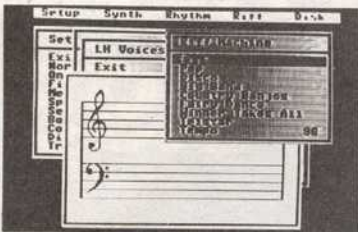
The basic software on disc is of the *Play-Along* variety, controlled either from the popular Music Maker clip on keyboard (now available separately for £9.99) or from a full-sized four-octave keyboard of Italian origin, which will also be available separately from Commodore, costing around £69.

Basic playing options include normal or single finger chords, octave transpose (vital if using the Music Maker keyboard), ensemble on/off for richer sounds limited to four-note polyphony, chord memory, programmable split point, variable border colour and so on. You can split the keyboard at any point

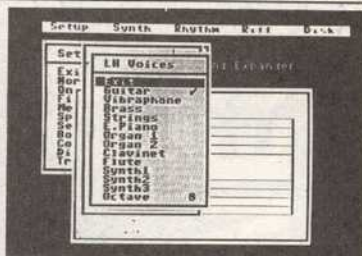
and will be offered the same selection of sounds for the top and bottom halves of the split.

All the sounds are very life-like compared to the 64's SID chip sounds or to conventional voice expanders, but there's very little control available except for an overall brightness adjustment.

There are 12 preset rhythm accompaniments available, each with their own arrangement of bass and arpeggio patterns and lifelike percussion sounds. There's also a "riff machine" option which gives you 12 complex backing patterns in various styles which can be chained together in almost any order - impressive, but of limited use.



In February, however, Music Sales hopes to be delivering an FM composer package for eight-voice polyphonic pieces, and the Sound Expander module



has a follow-on cartridge port which will eventually accept an input from a touch-responsive keyboard. It's also planned to design a sound creation package.

The Sound Expander software has many educational applications, since all notes played are displayed on a music staff with selectable share or flat notation. Presumably this display will be further exploited in the compositional software.

The Sound Expander is an inexpensive way of getting into high-class sound generation, but won't satisfy the more experimental musician for long using only the present software. However, by the time you've exhausted its current options, it's likely that many more will have become available. On that basis it's logical to give the system a heartfelt thumbs up.

Mark Jenkins

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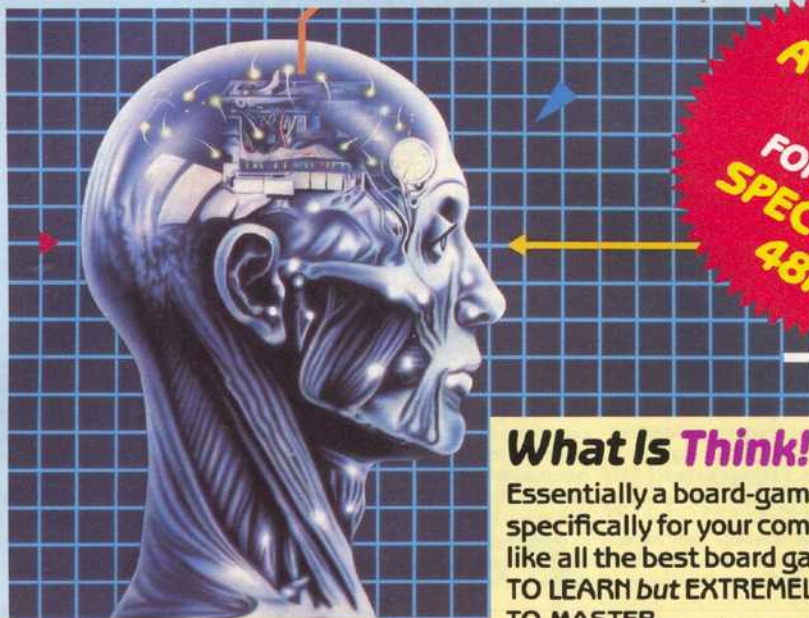
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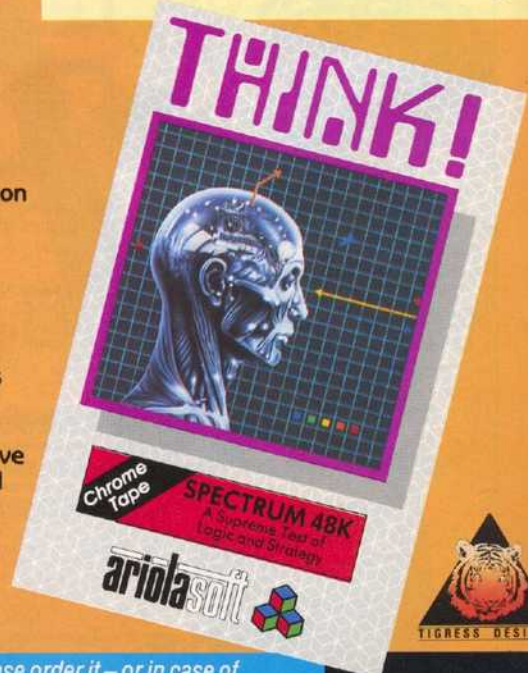
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Light pen

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 Queen's Road, Reading, Berks, 0734
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Light pens have traditionally been popular micro peripherals, because they are relatively inexpensive, fun to use, and allow the user to control the computer without resort to the keyboard. Equally traditionally, they have been unreliable, badly supported by software and mediocre in construction.



The Microscribe light pen is the first product which overcomes most of the disadvantages of its predecessors. Like all light pens, it operates by interacting with the screen timing of the computer; by timing the instant at which the screen refresh triggers the circuit, the light pen software can move a cursor around the display screen, or select subroutines from an icon menu.

The Microscribe cassette software, which can be dumped to disc, includes three routines; a hi-res graphic design-

er, a graphic calculator, and a control program for your own routines. All the software works without any problems and interacts well with the hardware.

The Microscribe itself is very well engineered; it has a steel barrel and a long lead, and plugs into the joystick port. On the tip is a sensor, which, when pressed against the screen surface, sends a control signal. This means you do not have to touch the keyboard at all while using the Microscribe.



The *Graffiti* hi-res design software is reasonably powerful. At the bottom of the screen is a row of six boxes, marked *Draw, Inks, Zoom, Eraser, Memory* and *Type*. When "hit" by the pen, each will bring up a further selection of command choices.

Graffiti allows you to draw open or filled circles, squares and other polygons; lines, either single or linked; rays, all coming from a central point; brush patterns, and so on. There are also zoom functions for pixel editing, various undo commands (including *Clear*, which irreversibly blanks the whole screen, so beware!), and routines to save drawings to tape or disc. One of the most interesting features is the provision of three "pens", which can be set to the required

colour and texture, then recalled at any time. It's like having three separate paintbrushes, rather than one which you have to clean off every time you wish to change style.

All 16 Commodore 64 colours are available for designs, although you'll find that the light pen works better on bright colours. If you want to use dark colours, it can be easier to draw in a light colour then swap it around.

The other programs on the tape are also well-designed; *Pencalc* is a simple on-screen calculator program which might have educational as well as practical uses; and *Pencode* is a small machine code routine which improves the performance of the 64's hardware, allows you to define your own sprite cursor, and use the pen in your own programs.



Overall the Microscribe, with its intelligent design using the tip sensor, its strong metal construction, efficient screen control and imaginative software, can be recommended at the price. Light pens will never be compulsory purchases while there is so little software for them, but perhaps products of this quality will encourage more support from software houses and micro users.

Chris Jenkins

£9.95
cassette

B.B. BOUNDER

£12.95
disc

CBM 64/128
Available Amstrad late February

10 levels of fun make this torture excellent value for money. Nova rating. Definitely one of those 'just another go' games. Game of the month February" - Computer Gamer

"The most compulsive game I've ever played. If you don't buy it you'll never know what you've missed." says Gary Penn, Zzap! 64, Gold Medal Award. 97% overall.

TO BE A HIT

Grumlin Graphics Software Limited, Alpha House, 10 Carver Street, Sheffield S1 4FS. Tel. (0742) 753423

MAKE MONEY WITH YOUR MICRO!

you could earn over £50 per week-in your spare time-and you don't need any special programming skills...

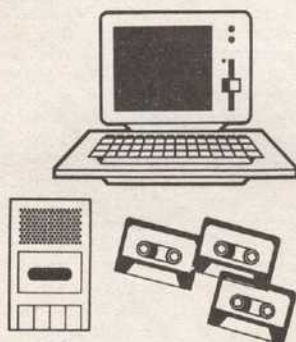
Although you may at present only use your micro to play games, your computer is in fact a very sophisticated business machine which you could use to make yourself a very substantial full or part time income. Whatever your age opportunity exists. You may be a schoolboy looking for a school business project. You may have left school and be looking for a viable business idea. You may have a good job, but you would like to have an extra income. Whatever your circumstances, if you want to make some money, you can turn your micro into a money making machine.

FORGET ABOUT GAMES

Of course it is possible to make money as a games designer, but unless you understand machine code, and have lots of original ideas, you might as well leave games designing to the professionals. After all games design is a very competitive area, and there are lots of easier ways to make money with your computer.

HOW TO GET STARTED

We have compiled a special report which provides you with all the information you need to start a small part time business, which you can operate from home, using your micro. The report contains hundreds of business ideas which give you the possibility of earning thousands of pounds from your micro. Each idea is explained in detail, you need only the simplest of programming ability, if you can write simple basic programmes you can operate any of these ideas. (When we say simple basic programmes we mean very simple) some of the ideas require no programming but even the ideas that have the greatest potential are very simple and easy to operate.



ANY COMPUTER WILL DO!

Whatever your micro, Spectrum, Commodore, Electron, Amstrad etc. all the business ideas in this report are applicable to all home micros, no matter how humble or sophisticated.

TRY THIS SIMPLE TEST

When the report arrives select one idea that appeals to you.

Try out the idea for three months, read the directions carefully, start in a small way, remember to begin slowly.

At the end of this trial period calculate how much income you've made, if you're not satisfied with the results simply return the report and we will **REFUND YOUR MONEY IN FULL.**

You are free to use each idea, to establish your own part or full time business. All the ideas are viable business opportunities, which don't require any special expertise or skill, just a few hours of your time each week can bring you an income of £50 or more. Many of the ideas are capable of development to provide you with a very substantial income indeed, and each idea will grow and develop as you operate the business. The business you start will be totally your own and can be started with just one micro, and perhaps £5 or £10 start up expenses.

WHAT ELSE WILL YOU NEED

You will need to be prepared to work to make your business grow, each idea requires time and effort, and like any one who runs a business you will need to take advantage of the money making opportunities which develop. You will need to adapt to the challenges, and stick at your project. A telephone would be helpful, and a computer printer would be a great asset (if you do not own a printer don't worry, you can buy one from your first profits). You won't have to wait, most of the projects can be started within 14 days.

EASY TO FOLLOW

Our special report is easy to follow, all the ideas provided are honest straight forward methods of making money from your micro. To prove that you can make money from your micro we offer a no quibble money back guarantee. Keep the report for three months, try one or more of the ideas, and if you don't make any money, just return the report. We'll send you a full refund, within three working days, we won't quibble, we'll just return your money.

We are not trying to take advantage of you, we want to present you in a fair way with the information you need to start making money from your micro.

To: P.W. PROMOTIONS

Please send me your report 'MAKING MONEY FROM YOUR MICRO'. I enclose £9-95 in full payment.

Name

Address

..... Post Code

I understand I am free to use the ideas in this report to start my own full or part time business or business project.

Signed Date

Postal Address: P.W. PROMOTIONS, P.O. BOX 21, MANCHESTER M16 8EA.

19-25 DECEMBER 1985



MAKE MONEY WITH YOUR MICRO!

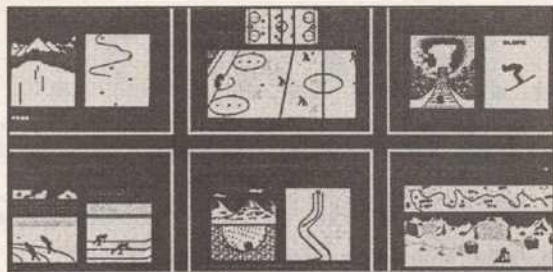


S'no fun

Program *Winter Sports Micro* **Spectrum Price** £9.95
Supplier Electric Dreams Software, 31 Carlton Crescent, Southampton.

Winter draws on and the thought of a hot power supply is more than welcome. Then suddenly my Spectrum is snowbound with *Winter Sports*, an eight event sports simulation, which refuses a multi-load. So it's on with the woolly gloves and on with part one.

Slalom, Giant Slalom and Downhill are grouped together and look suspiciously similar. The left hand panel gives a skier's eye view while the right is an overhead map. Skiing to the sides of or through gates isn't much helped by the forward view, so steering a course is rather like drawing wavy lines with a graphic package. If you fail a gate you can't reach the



high score table, but you can't abort a run either and I found it rather slow.

Ice Hockey has more substance, a *Match Day* on skates, with a two player option. In reality it's a physically violent game and for me the figures moved rather slowly, though tackling works well apart from some awful attribute clashes which could make you lose track of your player. Judging which figure will come under your control can be difficult as there's no special indication and it's too easy to lose command of your goalkeeper when he's far from the net.

Ski Jumping is a question of steering a straight line, timing your run's start and jump, an balancing while in the air. It can all be over very quickly. Speed skating is the first appearance of straight Track and Field joystick jiggling, and I found the 500 metres hard on the wrist so didn't even attempt the 10,000 metres which sounded like too much of a bad thing. Maybe it would at least let you separate the two contestants enough to change lane.

The Bobsled is a return to the Slalom style, though it calls for different techniques as you have to keep a close

check on your speed or your sled goes over. A cross-section of the course lets you see how you lie on the banking while the right window is another wavy line.

The Biathlon is an eccentric combination of cross country skiing and shooting. Joystick wiggling moves you along the course, against an attractive background, although you have to be careful not to use up all your stamina. Shooting is a question not of aiming but timing, hitting fire when the cursor is over the small circle. You have to be quick to reload before you can shoot the next target.

If you've not suffered frost-bite, you can return to the start and reload to try to better your efforts as the best scores are kept through the sections. Fans of the genre may find things to please, but several of the events left me feeling so what? Dare I say that I found the whole thing rather... cold?

John Minson



Sparse detail

Program *Cammac One Micro* **Spectrum Price** £5.95
Supplier Micro Zeightly, 7 The Crescent, Hurstbourne Tarrant, Andover, Hants SP11 0AP.

Six pounds is not a lot to pay for an assembler. In fact, those thinking of getting into assembly language may consider it a low cost way of trying the water. Beware! While *Cammac One*

does its job (mostly), it hardly goes about it in a friendly way. It also boasts the sparsest front panel that I've seen.

Written mostly in Basic, *Cammac* translates the op-codes, then pokes them directly into the memory, as far as I can see. This means that the only way of editing code is to return to Basic by pressing *Break* after entering a command, then restarting at the address where the error occurred. It claims to cope with all the 256 non-prefix instructions, and all that I tried worked, but you have to

be careful in handling them. For example, if you want to LDA,6 you'd have to type in LD A, N (don't forget your Caps Shift, though the single sheet instructions neglect to tell you to use it), then type in 6. There's no clue as to why wrong commands aren't accepted - they just aren't and prefixes are very tricky.

Cammac also comes with a disassembler which does its job and not much more can be said than that. The *Tester-Monitor* is slightly more elaborate with its display of the registers. You can single step

by pressing any key, or run it directly with a *Usr* command. For some reason, though, it fails to cope with jumps, making it less than wholly useful.

Really this is more suited to a listing somewhere. Novices would soon lose patience and even experienced assembler writers will want more. *Micro Zeightly* promise two more advanced versions at proportionately higher prices. I can only hope that they're an advance on this.

John Minson



The white stuff

Program *Mikie Micro Spectrum* **Price** £7.95 **Supplier** Imagine Software (1984), 6 Central Street, Manchester M2 5NS.

Tormented by teachers, jarred by the janitor's bucket, chased by cheer-leaders, *Mikie* is an all-American kid with a message to deliver to his girlfriend, and no high-school hi-jinks can stop him.

This conversion of a Konami arcade game by *Imagine* is great fun. I'll admit to not having seen the original, but going from the box illustrations the main difference seems to be that the figures here are monochrome. The game itself plays extremely well, which is not to say it's easy.

The first screen is a question of collecting hearts to complete a message and exit the classroom. The problem is that they are hidden under the chairs of *Mikie's* classmates. *Mikie* deals with this

by the hip-zap which rockets the pupil into an empty chair so that *Mikie* can move in. He's got to avoid the wandering teacher, though, as he's only safe when he's sitting.

Free from class, *Mikie* has to dodge other members of staff in the corridors and make for the locker room where the hearts are in groups of three, collected by shouting at them. This screen is exceptionally busy with unfriendly characters who have no romance in their souls. In later screens *Mikie's* also beset by cheerleaders, whose

kisses stun him.

This is all rather addictive and takes a fair bit of skill - perhaps the screens are a little too crowded, but that ensures you have something to aim for. My main complaint is that the instructions fail to mention that in keyboard mode you need separate fire keys for shouting and zapping. A good-natured arcade copy, though, which should raise the blood pressure after your Christmas pud.

John Minson



THE WRITER



"Damn impressive. . ."
(Your Sinclair, January 1986)

At last a truly professional wordprocessing package for your Sinclair Spectrum. Comparing The Writer with Tasword II and OCP's Wordmanager, Your Sinclair had virtually nothing but praise: "When it comes to choosing, I've no doubt that **The Writer** will take over from Tasword II as the best Speccy wordprocessor." "The Writer really gets good when you come to print your document." "**The Writer is damn impressive. . .**"

Never before has there been such a professional, full feature package of this kind for the Spectrum: up to 127 columns of text (scrolling display), able to read Tasword II files, produces and reads WORDSTAR format files, supports printer spooling (print one document while typing in the next), user definable printer files, pull down menus, extensive help files on Microdrive and Opus Disk Drive versions, supports Mailmerge and Printmerge, and will allow files from the forthcoming sister product 'The Database' to be used for mailshots, form letters, etc. And only The Writer will be able to interact with 'The Artist II' (coming early 1986) to cut and paste text and graphics for page-make up purposes.

All in all, a quite stunning package of a standard more associated with packages for the IBM PC than the Spectrum.

The Writer is just £12.95 on tape or Opus Disk. Write concerning Microdrive and other disk versions.



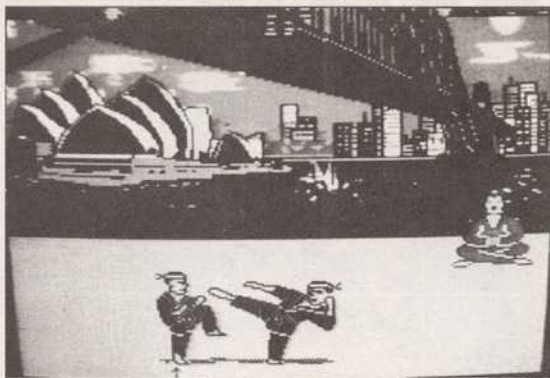


Ham fisted

Program *International Karate*
Micro Spectrum Price £6.50
Supplier System 3 Software,
Southbank House, Black
Prince Road, London SE1 7SJ.

Time to take another kick at the Spectrum with a further addition to the martial arts genre. This is very much in the vein of *Exploding Fist*, with the international element coming from the varieties of backdrop. You can deliver a roundhouse in Rio, somersault in Sydney, jump in Japan, knock your opponent flying in New York and shout 'Eeeeeeee - yargh!' in Egypt. Sadly, London never made it to the tape.

Sixteen different moves are possible, from mere walking forward and backward to



leaping over your opponent's head, chosen by the eight directions of a joystick with or without fire, or a sensible three by three square of keys. Some Kempston interfaces are reported not to work with the game, but I had no problems. The figures

themselves are quite well animated, slightly squatter than Melbourne House's but possibly more detailed. The moves seemed to work well, though I wasn't sure that some blows weren't slightly prejudged.

However, in one player op-

tion the computer provides a worthy opponent as you struggle for two points in 30 seconds. There's also a two player option. If you win a bout you can score bonus points by kicking a table full of bricks or dodging flying Kung Fu stars, though for some reason these didn't seem to get added to my total.

What this version of the game does have is speech, and it's not at all bad. I rather liked hearing my score. The front end is not too hot though, with nothing to indicate which option you've chosen. All in all it's a reasonable game, considering that it's somewhat cheaper than *Exploding Fist* and if you don't already have that, you could do worse than rucking all over the world.

John Minson



On line

Program *Micrograph Micro*
Amstrad CPC with CP/M
Price £49.00 **Supplier**
Amsoft, Brentwood House,
169 King's Road, Brentwood,
Essex CM14 4EF.

Micrograph is the missing fourth program in Amsoft's suite of business programs that run under CP/M. The reason for its delay is easy to guess - implementing graphics on CP/M, while possible,

seriously compromises the portability of the product and requires machine specific coding. Still it's a nice release and probably worth the wait.

The first graph utility for the CPC was Camel's *Grasp* and in comparison, since both are limited by the resolution of the CPC it is not surprising that the quality of the graphs drawn are very similar. *Micrograph* has a slide show facility and offers more graph drawing options than *Grasp*, but the latter lets you shrink and superimpose the graphs drawn to produce some highly complex composite

screens. *Grasp* is also very much cheaper.

However, *Micrograph* wins out with its data handling potential.

The program has a mini version of the *Microspread* spreadsheet built in. This is unable to use the complex formula definitions found in *Microspread* but once the data is entered you can manipulate it to produce different graphs by extensive block and cell control commands. Files produced by *Microspread* can be loaded into *Micrograph*, although unfortunately once used by the

latter they cannot be saved again in a format readable by *Microspread*.

There are options to print the spreadsheet or dump the graphs to an Epson printer or the Amstrad DMP-1. My only reservation is that if you wanted to spend anything up to £100 on producing business graphics you may need the higher quality output possible only via a pen plotter option and it is this fudged approach that is perhaps the package's weakest point.

Tony Kendle



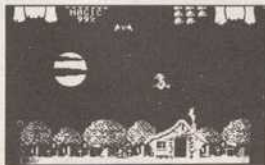
Now more

Program *Now Games 2*
Micro Spectrum Price £8.95
Supplier Virgin Games, 2-4
Vernon Yard, Portobello
Road, London W11 2DX.

Not surprisingly Virgin's first Now games compilation was a success, so here's a late bid for the Santa's sack sales, titled, with stunning originality, *Now Games 2!* This time it's only five programs, but that's still less than two pounds each, and here's my personal appraisal.

World Cup from Artic was always sub-*Match Day*. It's

only five a side rules with tiny players, the white side being difficult to see against the green field, and both sides becoming confused in tackles when the attribute clashes are worse than Millwall and Chelsea fans meeting for a polite discussion of their teams' merits.



Cauldron and Chuckie Egg II are both arcade adventures and probably rate about

equally, though for different reasons. *Cauldron* looks good, apart from the inevitable attributes, and includes a shoot 'em up element as your hag zooms round on her broomstick, but is probably less playable than the more spartan looking chocolate egg making game. Still, both should provide hours of fun.

Airwolf is a problem. It has nice graphics and a more complex plot, calling for greater ingenuity than either of the above, as you steer your wonder helicopter to a secret base and then through a cave system to rescue some scientists. The problem is that controlling the chopper is very difficult. Those with patience and a steady hand may

well love it.

The best till last with *Tir Na Nog*, which for me pulls this collection out of the ordinary. It was the first of the Cuchulainn games, featuring that beautifully animated figure who stomps around the Celtic otherworld in a true graphic adventure. The only grumble is that the instructions on the inlay are for the Commodore version, I think.

So there you have it, and even if *Now 2* isn't quite so good as its predecessor it's still great value; and if you don't already have *Tir Na Nog* it's a must - count the other programs as a bonus.

John Minson



HALLEY'S COMET

A FINDER AND PLANETARIUM



48k ZX SPECTRUM £8.95

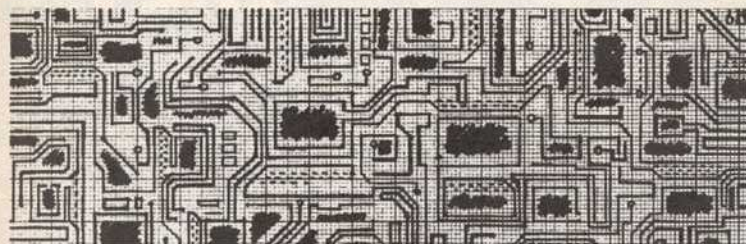
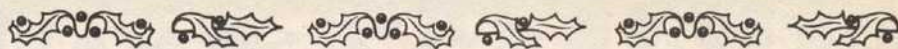
Here is the definitive Halley's Comet Finder and Planatarium for your Sinclair Spectrum. Whether you are following the passage of Halley's Comet in the night sky, or just interested in Astronomy, then this program is a must for you. It has full-feature planatarium on side one which allows you to see the planets, major stars and, of course, Halley's Comet as they progress through the sky. You can vary the speed of the star and planet motion from real-time through to jumping thousands of years every few moments! Explore many of the wonders of Astronomical history, see a simulation of the unique triple conjunction of 6BC which may link to Biblical sightings, and explore many other points of interest in the accompanying booklet.

Written by a professional Astronomer, Dr. D. T. C. Porthouse, this program will not only be invaluable to you for following the 'one in a lifetime' event of Halley's Comet's passing but also be of absorbing interest to you and your friends for many years to come.

The Halley's Comet Finder and Planatarium come with an Orrery (Solar System simulation).



SoffTechnics, 12/13 Henrietta Street, London WC2



WILBUR

by T A Bartley

Part Four (out of five) of *Wilbur*, our 100% machine code arcade game - played on 20 screens all in glorious technicolour. You should be getting used to the routine by now; use the Basic loader to poke the data from

the dump listing into memory. After this mammoth effort, if the checksum is correct, save the data to tape with *Save "Code?????.????"*.

And keep that chin up... only one more week to go!

For those without an impish sense of adventure, tape copies of *Wilbur* can be obtained from the author, T A Bartley, at a cost of £2.00. Write to 81 Beverley Crescent, Grimsby, South Humberside, DN32 9TJ.

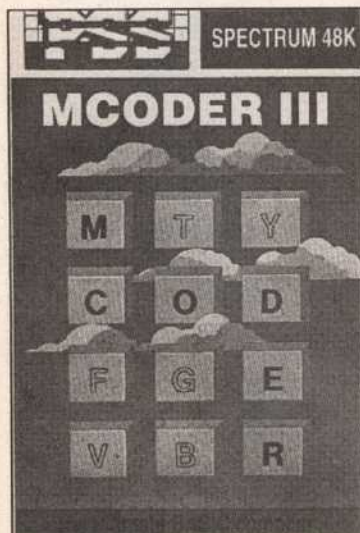
```
1000 REM      DECIMAL LOADER
1010 POKE 23609,50
1020 LET T=0: FOR N=51996 TO 53885
1030 INPUT J: PRINT N,J: POKE N,J: LET T=T+J: NEXT N
1040 IF T<>148782 THEN PRINT "DATA ERROR:CHECK LISTING"
1050 IF T=148782 THEN PRINT "DATA OK"
```

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52008	94	0	206	192	223	192	52278	242	248	234	240	155	192	52548	31	248	0	0	127	254	52818	2	242	2	2	2	240
52014	255	0	126	0	61	128	52284	223	0	248	0	252	0	52554	0	0	255	255	51	153	52824	2	216	0	208	0	240
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52188	7	192	3	128	3	240	52458	0	0	255	255	156	204	52728	182	0	52	0	60	0	52998	13	128	27	64	22	192
52194	1	224	0	0	0	240	52464	156	204	156	204	255	255	52734	24	0	63	240	12	192	53004	13	192	11	208	7	224
52200	1	248	1	24	3	200	52470	0	0	63	252	0	0	52740	12	192	63	240	0	0	53010	0	192	1	224	1	112
52206	3	200	1	248	6	240	52476	7	224	1	128	0	0	52746	31	0	29	32	29	32	53016	1	192	0	128	1	64
52212	6	8	1	184	0	56	52482	7	224	31	248	0	0	52752	29	224	47	32	32	32	53022	2	32	1	128	6	8
52218	3	152	1	240	0	224	52488	127	254	0	0	255	255	52758	47	0	45	128	13	0	53028	5	212	3	96	6	208
52224	0	108	0	239	1	199	52494	206	102	206	102	206	102	52764	15	0	6	0	15	252	53034	5	176	3	112	2	244
52230	1	60	0	122	3	115	52500	255	255	0	0	63	252	52770	9	152	9	152	15	252	53040	1	248	0	48	0	120
52236	3	251	0	255	0	126	52506	0	0	7	224	1	128	52776	0	0	7	192	7	64	53046	0	92	0	112	0	32
52242	1	188	1	130	0	110	52512	0	0	7	224	31	248	52782	7	80	7	112	11	208	53052	0	80	0	136	0	112
52248	0	14	0	230	0	124	52518	0	0	127	254	0	0	52788	8	0	11	192	11	96	53058	1	160	1	112	0	216
52254	0	56	0	63	1	253	52524	255	255	103	51	103	51	52794	3	64	3	192	1	128	53064	1	180	1	108	0	220
52260	7	131	15	243	31	235	52530	103	51	255	255	0	0	52800	3	255	3	51	3	51	53070	0	189	0	126	0	12

53076	0	30	0	23	0	28	53280	255	255	108	54	45	180	53484	127	128	127	128	30	0	53688	15	172	0	0	7	248	
53082	0	8	0	20	0	34	53286	45	180	45	180	45	180	53490	0	0	0	0	0	0	53694	15	252	0	0	0	0	
53088	14	0	5	128	14	128	53292	45	180	45	180	45	180	53496	0	0	0	0	0	0	53700	0	0	0	0	0	0	
53094	27	0	45	128	54	128	53298	33	132	63	252	127	254	53502	0	0	0	0	0	0	53706	0	0	0	0	1	254	
53100	59	0	189	0	126	0	53304	2	84	3	192	0	0	53508	0	0	0	0	7	128	53712	0	0	1	253	3	250	
53106	48	0	120	0	232	0	53310	0	0	255	255	108	54	53514	31	224	31	224	63	240	53718	1	253	3	250	0	0	
53112	56	0	16	0	40	0	53316	45	180	45	180	45	180	53520	63	240	63	240	31	224	53724	1	254	3	255	0	0	
53118	68	0	1	128	16	96	53322	45	180	45	180	45	180	53526	28	224	7	128	0	0	53730	0	0	0	0	0	0	
53124	43	160	6	192	11	96	53328	45	180	33	132	63	252	53532	0	0	0	0	0	0	53736	0	0	0	0	24	0	
53130	13	160	14	192	47	64	53334	0	14	7	248	62	64	53538	0	0	0	0	0	0	53742	4	0	28	0	63	128	
53136	31	128	12	0	30	0	53340	3	192	0	0	255	192	53544	0	0	0	0	0	0	53748	214	192	43	128	20	0	
53142	58	0	14	0	4	0	53346	179	64	161	64	179	64	53550	1	224	7	248	7	248	53754	40	0	20	0	168	0	
53148	10	0	17	0	1	224	53352	222	192	127	128	0	0	53556	15	236	15	236	15	252	53760	0	0	0	0	0	0	
53154	0	88	0	232	1	176	53358	63	0	12	0	12	0	53562	7	248	7	248	1	224	53766	0	0	0	0	0	0	
53160	2	216	3	104	3	176	53364	18	0	18	0	33	0	53568	0	0	0	0	0	0	53772	6	0	1	0	7	128	
53166	11	208	7	224	3	0	53370	33	0	97	128	97	128	53574	0	0	0	120	1	204	53778	15	224	53	176	10	224	
53172	7	128	14	128	3	128	53376	63	240	59	48	58	16	53580	1	254	3	255	3	255	53784	20	0	0	0	0	0	
53178	1	0	2	128	4	64	53382	59	48	61	240	31	224	53586	3	255	1	254	1	254	53790	0	0	0	0	0	0	
53184	0	56	1	6	2	186	53388	0	0	15	192	3	0	53592	0	120	0	0	0	0	53796	0	0	0	0	0	0	
53190	0	108	0	192	0	218	53394	3	0	4	128	4	128	53598	0	0	0	0	0	0	53802	0	0	3	128	10	64	
53196	0	236	2	244	1	248	53400	4	128	4	128	12	192	53604	0	0	0	0	0	0	53808	5	96	2	248	13	108	
53202	0	192	1	224	3	160	53406	12	192	15	252	6	184	53610	0	0	0	0	127	128	53814	0	56	0	0	0	0	
53208	0	224	0	64	0	160	53412	2	176	6	184	13	220	53616	0	0	0	191	128	95	192	53820	0	0	0	0	0	0
53214	1	16	255	255	108	54	53418	7	248	0	0	3	240	53622	191	128	95	192	0	0	53826	0	0	0	0	0	0	
53220	45	180	45	180	45	180	53424	0	192	0	192	0	192	53628	127	128	255	192	0	0	53832	0	0	0	0	0	64	
53226	45	180	45	180	45	180	53430	0	192	0	192	0	192	53634	0	0	0	0	0	0	53838	0	48	0	120	0	254	
53232	45	180	33	132	63	252	53436	1	224	1	32	3	255	53640	0	0	0	0	0	0	53844	3	91	0	174	1	64	
53238	0	4	0	24	0	224	53442	3	55	2	23	3	55	53646	31	224	0	0	43	240	53850	0	0	0	0	0	0	
53244	7	96	28	224	255	255	53448	3	239	1	254	0	0	53652	53	240	43	240	53	240	53856	0	0	0	0	0	0	
53250	108	54	45	180	45	180	53454	0	252	0	48	0	48	53658	0	0	31	224	63	240	53862	0	0	0	0	0	0	
53256	45	180	45	180	45	180	53460	0	72	0	72	0	72	53664	0	0	0	0	0	0	53868	2	0	12	0	30	0	
53262	45	180	45	180	33	132	53466	0	72	0	204	0	204	53670	0	0	0	0	0	0	53874	127	0	218	192	117	0	
53268	63	252	0	14	7	248	53472	30	0	127	128	127	128	53676	0	0	7	248	0	0	53880	2	128	0	0	0	0	
53274	62	64	3	192	0	0	53478	255	192	223	192	223	192	53682	15	212	15	172	15	212								

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Popular Computing Weekly has got together with PSS to offer you a great deal on *Mcoder III*, PSS's Basic compiler for the Spectrum.

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HAPPY CHRISTMAS

by A Heptonstall

Happy Christmas is a computerised Christmas greeting card. It displays a row of houses and a sky filled with stars, and then moves Santa on his sleigh across the screen, accompanied to the sound of festive music. The program uses the *ENVE-*

LOPE command to simulate the sound of sleigh-bells. It then prints up a 'Happy Christmas' message. (This message is held in *PROCmessage* at the end of the program, and can be changed so that it wishes anyone a 'Happy Christmas'.)

The program uses the *ADVAL (-6)*

command to call *PROCjingle* only when no note is currently being played, ie, when *ADVAL (-6) <> 0* so that the sleigh is not stopped by the music being played.

Program notes and the rest of the listing next week.

```

10REM ... Happy Christmas ...
20REM ... A.B.Heptonstall ...
40REM
50MODE 2
60PROCdefine
70PROCstars
80PROChouses
90PROCSanta
100PROCmessage
110SPEAT
120UNTIL forever
130:
140DEFPROCdefine
150RESTORE 950
160forever=0
170CX=1
180ENVELOPE 1,1,0,0,0,1,1,1,30,1,-1,-2,120,126
190VDU 23;820;0;0;0;
200VDU 23,224,0,0,0,0,1,3,3,2
210VDU 23,225,0,0,0,0,248,252,62,62
220VDU 23,226,0,0,0,0,0,15,27
230VDU 23,227,7,7,0,0,0,0,128,128
240VDU 23,228,63,125,127,127,127,126,63,12,12
250VDU 23,229,0,0,0,192,0,0,0,0
260VDU 23,230,3,15,31,31,31,31,31,31
270VDU 23,231,192,224,240,240,240,240,240,240
280VDU 23,232,63,63,63,63,63,63,63,63
290VDU 23,233,192,252,63,3,0,12,12,252
300VDU 23,234,0,0,0,255,0,0,0,0
310VDU 23,235,31,255,4,8,16,33,66,255
320VDU 23,236,240,255,33,66,132,8,16,255
330VDU 23,237,63,255,8,16,33,66,132,255
340VDU 23,238,252,255,66,132,8,16,32,192
350VDU 23,239,77,50,20,36,40,252,244,255
360VDU 23,240,0,0,0,192,63,31,63,63
370VDU 23,241,0,0,0,0,255,255,255,255
380VDU 23,242,255,252,48,48,240,248,248,248
390VDU 23,243,63,31,8,16,32,32,16
400VDU 23,244,255,255,36,24,40,68,130,65
410VDU 23,245,248,240,32,16,8,8,8,16
420VDU 23,246,0,0,0,1,7,31,127
430VDU 23,247,0,0,24,126,255,255,255,255
440VDU 23,248,0,0,0,128,224,248,254
450VDU 23,249,127,64,64,64,64,64,127,127
460VDU 23,250,255,255,255,255,255,129,129,129
470VDU 23,251,254,2,2,2,2,254,254
480VDU 23,252,64,64,64,64,64,127,127,0
490VDU 23,253,129,129,129,129,129,129,0
500VDU 23,254,2,2,2,2,2,254,254,0
510VDU 23,255,126,126,126,126,126,126,126,126
520ENDPROC
530:
540DEFPROCstars
550FOR RZ=0 TO 100
560XZ=RND(1280)
570YZ=RND(788)+300
580MOVE XZ,YZ
590DRAW XZ,YZ
600NEXT RZ
610ENDPROC
620:
630DEFPROChouses
640VDU 5
650FOR RZ=0 TO 1088 STEP 213
660MOVE RX,120
670VDU 18,0,1,246,247,248,8,8,10,18,0,2,255,8,8,18,0,4,249
,250,251,8,8,10,252,253,254,8,8,18,0,2,255
,250,251,8,8,10,252,253,254,8,8,18,0,2,255
700NEXT RX
710:
720DEFPROCSanta
730FOR RZ=0 TO 11
740FOR SX=7 TO 0 STEP -7
750COLOUR 5X
760PRINT TAB(RX,13):
770VDU 32,32,224,225,8,8,8,10,226,227,228,229,32,32,32,239
,8,8,8,8,8,8,10,230,231,232,233,234,240,241,242,8,8,8,8
,8,8,8,10,235,236,237,238,32,243,244,245
780IF SX=7 THEN PROCjingle
790NEXT SX
800NEXT RZ
810ENDPROC
820:
830DEFPROCtune
840FOR CX=1 TO 1500
850IF ADVAL(-6)<>0 AND CX<>0 THEN PROCjingle
860NEXT CX
870ENDPROC
880:
890DEFPROCjingle
900READ CX,DX,EX
910SOUND 1,1,CX,EX
920SOUND 2,1,DX,EX
930ENDPROC
940:
950DATA 117,101,5,117,101,5,117,101,10,117,101,5,117,101,5
,117,101,10
960DATA 117,101,5,129,117,5,101,69,8,109,81,2,117,101,20
970DATA 121,89,5,121,89,5,121,89,8,121,89,2,121,101,5,117
,101,5,117,101,5,117,101,2,117,101,3
980DATA 117,77,5,109,77,5,109,77,5,117,77,5,109,81,10,129
,97,10
990DATA 117,101,5,117,101,5,117,101,10,117,101,5,117,101,5
,117,101,10
1000DATA 117,101,5,129,117,5,101,69,8,109,81,2,117,101,20
1010DATA 121,89,5,121,89,5,121,89,8,121,89,2,121,101,5,117
,101,5,117,101,5,117,101,2,117,101,3
1020DATA 129,81,5,129,81,5,121,89,5,109,97,5,101,101,20
1030DATA 81,53,5,117,101,5,109,81,5,101,69,5,81,53,15,81,53
,2,81,53,3
1040DATA 81,53,5,117,101,5,109,81,5,101,69,5,89,73,20
1050DATA 89,73,5,121,109,5,117,101,5,109,97,5,97,81,20
1060DATA 129,97,5,129,81,5,121,89,5,109,97,5,117,101,20
1070DATA 81,53,5,117,101,5,109,81,5,101,69,5,81,53,15,81,53
,2,81,53,3
1080DATA 81,53,5,117,101,5,109,81,5,101,69,5,89,73,20
1090DATA 89,73,5,121,109,5,117,101,5,109,97,5,129,97,5,129
,97,5,129,97,5,129,97,2,129,97,3
1100DATA 137,81,5,129,81,5,121,89,5,109,97,5,101,101,20
1110DATA 0,0,0
1120:
1130DEFPROCmessage
1140COLOUR 13
1150PRINT TAB(2,1):"Happy Christmas"
1160COLOUR 14
1170PRINT TAB(7,5):"from"
1180COLOUR 12
1190PRINT TAB(1,5):"Popular Computing"
1200COLOUR 10
1210PRINT TAB(6,7):"Weekly"
1220ENDPROC
    
```


THE SECRET DIARY OF ADRIAN MOLE AGED 13³/₄

Friday October 11th

I learned today that I have become the subject of a computer game. It has been written by somebody called Level 9 (perhaps they live in a multi-storey car park) and apparently it contains more than 200 kilos of text which Brainbox Henderson says is a lot. The object of the game is to make me popular with everyone, so I expect Gran will get me one for Christmas even though it does cost £9.95. But I don't suppose anyone will get me a Commodore, Spectrum, Amstrad, BBC, MSX or Atari to play it on.

Wednesday December 25th
CHRISTMAS DAY

Mosaic who have published my diary as a computer game have sent me some reviews. They're dead brilliant!! Pandora says I should keep notes of the best bits so I can use them on the back cover of my next best-seller. I thought I'd note them down today while we're still waiting for the stupid turkey to defrost.

My reviews

'A Crash Smash' 'Mole is brilliant and so is this game' **Crash**

'Ten out of ten' **Commodore User**

'Pete Austin - The man's a genius! ...

I reckon this is an important program' **Zzap 64**

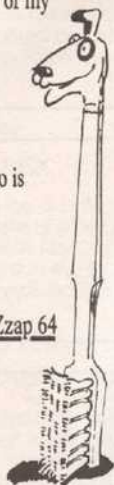
'Destined to appeal to all ages is this one' **CTW**

'This is a game you should get-right now' **Amrix**

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P0714B

SEASON'S GREETINGS TO ALL OUR CUSTOMERS

READERS' POLL

It's big; it's bright; it's mind-boggling; it's back. The *Popular Computing Weekly* Readers' Poll has returned for another triumphant run.

Cast your votes below for your own best and worst of 1985. If you don't feel qualified to answer a particular section, it doesn't matter; just leave that one blank. Entries should reach us at the address below no later than Thursday January 9. The results will be published in the issue dated January 23.

1 Program of the Year (overall)

Last year's winner - *Knight Lore*

Which title this year has had you gasping at its perfection, stunned at its possibilities and abilities? A Troll trouncing or alien bashing game, perhaps, or a great utility or application that helped you get the very best out of your micro.

2 Arcade Game of the Year

Last year's winner - *Knight Lore*

Which one was the most action-packed, fast-moving, graphically astounding, nerve shredding arcade program of the last 12 months? Are you now a nervous wreck? Which game was responsible?

3 Adventure of the Year

Last year's winner - *Lords of Midnight*

Atmosphere, involvement, sophistication, plot - which program mixed all these ingredients into the perfect Adventure cocktail?

4 Business Package of the Year

Last year's winner - *Tasword 2*

The software company may swear blind that its wordprocessor/spreadsheet/accounts program is just the thing your humble home micro needs, but... Which home business program actually helped you in the last year?

5 Utility Program of the Year

Last year's winner - Quickshot II joystick

Games designers - particularly adventure writers - have been in the news in 1985. More and more implementations of languages are becoming available for the home machines. Icons and other user friendly paraphernalia popped up all over the place. Which one did you find most useful?

6 Peripheral of the Year

Last year's winner - *The Quill*

Printers, disc drives, light pens, joysticks, modems, even ZX microdrives. The list of peripherals has grown enormously in the past year.

7 Best Software House

Last year's winner - *Ultimate*

Whose programs do you look for first on the shop shelves? Which company do you feel is bringing out consistently good titles at a fair price. Are their products always reliable? Are they helpful if you have any problems?

READERS' POLL

8 *Best Programmer*

Last year's winner - Matthew Smith

The one whose programs you know you're going to like as soon as you see the author's credit on the inlay. A wacky individualist or a technical wizz, who do you choose?

9 *Most Promising New Company*

Last year's winner - Beyond

Of the companies which first emerged during 1985, which one do you think most deserves to go on to greater things in 1986?

10 *Overrated Software House*

Last year's winner - Imagine

The biggest deals. The flashiest packaging. Enormous adverts. The most disappointing contents. Which company do you most feel gets big coverage but always lets you down with the programs?

11 *Computer Program you most regret buying*

Not the company this time, but a highly hyped title you feel failed to live up to even minimal expectations. Speak your mind and name names.

12 *Most Exciting Computer*

Last year's winner - Amstrad CPC464

Not necessarily your own, but which new micro would you buy if only you had the cash? Or it could be the brand new micro you bought, and have never regretted owning for an instant.

13 *Worst Computer*

Last year's winner - MSX

In this section, it doesn't even have to be a 1985 release! But it certainly makes you feel it's a waste of time getting it down from the attic where it's been all its life. Or perhaps you were sensible enough not to buy it in the first place, and giggled to yourself when your friends bought one.

14 *Worst Licensing Deal*

Last year's winner - *War of the Worlds*

Licensing deals from the movies, sporting events, TV personalities et al continue to appear in vast numbers. But some programs don't really live up to the licence, and some fall dismally short of the quality you'd expect from the endorsement. Some don't appear to have anything to do with the original whatsoever. . .

All you have to do now is fill out the form here, and then send the whole lot off to Readers Poll, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Please make sure your entry reaches us by Thursday, January 9.

Name

Micro/micros owned (if any)

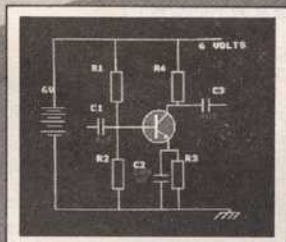
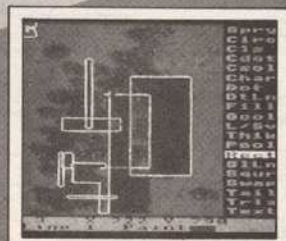
.....

TOUCH PAD SCREEN ARTIST

SCREEN ARTIST

Cumana's new, improved Touch Pad with Screen Artist forms the perfect combination of state of the art technology and human creativity – an easy-to-use graphics plotting aid with a brand new and powerful software library with new titles being added on a regular basis.

Screen Artist software has a host of ingenious features for producing creative designs and graphics, illustrations, plans and diagrams, for an infinite variety of applications from interior designs, designing electrical circuits and creative pictures. With Screen Artist, the bounds of artistic skill and invention are virtually limitless.



SCREEN ARTIST (DRAWING COMMANDS)

Airbrush, Swap Colours, Paint Change

Circle, Triangle, Rectangle, Square, Dot

Dotted Line, Solid Line

Continuous Dotted and Solid Line

GCOL Functions – for remarkable patterned effects

Character generator – redefine existing characters with rotate, invert, inverse and multi-functions or create entirely new ones and recall them for inclusion in your developing masterpiece!

Save and load routines for character generator and drawing routines.

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CHRISTMAS SCENE

by Andrew Clarke

Part One of an electronic Christmas scene for Commodore 64 owners. It needs no participation - it is simply a 'sit back and watch' program;

simply type it in and Run. The result is a very good display. For obvious reasons I have avoided any 'protection' Pokes, although these could be added (such as

disabling *Run/Stop* and *Restore*) for any public display of the routine.

Next week, the final helping of listing and some more program notes.

```

0 REM *****
1 REM *** DANCE / COMMODORE 64 ***
2 REM *** (C) 1985 ***
3 REM *** BADDESLEY ENSOR, ***
4 REM *** CV9 2BQ ***
5 B=0:GOSUB260
6 READN:IFN=-1THENB=B+1:IFB=3THEN10
8 GOTO6
10 FORS=230TO251:FOR T=0TO52
12 READN:POKE$64+T,W:NEXT T
14 RESTORE CLR:V=53248:POKEV+6,0:POKEV+
  8,0:POKEV+10,0
16 GOSUB208:POKE2040,243:POKE2041,242:
  POKEV+28,255:POKEV+39,1:POKEV+38,10
18 POKEV+37,2:POKEV+40,5:POKEV+41,5:POKEV,
  124:POKEV+1,200:POKEV+2,160
20 POKEV+3,160:POKEV+16,196:POKEV+4,65:
  POKEV+5,160:POKEV+23,6:POKE2042,242
22 POKEV+21,255:GOSUB300:FOR T=1TO1000:NEXT
  T:GOSUB600:POKE2040,239
24 FOR T=124TO140STEP2:POKEV,T:FOR K=1TO20:
  NEXT:GOSUB314:GOSUB400:NEXT:POKEHF+7,0
26 S=140:FOR T=200TO190STEP-1:POKEV+1,T:
  POKEV,(PEEK(V)+1):GOSUB320:NEXT
28 FOR T=190TO200:POKEV+1,T:POKEV,(PEEK(V)+1)
  :GOSUB330:NEXT
30 FOR T=160TO190STEP2:POKEV,T:FOR K=1TO20:
  NEXT:GOSUB314:GOSUB400:NEXT
32 POKE2040,236:S=210:FOR T=200TO102STEP-1:
  GOSUB410:FOR K=1TO20:NEXT:POKEV+1,T
34 GOSUB320:NEXT:GOSUB340:GOTO500
99 END
100 FORC=54272TO54296:POKEC,0:NEXT:V0=54296
  :AT=54277:WA=54276:SU=54278
102 HF=54273:LF=54272:POKESU,89:POKEAT,88:
  POKESU+7,255:POKEAT+7,32
104 POKELF+3,8:POKEV0,15:RETURN
106 READA,B,C:IFA=-1THEN114
108 POKEMA,65:POKEWA+7,17:POKEHF,A:POKELF,
  B:POKEHF+7,B:POKELF+7,B
110 FOR T=1TOC:NEXT:POKEWA,64:POKEMA+7,16:
  RETURN
114 FORC=54272TO54296:POKEC,0:NEXT
116 POKE2040,231
120 PRINT "M"
122 PRINT "M"
124 PRINT "M"
126 PRINT "M"
128 PRINT "M"
130 PRINT "M"
132 PRINT "M"
134 PRINT "M"
136 Z1=114:Z2=90:Z3=1:Z4=1:POKEV+16,196:
  POKEV+12,Z1:POKEV+14,Z2:P=8
137 POKEV+10,0:POKEV+21,255
138 Z1=Z1-3:Z2=Z2-3:IFZ2<0ANDZ4=1THENZ2=
  Z2+255:POKEV+16,(PEEK(V+16)-128):Z4=0
140 IFZ1<0ANDZ3=1THENZ1=Z1+255:POKEV+16,
  (PEEK(V+16)-64):Z3=0
142 IFZ2<0ANDZ4=0THENP=1:POKEV+14,0
144 IFZ1<0ANDZ3=0THENP=2:POKEV+12,0
146 IFP<2THENPOKEV+12,Z1
148 IFP=0THENPOKEV+14,Z2:GOSUB190
150 IFP=2THENPOKEV+21,63:GOTO136
152 GETA$:IFA#=""THEN138
154 POKEV+12,255:POKEV+14,255
156 POKEV+21,0:PRINT "J":GOSUB260:FOR T=
  1TO1000:NEXT:RUN14
190 IFPEEK(2047)=250THENPOKE2047,251:RETURN
192 POKE2047,250:RETURN
198 REM **** SLEIGH/SANTA ROUTINE HERE
199 GOTO199
200 POKE53280,0:POKE53281,0:PRINT "J"
202 PRINT "J"
204 PRINT "J"
206 PRINT "J"
208 PRINT "J"
210 PRINT "J"
212 PRINT "J"
214 PRINT "J"
216 PRINT "J"
218 PRINT "J"
220 PRINT "J"
222 PRINT "J"
224 PRINT "J"
226 PRINT "J"
228 PRINT "J"
230 PRINT "J"
232 PRINT "J"
234 PRINT "J"
236 PRINT "J"
238 PRINT "J"
240 PRINT "J"
242 PRINT "J"
244 PRINT "J"
246 PRINT "J"
248 FOR T=1944TO2023
250 POKET,224:POKET+54272,15:NEXT:RETURN
260 POKES3280,0:POKES3281,0
262 PRINT "M"
264 PRINT "M"
266 PRINT "M"
268 PRINT "M"
270 PRINT "M"
272 PRINT "M"
274 PRINT "M"
276 PRINT "M"
278 PRINT "M"
280 PRINT "M"
282 PRINT "M"
284 PRINT "M"
286 RETURN
300 FORC=54272TO54296:POKEC,0:NEXT:V0=54296:AT=54277:WA=54276:SU=54278
302 HF=54273:LF=54272:POKEAT,32:POKESU,255:POKEAT+7,32:POKESU+7,255
304 POKEMA,65:POKELF+3,8:POKEMA+7,129:RETURN
314 POKEV0,15:POKEHF,T/2:S=S+4:RETURN
320 POKEV0,15:POKEHF,S/2:S=S-4:RETURN
330 POKEV0,15:POKEHF,S/2:S=S-4:RETURN
340 POKEHF+7,0:POKEHF,20:FOR T=1TO50:NEXT:GOSUB300:RETURN
350 POKEV0,15:POKEMA,129:POKEHF,120:RETURN
360 POKEV0,15:POKEMA,65:POKEHF,D/2:RETURN
362 POKEV0,15:FOR D=1TO10:FOR F=1TO50:POKEV+39,F
364 POKEHF,F:POKEHF,D:NEXT:NEXT:GOSUB300:RETURN
400 IFPEEK(2040)=239THENPOKE2040,240:RETURN
402 IFPEEK(2040)=240THENPOKE2040,241:RETURN
404 IFPEEK(2040)=241THENPOKE2040,239:RETURN
406 RETURN
410 IFPEEK(2040)=236THENPOKE2040,237:RETURN
412 IFPEEK(2040)=237THENPOKE2040,238:RETURN
414 IFPEEK(2040)=238THENPOKE2040,236:RETURN
416 RETURN
500 GOSUB100
502 S=230:O=1:J=0:X=198
504 POKE2040,S:X=X-7:POKEV,X:GOSUB106
506 S=S+0:IFS>232THENFOR T=1TO100:NEXT:J=1:POKE2040,232:X=X+7:POKEV,X:
  GOSUB106
507 FOR T=1TO100:NEXT:IFJ<1THEN504
508 POKE2040,S:X=X-7:POKEV,X:GOSUB106
510 S=S+0:IFS>235THENFOR T=1TO100:NEXT:J=0:POKE2040,235:X=X+7:POKEV,X:
  GOSUB106
511 FOR T=1TO100:NEXT:IFJ<0THEN508
512 POKE2040,S:X=X-7:POKEV,X:GOSUB106
514 S=S+0:IFS>238THENFOR T=1TO100:NEXT:J=1:POKE2040,238:X=X-7:POKEV,X:
  GOSUB106
515 FOR T=1TO100:NEXT:IFJ<1THEN512
516 POKE2040,S:X=X-7:POKEV,X:GOSUB106
518 S=S+0:IFS>241THENFOR T=1TO100:NEXT:J=0:S=230:POKE2040,241:X=X-7:
  GOSUB106

```




CHRISTMAS CARD

by R Braverman and J Tarrant



There have been Christmas cards. There have been musical Christmas cards. And now here is the computerised Christmas card! As you

listen to a three-part arrangement of *We Wish You A Merry Christmas*, watch snowflakes fall gently around the Christmas tree.

The program itself occupies about 6½ kB of Ram, and consists largely of data statements containing the musical information. Because of the large number of data elements, we have included a pre-program (Lines 10-90) which verifies the data. This is automatically deleted when the data is confirmed to be correct.

All three sound channels are used in the musical arrangement. *Rendezvous* is provided between the channels, and short breaks are used to distinguish consecutive notes of the same frequency. Notes are specified as channel status, pitch, and duration; and are read from the data statements three at a time. This ensures that the sound channels are kept busy while the program *gosubs* to the moving graphics routine.

The snowflakes are chosen at random

and are moved down the screen by reading an array. *PO*, giving the current snowflake position, which is then updated and a new snowflake printed. To ensure that snowflakes do not print over the Christmas tree, the bottom of the screen is redefined using an elliptical envelope. This is effected by the user defined function in Line 160.

The tree is drawn using the usual graphics commands, but is made simpler by the use of *for ... next* loops permitted by regular symmetry of the tree. In order to get maximum effect from both green and colour monitor screens, two distinct versions of *ink* statements are given in Line 210. You should use whichever is appropriate. Part two next week.

If you would prefer not to type the listing, you can obtain a tape copy by sending a blank cassette, together with an SAE and £1 to 217 Whitehorse Road, Croydon CR0 2LH.

```

100 REM ***** COMPUTERIZED CHRISTMAS CARD FOR AMSTRAD CPC464 *****
110 REM ***** BY RACHEL BRAVERMAN & JON TARRANT *****
120 :
130 REM ***** DEFINE PROGRAM PARAMETERS *****
140 DEFSTR a1:DEFINT b-y:DEFREAL z
150 n:=30:jump:=B:base:=20:top:=10:wide:=40-20:height:=400-base:sa:=300:eb:=274:
    tx:=20*16-2:ty:=400-(11*16):sx:=4*16:sy:=4*16:rx:=2*16:ry:=0:by:=2*16:
    a1=CHR$(238):a2=CHR$(202)
160 DEF f(x):z=(sb+eb)*(1-(2*x*x)/(base**2))
170 DIM p(n,1)
180 :
190 REM ***** SET UP GRAPHICS REQUIRED *****
200 MODE 1
210 REM for colour screen use INK 0,0:INK 1,0:INK 2,1:INK 3,2:INK 4,3:INK 5,4:INK 6,5:INK 7,6:INK 8,7:INK 9,8:INK 10,9:INK 11,10:INK 12,11:INK 13,12:INK 14,13:INK 15,14:INK 16,15:INK 17,16:INK 18,17:INK 19,18:INK 20,19:INK 21,20:INK 22,21:INK 23,22:INK 24,23:INK 25,24:INK 26,25:INK 27,26:INK 28,27:INK 29,28:INK 30,29:INK 31,30:INK 32,31:INK 33,32:INK 34,33:INK 35,34:INK 36,35:INK 37,36:INK 38,37:INK 39,38:INK 40,39:INK 41,40:INK 42,41:INK 43,42:INK 44,43:INK 45,44:INK 46,45:INK 47,46:INK 48,47:INK 49,48:INK 50,49:INK 51,50:INK 52,51:INK 53,52:INK 54,53:INK 55,54:INK 56,55:INK 57,56:INK 58,57:INK 59,58:INK 60,59:INK 61,60:INK 62,61:INK 63,62:INK 64,63:INK 65,64:INK 66,65:INK 67,66:INK 68,67:INK 69,68:INK 70,69:INK 71,70:INK 72,71:INK 73,72:INK 74,73:INK 75,74:INK 76,75:INK 77,76:INK 78,77:INK 79,78:INK 80,79:INK 81,80:INK 82,81:INK 83,82:INK 84,83:INK 85,84:INK 86,85:INK 87,86:INK 88,87:INK 89,88:INK 90,89:INK 91,90:INK 92,91:INK 93,92:INK 94,93:INK 95,94:INK 96,95:INK 97,96:INK 98,97:INK 99,98:INK 100,99:INK 101,100:INK 102,101:INK 103,102:INK 104,103:INK 105,104:INK 106,105:INK 107,106:INK 108,107:INK 109,108:INK 110,109:INK 111,110:INK 112,111:INK 113,112:INK 114,113:INK 115,114:INK 116,115:INK 117,116:INK 118,117:INK 119,118:INK 120,119:INK 121,120:INK 122,121:INK 123,122:INK 124,123:INK 125,124:INK 126,125:INK 127,126:INK 128,127:INK 129,128:INK 130,129:INK 131,130:INK 132,131:INK 133,132:INK 134,133:INK 135,134:INK 136,135:INK 137,136:INK 138,137:INK 139,138:INK 140,139:INK 141,140:INK 142,141:INK 143,142:INK 144,143:INK 145,144:INK 146,145:INK 147,146:INK 148,147:INK 149,148:INK 150,149:INK 151,150:INK 152,151:INK 153,152:INK 154,153:INK 155,154:INK 156,155:INK 157,156:INK 158,157:INK 159,158:INK 160,159:INK 161,160:INK 162,161:INK 163,162:INK 164,163:INK 165,164:INK 166,165:INK 167,166:INK 168,167:INK 169,168:INK 170,169:INK 171,170:INK 172,171:INK 173,172:INK 174,173:INK 175,174:INK 176,175:INK 177,176:INK 178,177:INK 179,178:INK 180,179:INK 181,180:INK 182,181:INK 183,182:INK 184,183:INK 185,184:INK 186,185:INK 187,186:INK 188,187:INK 189,188:INK 190,189:INK 191,190:INK 192,191:INK 193,192:INK 194,193:INK 195,194:INK 196,195:INK 197,196:INK 198,197:INK 199,198:INK 200,199:INK 201,200:INK 202,201:INK 203,202:INK 204,203:INK 205,204:INK 206,205:INK 207,206:INK 208,207:INK 209,208:INK 210,209:INK 211,210:INK 212,211:INK 213,212:INK 214,213:INK 215,214:INK 216,215:INK 217,216:INK 218,217:INK 219,218:INK 220,219:INK 221,220:INK 222,221:INK 223,222:INK 224,223:INK 225,224:INK 226,225:INK 227,226:INK 228,227:INK 229,228:INK 230,229:INK 231,230:INK 232,231:INK 233,232:INK 234,233:INK 235,234:INK 236,235:INK 237,236:INK 238,237:INK 239,238:INK 240,239:INK 241,240:INK 242,241:INK 243,242:INK 244,243:INK 245,244:INK 246,245:INK 247,246:INK 248,247:INK 249,248:INK 250,249:INK 251,250:INK 252,251:INK 253,252:INK 254,253:INK 255,254:INK 256,255:INK 257,256:INK 258,257:INK 259,258:INK 260,259:INK 261,260:INK 262,261:INK 263,262:INK 264,263:INK 265,264:INK 266,265:INK 267,266:INK 268,267:INK 269,268:INK 270,269:INK 271,270:INK 272,271:INK 273,272:INK 274,273:INK 275,274:INK 276,275:INK 277,276:INK 278,277:INK 279,278:INK 280,279:INK 281,280:INK 282,281:INK 283,282:INK 284,283:INK 285,284:INK 286,285:INK 287,286:INK 288,287:INK 289,288:INK 290,289:INK 291,290:INK 292,291:INK 293,292:INK 294,293:INK 295,294:INK 296,295:INK 297,296:INK 298,297:INK 299,298:INK 300,299:INK 301,300:INK 302,301:INK 303,302:INK 304,303:INK 305,304:INK 306,305:INK 307,306:INK 308,307:INK 309,308:INK 310,309:INK 311,310:INK 312,311:INK 313,312:INK 314,313:INK 315,314:INK 316,315:INK 317,316:INK 318,317:INK 319,318:INK 320,319:INK 321,320:INK 322,321:INK 323,322:INK 324,323:INK 325,324:INK 326,325:INK 327,326:INK 328,327:INK 329,328:INK 330,329:INK 331,330:INK 332,331:INK 333,332:INK 334,333:INK 335,334:INK 336,335:INK 337,336:INK 338,337:INK 339,338:INK 340,339:INK 341,340:INK 342,341:INK 343,342:INK 344,343:INK 345,344:INK 346,345:INK 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THE HILL

by A P Morris

As the festive season approaches, we present a little light relief for our QL cognoscenti - and how more seasonal can you get - battering your opponents brains out with a howitzer.

The Hill is a two player game in which you are presented with the classic problem - that is, to kill them before they kill you.

Allot an angle, trust to your shot and try to hit the house on the other side of

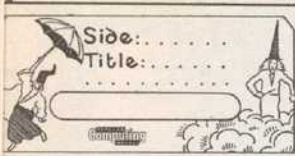
the hill. And just to make things fair, they'll be doing exactly the same. The program is fully Remmed, so should be quite understandable.

Part Two will be printed next week, meanwhile, good luck!

```

100 REMark #####
110 REMark ### A.P.MORRIS ###
120 REMark ### THE HILL ###
130 REMark ### -- QL -- ###
140 REMark #####
150 :
160 DIM player$(2,10),scores(2)
170 RANDOMISE:scores(1)=0:scores(2)=0
180 grav=4.9:bofs=163712:q=15
190 set_window
200 the_game
210 :
220 REMark -----
230 DEFINE PROCEDURE the_game
240 names
250 pl=RND(1 TO 2)
260 IF pl=1 THEN
270 first=1:second=2:stp=1
280 ELSE
290 first=2:second=1:stp=-1
300 END IF
310 :
320 REPEAT hills
330 round=0
340 hill
350 :
360 REPEAT until_hit
370 round=round+1:AT#4,0,18:PRINT#4,round
380 FOR turns=first TO second STEP stp
390 pl=turns:STRIP#4,6
400 AT#4,0,(7+22*(pl-1))-LEN(player$(pl))
    *(pl-1)
410 PRINT#4,player$(pl)
420 REPEAT values
430 AT#4,2,0:CLS#4,2
440 BEEP 1000,30:AT#4,3,0:INPUT#4,
    "Input Angle? ",anf
450 IF anf="" THEN GO TO 440
460 ang=anf
470 BEEP 1000,30:AT#4,4,0:INPUT#4,
    "Input Velocity? ",vef
480 IF vef="" THEN GO TO 470
490 vel=vef
500 AT#4,4,25:PRINT#4;'OK? (y/n) '
510 ok$=INKEY#(-1)
520 IF ok$='y' THEN EXIT values
530 END REPEAT values
540 IF pl=2 THEN ang=180-ang
550 c1=1
560 shoot 7,ang,vel,wind
570 IF colv=6 THEN EXIT until_hit
580 flare 3:BEEP 0,q,q,q,q,q,q:PAUSE 100
590 RECOL#5,0,1,2,3,4,5,6,1
600 wind_title
610 c1=0:colv=1:BEEP:flare 1:house
620 INK#4,3:IF turns=2 THEN ang=180-ang
630 AT#4,2,((turns-1)*21+1):PRINT#4,ang;"
    Deg ";vel;" mps"
640 INK#4,1:RECOL#4,0,1,2,3,4,5,5,7
650 END FOR turns
660 END REPEAT until_hit
670 :
680 AT#4,1,0:CLS#4,2
690 IF rx>100 THEN scores(1)=scores(1)+1:first
    =1:second=2:stp=1
700 IF rx<100 THEN scores(2)=scores(2)+1:first
    =2:second=1:stp=-1
710 AT#4,0,1:PRINT #4:scores(1)
720 AT#4,0,33:PRINT#4:scores(2)
730 flare 2:BEEP 0,q,q,q,q,q,q,q
740 RECOL#4,0,1,2,3,4,5,5,7
750 CSIZE#5,3,1:FLASH#5,1:AT#5,2,12:
    PRINT#5,"HIT!"
760 PAUSE 100:BEEP:PAUSE 150:CSIZE#5,2,0:
    FLASH#5,0
770 END REPEAT hills
780 :
790 END DEFINE the_game
800 REMark -----
810 DEFINE PROCEDURE shoot (c,a,v,w)
820 INK#5,c:AT#4,4,25:STRIP#4,7:INK#4,2:
    PRINT#4;'Abort? <*>':STRIP#4,6:INK#4,1
830 tsin=SIN(RAD(a))
840 tcos=COS(RAD(a))
850 FOR time=.1 TO 40 STEP .1
860 y=(v*time*tsin)-(grav*time*time)
870 x=(v*time*tcos)-(w*time*time)
880 abort$=INKEY$(0):IF abort$='*'
    THEN EXIT time
890 IF c1=1 THEN BEEP (y*2),(y/2)
900 hit x,y
910 POINT#5,x+osx,y+osy
920 IF y+osy<10 THEN EXIT time
930 IF colv=6 OR colv=4 THEN
940 IF y<150 AND (rx>40 AND rx<455)
    THEN EXIT time
950 END IF
960 END FOR time
970 BEEP
980 END DEFINE shoot
990 REMark -----
1000 DEFINE PROCEDURE hit(x,y)
1010 osx=30:osy=11
1020 IF pl=2 THEN osx=300
1030 rx=INT((x+osx)*1.31+36)
1040 ry=INT(y+osy+(59-((y+9+osy)/DIV 25)))
1050 mpos=bofs+(rx DIV 8)*2-ry*128
1060 hi=PEEK(mpos) DIV (4^(3-(rx DIV 2) MOD 4))
    
```


Micro Magic



Popular Computing Weekly

Micro Magic



The Amstrad CPC6128

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We are giving away an Amstrad CPC6128 128K micro - worth £399 - every seven days until Christmas. Not only that, but every Micro Magic card is a winner - every card wins a runner-up prize of free Special *Popular Computing Weekly* cassette labels

How to find out if you win this week
To find out if you are a prize winner this week this is what you must do:

- 1) Key in the computer program listing printed here into your micro and Run the program.
- 2) Input your special **Micro Magic** number as data in the program when requested and press **Enter**.
- 3) The program will tell you if you have won a prize this week and what it is.
- 4) If you have won a prize you can claim it by filling in the coupon on the back of your special **Micro Magic** card. Then send

```

1 REM WEEK 12
5 PRINT "Input your personal Micro Magic number"
10 INPUT X
15 FOR Z=1 TO 3
20 LET W#2 + (X+27)
30 LET W#X + 27
40 LET Y#2 + W + 1050
45 NEXT Z
46 PRINT Y
55 IF Y=251896 THEN GOTO 70
60 PRINT "Your matching Micro Magic number is" Y
61 PRINT "Better luck next time!"
65 GOTO 40
66 STOP
70 PRINT "Your matching Micro Magic number is" Y
71 PRINT "You have won an Amstrad 6128!"
75 GOTO 70
76 STOP
  
```

Micro Magic: Week 12 Program listing

the completed card off to: **Micro Magic, Popular Computing Weekly, 12-13 Little Newport Street, London WC2H 7PP.**

Don't forget to fill in both your name and address, and also both your winning **Micro Magic** answer from this week and your special **Micro Magic** number.

5) If you haven't won this week, don't give up hope. Keep your **Micro Magic** card and use it to find out if you win next week's **Micro Magic** computer program. The same card will last you right through to Christmas, so don't throw it away - you could miss the opportunity to win.

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Screen Dump on Amstrad by K Fairley

Having just bought myself an Epson compatible printer (the Brother M-1009), my first thought was to try a screen dump. The attempt I made at writing one (in Basic) was reasonably successful but very slow and since my knowledge of machine code is extremely limited my only resort was someone else's program. So out came my back issues of various magazines and the search for a machine code screen dump program began. The programs that I did find were fine in their way but limited to black and white.

Just when it looked like I would have to buy a program I remembered that there was a printing routine on my copy of *Mini Office*. I recorded the machine code part of it on to a blank tape, loaded in a screen and called the routine. It worked perfectly. In Mode 2, black and white. In Mode 1, black, white and two shades of

```

5 REM disc                5 REM tape
10 MEMORY &5f37          10 MEMORY &5f37
20 !TAPE.IN:DISC.OUT    20 LOAD "GRAPH",&5f38
30 LOAD "GRAPH2",&5f38  30 POKE &5f39,2
40 POKE &5f39,2         40 SAVE "DUMP",
50 SAVE "DUMP",         B,&5f38,1024
                        B,&5f38,1024
    
```

grey. In Mode 0, black, white, two shades of grey and 12 sets of dot patterns for the different pens. The way I did it was as follows.

Those of you who have a disc drive in program one, those with tape type in program two. But first you must put your original copy of *Mini Office* in your tape recorder and type in *Cat*. Stop the tape when it prints up Graph2. Rewind it

slightly until you are at the start of Graph2 block 1, then run either program one or program two.

Once you have done the above it is just a matter of loading "DUMP", &5f38, then loading the screen you wish to dump. After that simply CALL &5f38 and sit back. If, however, you have an Amstrad DMP1 printer then change the poke to Poke &5f39,1.

Dump Procedure on QL by Endaff Bowen

These procedures load the GPRINT ('lodump' - the dump routine) off *Easel*. This dump is compatible with all printers of the FX-80 type (I use a Memotech DMX80 printer). The commands and the program follow, merge the procedures with your own program.

Lodump - to load the M/C program off *Easel*

Dump - to transfer screen to printer.

```

1 REMark ## To Load dump (lodump) & to dump (dump) ##
2 DEFINE PROCEDURE lodump
3 BORDER 1,2:CLS:CLS0:FLASH 0:CSIZE 2,1:AT 0,2:PRINT "PUT 'EASEL' DISK IN DRIVE TWO ?":CSIZE 0,0:PAUSE
0:INK 7:AT 3,0:PRINT "PRESS ANY KEY TO LOAD'LODUMP' PROGRAM":PAUSE -1
4 start=RESPR(300)
5 AT 7,5:CSIZE 0,0:FLASH 0:PRINT "LOADING GPRINT OFF EASEL.*":BEEP 0,2,50,50,50,50,7,7:AT 8,2:PRINT
"TO DUMP TO PRINTER ENTER":AT 8,
27:INK 2:FLASH 1:PRINT " DUMP ":FLASH 0:AT 10,5:PRINT "PROC'S FROM LINE 1 TO 10.":INK 6:AT 12,4:PRINT
"DO NOT ERASE LINES 1 TO 10 !"
6 LBYTES adv2_gprint_prt,start:AT 15,13:CSIZE 3,1:FLASH 1:BEEP 15000,255,-200,20,-200,20,9,0:INK 20:PRINT
"Loaded."
7 END DEFINE lodump
8 DEFINE PROCEDURE dump
9 BEEP:OPEN #3,ser1:PRINT #3,"DUMPING SCREEN TO PRINTER:-":PRINT #3:CLOSE #3:CALL start,0,0,0,0,0,0,0,0
10 END DEFINE dump
    
```

Conversion Routines on Spectrum by G Bottomley

These Hex to Decimal and Decimal to Hex Routines are not limited to any special length of Hex or Decimal number.

Hex to Decimal conversion is fairly easy since the length of the Hex string can be found using 'LEN HS'. The Dec to Hex conversion is more difficult since there is no similar function for the length of decimal numbers.

Logarithms are used to find the number of Base 16 'numbers' in the decimal number.

This would fail when the value of D was 0, since LN 0 is not possible. This is overcome by using the unusual action of the 'OR', as used by Sinclair.

This can be understood as - LN (D UNLESS D=0 THEN 1)

```

10>INPUT "DEC D OR HEX H OR ST
OP S";I$: IF I$="D" THEN INPUT "
INPUT DEC ";D: PRINT "DEC/HEX ";
D;"D=";: GO SUB 9920: PRINT H$;
H": GO TO 10
20 IF I$="S" THEN STOP
30 INPUT "INPUT HEX ";H$: PRIN
T "HEX/DEC ";H$;"H";: GO SUB 990
0: PRINT " ";D;"D": GO TO 10
40 STOP
9900 REM
*HEX TO DEC CONVERSION*
*INPUT IS H$*RETURN WITH D*
9910 LET D=0: FOR I=1 TO LEN H$:
LET E=CODE H$(I)-48-7*(H$(I)>"9
")-32*(H$(I)>"z"): LET D=16*D+E:
NEXT I: RETURN
9920 REM
*DEC TO HEX CONVERSION*
*INPUT IS D*RETURN WITH H$*
9930 LET H$="": FOR I=1 TO 1+INT
(LN (D OR (D=0))/LN 16): LET C=
D-16*INT (D/16): LET H$=CHR$(C+
48+7*(C>9))+H$: LET D=INT (D/16)
: NEXT I: RETURN
    
```




Christmas Hits

This week I'm giving my rundown on the best of the bewildering range of new releases out for Christmas. There seem to be more top quality games available for more machines than ever before and I apologise to anyone that is left out. I've tended to concentrate only on those that I have seen finished.

Thankfully game conversions are getting better, but remember that some releases are designed to exploit the features of a given machine and cannot be converted well. Unless you hear otherwise, I would advise you to treat conversions with suspicion.



Some releases are too late for inclusion here, and some are being delayed to get more individual attention after Christmas. I suspect that this includes the promised new Miner Willy game, so we may have another roundup when the dust has settled.

Platform games in general have become much less common but there are still outstanding ones around. US Gold's *Impossible Mission* for the Spectrum exceeds all reasonable expectations and shouldn't be missed. Another goodie is *Costa Capers* on Firebird's new Hot label. Amstrad/Commodore conversions of all Hot games can be expected. The best of the first releases is *Rasputin*, a *Knight Lore* derivative - a visual feast with a terrific atmosphere. Another brilliant 3D game is Gargoyle's *Sweevo's World* - again better, and much funnier, than *Knight Lore* and available for the same micros as the excellent *Marsport*, Spectrum and Amstrad.

Apart from *Costa Capers* there are plenty of other Firebird releases around, includ-

ing the obligatory Spectrum *Elite*, out for the Amstrad in January, and anyone who wants a budget game would be mad not to go for their Super Silver range, especially *Chimera* and *Willow Pattern*. Mastertronic has just bought out an equivalent medium price range called MAD games and *The Last V8* for the Commodore is superb.

Durell has a couple of surprise new Spectrum games - both *Saboteur*, which is like a cross between *Impossible Mission* and *Exploding Fist*, and *Critical Mass*, a graphically superb 3D space game but one which may ultimately lack plot. Commodore, and eventually Amstrad, versions are expected.

CRL's *Tau Ceti* is another Spectrum space game that has everyone raving, and coming slightly more down to earth no-one should miss *Tomahawk* from Digital Integration.

I hesitate to dismiss Micropower's *Doctor Who* (almost every micro) as a platform game, which it looks like, since it has something like five times more plot than the excellent *Castle Quest*.

There will probably be two new MikroGen games out when you read this, *Battle of the Planets* and *Three Weeks in Paradise*. Feelings about the latter depend on whether you are tired of the Wally

strained. Superb cartoon quality animation and humour can also be found in Microsphere's *Back to Skool* follow-up to *Skooldaze*.

The Commodore is currently dominated by US releases, and two platform games just out are *Goonies* and *Zorro*. More original American games include *Fight Night*, *Winter Games* and some of Ariolasoft's new destruction games. Indeed, there are so many that we haven't begun to see them all. The most unusual must be Activision's *Little Computer People*.



Thankfully British companies can offer comparable quality for the machine. Don't miss the Commodore conversion of *Revs* when it appears. Also the Ultimate games, Daley's *Supertest*, *Monty on the Run* (brilliant music), *Wizardry*, Beyond's *Enigma Force*, and *Quake Minus One* on its new Monolith label all spring to mind. Beyond's *Spy vs Spy* is also just out for the Amstrad, an essential buy.

The Amstrad version of US Gold's *Bounty Bob* is adequate rather than inspired. It is also very hard, but does have most of the wacky features of the original. I prefer *Bruce Lee*, which should be looked on as a platform game

every version. I find this furiously addictive but some find it frustratingly hard. This and *Fist* are now released for the BBC.

It's nice to see the BBC being included in the conversions circuit and Imagine has also just released *Hypersports* and *Yie Ar Kung Fu*. Choosing between the latter and *Fist* would make most people weep. If you really can't afford both then I tip *Fist* on the basis of the two player combat which adds enormously to the fun. The other top tip BBC game must be *Firetrack* from the ever excellent Aardvark. However, the Spectrum version of *Yie Ar Kung Fu* is too slow, too easy, and with some breath-taking attribute problems when the fighter jumps. The excellent Amstrad version, however, has been converted with skill and respect for the machine that is far too rare.

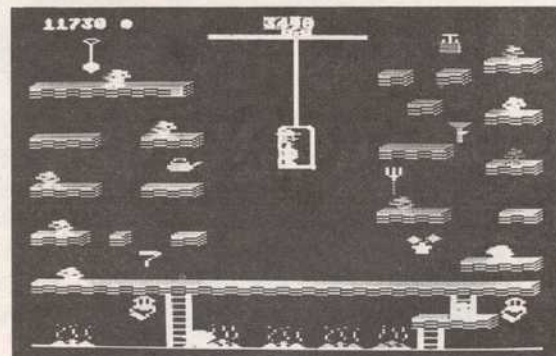
The arcade game *Commando* has been released by Elite for BBC, Amstrad, Commodore and Spectrum. I've only seen the last two but they are very slick and great fun. Another very good Spectrum war game is *Panzadrome* from Ariolasoft.



Ocean's bumper Christmas includes *Knight Rider*, *Transformers*, *Rambo*, *Street Hawk* and *Cosmic Wartoads* by Denton Designs. Not all are out at the time of writing but some look to be excellent. Something that isn't a game, or a thousand games in one, is the sprite and graphics utility *Laser Basic* from the authors of *White Lightning*, sold by Ocean's new IQ label. There will be a full review in a later Avenue but I promise you it is superb. It is out now for the Spectrum and Commodore.

Finally the big new thing this Christmas is compilation tapes. The choice from these must depend on whichever games you already have but my tips are the US Gold collection and Jeff Minter's *Yak's Progress*. *They Sold A Million* strikes me as a basis for a compilation guaranteed not to sell at all, but the Amstrad version contains games previously unreleased.

Tony Kendle



Bounty Bob from US Gold

gang, but the former looks very slick and both are better value than most games. *Sir Fred* is MicroGen's other new offering, pricey at £9.95 but brilliant. It plays like a funnier version of *Castle Quest*, the graphics are like Mordillo cartoons, animation is excellent, attribute clashes are re-

with added Kung Fu rather than vice versa. Mirrorsoft's *Dynamite Dan* is also a good bet.

Melbourne House's *Fighting Warrior* has been well implemented on the Amstrad, albeit perhaps their weakest game, and the super Gyroscopic is of high quality on



Strong incentive

You'll know by now that something called Christmas is just a few days away from us. It's a time when all the software houses work 24 hours a day trying to persuade us that *their* adventure is the best and you should buy no other.

Leaving aside the obvious blockbusters like *Lord of the Rings* (just about essential viewing, I would have thought), a program which should be at the very top of every Amstrad owner's 'please, please, please Santa' list is *The Graphic Adventure Creator* from Incentive Software.

Self-help

I've spent several weeks recently looking at some of the efforts produced with *The Quill* - I'm a great believer in self-help! - and of course that program is available for the Amstrad as well as the Spectrum, Commodore and so on. But the latest program from Incentive seems very much easier to use than Gilsoft's utility and will appeal to very many more people.

As its name suggests, the *Graphic Adventure Creator* (GAC) enables you to write graphic-with-text adventures without the need for an extra module as in *The Quill*. It comes on tape or disc and includes a comprehensive and rather chatty manual. Included with the main program is a small demonstration adventure to show the user what is attainable (and the graphics are pretty good, thus encouraging the user to have a go), as well as a 'start-you-off' file of commonly-used words to save you a little typing.

Having lived with the pro-

gram for some while - like adventures themselves, adventure-writing utilities need more than just a cursory glance - I have to say that I am impressed. And this positive feeling starts on first opening the manual. It's friendly and well-written, leading the novice user gently into the mysteries of adventure-writing. *The Quill* makes the job of programming an adventure easier, but there is still much work to be done; *GAC* makes the whole process very easy to get started.



On power-up, the main menu is presented (once one has negotiated the dreaded Lenslok); this menu allows the editing of messages, nouns, verbs, room descriptions and graphics, as well as conditions, of which more later. The first job, however, is to write the adventure - this may seem like a contradiction, but any utility like this should be approached only after planning out the adventure on paper, so that a clear idea of what is required is fixed in the author's mind.

Now the room locations must be typed in, with descriptions, connections (to other rooms) and associated pictures. Then object descriptions along with their weights (although this need not necessarily play a role in the finished scenario, nevertheless, some number has to be entered), and then vocab-

ular to be recognised in the adventure, consisting of nouns, verbs and adverbs. Each of the words is given a number, and more than one word may be assigned to a number, thus saving the pro-

Simplicity

gram a lot of work and allowing the player to type, for example, *Get, Take, Pick* and whatever else you decide some might think of in a particular situation.

Once all this data is typed in and edited if required, the pictures may be tackled. Like everything else in the *GAC*, this job is made as easy as possible for the user - not the most elaborate or sophisticated drawing utility, it is quite adequate for adventure illustrating, and contains routines for drawing boxes, rectangles, circles, ellipses and so on, as well as a good *Fill* and an excellent *Shading* facility. Here, too, editing is simplicity itself, as the artist may step forward and back through the picture allowing for editing or deletion of certain parts while leaving the rest intact.



Finally, one picture may be merged with another, so that, like *The Quill*'s 'subroutines', common patterns can be placed in several pictures without the need for re-drawing. Colour handling, too, is easy. With an on-screen mini-menu, a colour bar-chart and a little pen which shows the current status of colour, shading, flash etc, this part of the *GAC* is delightful to use.

All that's left to do now is to define the conditions, without

unless he has the wooden key of Thromdir. Local conditions are peculiar to a particular room (What are the exits? If there is a swamp here and the player is carrying more than a certain weight, he will sink without warning and so on).



High priority conditions are scanned each time any input is made by the player (eg, is he now in the room with the orc, and has he got the necessary defence?), while low priority conditions are scanned on certain inputs (if *Quit* is typed, then go into the end game routine).

And that's it! Well, almost - I haven't mentioned counters and markers. There are 255 of each of them, with counters being used to keep track of the number of times a certain action is performed (if the adventurer is in the dark, ensure that 20 moves without a light results in a cracked skull), while markers are either on or off (if the adventurer has switched on the light, then his skull is safe until he switches off again).

Conditions require a little thought, of course, and can be quite complex - assuming your number 7 verb is *Unlock*, your number 6 noun is *Door* and number 2 noun is *Key*, then a typical condition may be *If (Verb 7 And Noun 6 And CArr 2) Set 3 Mess 10*. This translates as, 'If the player has typed *Unlock Door* and he is carrying the key, then reset marker 3 and print message number 10 (*The door is now open*).'

Extended version

It's really as simple as that, though a complex adventure may have a lot of complex conditions in order to work properly.

I haven't got room for more detail - rest assured that there are very few bad points. In the pipeline is a version to make full use of the extended memory of the 6128 (at the moment, 25K is available for your adventure) and full disc access during play. But for the moment, Incentive's *Graphic Adventure Creator* is reason enough to buy an Amstrad.



'Pretty good' graphics with *GAC*

gram a lot of work and allowing the player to type, for example, *Get, Take, Pick* and whatever else you decide some might think of in a particular situation.

Once all this data is typed in and edited if required, the pictures may be tackled. Like everything else in the *GAC*, this job is made as easy as possible for the user - not the most elaborate or sophisticated drawing utility, it is quite adequate for adventure illustrating, and contains routines for drawing boxes, rectangles, circles, ellipses and so on, as well as a good *Fill* and an excellent *Shading* facility. Here, too, editing is simplicity itself, as the artist may step forward and back through the picture allowing for editing or deletion of certain parts while leaving the rest intact.

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10	(8)	International Karate	(System 3)	£6.90

All figures compiled by Gallup/Microscope

Top Twenty

1	(1)	Commando (Spectrum/C64)	Elite
2	(-)	Yie Ar Kung (Spectrum/Amstrad/BBC/MSX)	Imagine
3	(9)	Way Of The Exploding Fist (Various)	Melbourne House
4	(4)	Elite (Spectrum/C64/BBC)	Firebird/Acornsoft
5	(3)	They Sold A Million (Spectrum/C64/Amstrad)	Hit Squad
6	(-)	Mercenary (C64/Atari)	Novagen
7	(7)	Little Computer People (Various)	Activision
8	(5)	Rambo (Spectrum/C64)	Ocean
9	(-)	Lords Of The Rings (Spectrum)	Melbourne House
10	(8)	Computer Hits 10 (Spectrum)	Beau Jolly
11	(10)	Back To Skool (Spectrum)	Microsphere
12	(12)	Winter Games (C64)	Epyx/US Gold
13	(6)	Formula One Simulator (Various)	Mastertronic
14	(14)	Tomahawk (Spectrum)	Digital Integration
15	(11)	Finders Keepers (Spectrum/C64/Amstrad)	Mastertronic
16	(16)	Beach Head 2 (Spectrum, C64, Amstrad)	Access/US Gold
17	(-)	Transformers (C64)	Ocean
18	(19)	BMX Racers (Spectrum/C64/C16)	Mastertronic
19	(18)	Gyroscope (Spectrum/C64/Amstrad)	Melbourne House
20	(-)	Arcade Hall of Fame (Various)	Various

Figures compiled by Gallup/Microscope

Readers' Chart No 55

1	(8)	Commando (Spectrum/C64)	Elite
2	(1)	Elite (Spectrum/C64/BBC)	Firebird/Acornsoft
3	(5)	Winter Games (C64)	Epyx/US Gold
4	(2)	Way of the Exploding Fist (Spectrum/C64/Amstrad)	Melbourne House
5	(4)	Fairlight (Spectrum)	The Edge
6	(7)	Red Moon (Spectrum/C64/Amstrad/BBC/Electron)	Level 9
7	(3)	Monty on the Run (Spectrum/C64)	Gremlin Graphics
8	(-)	Non Terraqueous (Spectrum/Amstrad)	Mastertronic
9	(10)	Bored of the Rings (Spectrum/Amstrad)	Delta 4/Silversoft
10	(-)	Back to Skool (Spectrum)	Microsphere

Winning Phrase No 55: "It's a fright when fairy lights explode or pop" from Terry Flood of Kidbrooke, London SE3. Honourable mentions to J Burnett of Camberley, Surrey with "Flying sleigh spotted at Heathrow" and Neil Brownlee of Galashiels with "So Lord of the Rings here at last."

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The Rogue Program

There be some strange going s on this evening, an if I aint for wrongs you be having some-thing to do with it. We don't take kindly to poachers and the likes in these parts.

Created entirely using a BBC and an AMX mouse

continued next week

New Releases

Pick of the week

ROLLER

Wild Ride is quite an entertaining game, which though lacking any great innovation or programming brilliance is nevertheless worth a quick mention.

It has you racing around a fairground rollercoaster seeking to harmlessly detonate bombs left there by a crazed bomber before they explode into a million pieces, leaving the roller coaster a mass of tangled wreckage.

Obviously there are obstacles; these are variously titled Boppers, Flappers and Shox. Boppers are rover-like balloons that bounce around and get in the way, Flappers are birds that swoop down and try to peck you, Shox are electricity bolts that zip down the roller coaster tracks. All over the place empty cars speed around, making life even more difficult.

It's very fast and quite entertaining, but credit should go to *Interceptor* for putting it out at £6.95, thereby proving that games don't have to be

either £1.99 or £8.99. Plus points also for an ingenious loader that actually lets you play a simple little *Lunar Lander* game whilst the program is loading.

Program *Wild Ride*
Price £6.95
Micro Commodore 64
Supplier *Interceptor Micros*
 Lindon House
 The Green
 Tadley
 Hampshire

SOPHISTICATED

WD Joss for the QL is a sort of instant icon control device which lets you control basic QL functions via a joystick or keyboard cursor keys.

Once loaded, it presets basic QL functions in the form of menus which you can move up and down with a cursor and select with the fire button. Thus, instead of typing a *Copy* command in full (a lot of key presses) you simply select the option on the menu to copy and then select the filename of the file to be copied.

The system is actually very sophisticated and includes features like a real time clock and a toolbox file that gives you a number of facilities for use when developing SuperBasic programs - basically a number of options to do with line numbering and saving your program.

Program *WD Joss*
Price £15.00
Micro QL
Supplier *WD Software*
 Hilltop
 St Mary
 Jersey CI

DESIGN SYSTEM

The Oxford Computing Art Studio is without doubt the best graphics for the Spectrum ever. Not only does it have hundreds of features, it even manages to effectively remove those dreaded attribute problems. It does this by the intelligent expedient of providing options to have shapes you have constructed automatically shifted to the nearest attribute square.

Although icons have a slightly dubious image, particularly on home computers, as covering up with superficial slickness otherwise lacklustre programs, in this case they are an intrinsic as well as attractive feature.

You can customise the program to work with either keyboard, joystick, or mouse in the same way that you might customise a Spectrum wordprocessor to work with a particular printer.

Instructions are expressed through icons, menus and windows - pointing a cursor at the appropriate choice. How to summarise the facilities? You get all the usual stuff, circles, ellipses, squares, rectangles, all drawn using the 'rubber band' system.

The 'pen' may be of almost any width down to one pixel or may be used like an airbrush, 'spraying' pixels with the chosen ink colour. There are a vast number of text fonts which can be integrated with the



design. Not only that, but you may use a simple user graphic system and define your own.

So far so clever, but seen before. However, anything you design you can manipulate. Using a window to mark off an area of the screen the window area can be inverted, shrunk, enlarged and placed or replaced on any other area of the screen. In fact the screen itself can be 'enlarged' so that you can very precisely tidy lines, etc.

Art Studio really is a doddle to use and you don't have to be an artist to produce professional looking results. Definitive.

Program *Art Studio*
Price £14.95
Micro Spectrum
Supplier *Rainbird*
 Upper St Martin's Lane
 London



This Week

Program	Type	Micro	Price	Supplier	Outlaws	Arc	Commodore 64	£9.95	Ultimate
Introducing Percent	Ed	Amstrad	£8.	Mentor Edu.	Wild Ride	Arc	Commodore 64	£6.95	Interceptor
Introducing the Rec	Ed	Amstrad	£8	Mentor Edu.	Yabba Dabba Doo!	Arc	Commodore 64	£7.95	QuickSilva
Spy Hunter	Arc	Atari 48K	£9.95	US Gold	Micky's Space Ad	Ad	Commodore 64	£12.95	US Gold
Dr Who and Mines	Arc	BBC B	£19.95	Micro Power	Buster Block	Arc	MSX	£6.95	Kuma
Spider Speller	Ed	BBC B	£5.00	Vannin	Bridge	S	MSX	£8.95	Kuma
Speech!	Ut	BBC B	£9.95	Superior	QL Pawn	Ad	QL	£19.95	Sinclair
Souls of Darkon	Arc	Commodore 64	£8.90	Task Set	QL Fictionary	Ed	QL	£12.95	Sinclair
The Odyssey	Ad	Commodore 64	£9.95	Duckworth	QL Macro Assembler	Ut	QL	£59.95	Sinclair
Ballblazer	Arc	Commodore 64	£9.95	Activision	WD Joss	Ut	QL	£15.00	WD Software
Diagon	Arc	Commodore 64	£2.95	Bug Byte	The Ludoid Quartet	Ad	Spectrum	£2.95	Bug Byte
Mercenary	Arc	Commodore 64	£9.95	Novagen	Arena	Arc	Spectrum	£9.99	Argus Press
Moebius	Arc	Commodore 64	£9.95	Infinite	Bomber Bob	Arc	Spectrum	£2.95	Bug Byte
					Death Wake	Arc	Spectrum	£7.95	QuickSilva

REPETITIVE

Outlaws from Ultimate is a fairly entertaining game for the Commodore 64. I prefer it to *Inhotep* but to describe any Ultimate game as 'fairly entertaining' seems to me a pretty serious criticism.

The Brownie points the game deserves as that, to my knowledge, it isn't something that's been done to death before on micros (although I seem to have seen something similar in the arcades) and the animated graphics are rather well done. It is, however, a fairly repetitive bang bang, kill kill affair with little long term attraction.

You, complete with white horse denoting goodness and purity, aim to rid a variety of

horses are black and less well animated.

The joystick controls horse and rider movements, left, right, jump, ducking when the odd bullet gets in your way and gun angle; in some cases they zoom towards you guns (as they do) blazing. This becomes a little like a joust as you duck to dodge them whilst similarly returning fire.

Later screens move to the town where innocent citizens wander unhelpfully about getting in the way; killing them only loses you a few bonus points, so I'd advise shooting them if they stroll into the line of fire.

The game is quite entertaining, addictive for around an hour and quite well programmed. Personally I don't think that's enough for £9.99, free tape cleaner or not.

Program *Outlaws*
Price £9.95
Micro Commodore 64
Supplier *Ultimate*
The Green
Ashby de la Zouch
Leicestershire
LE8 5JU

DALEK-SPEAK

Superior Software's *Speech!* is a quite remarkable piece of programming. It gives you, without hardware, a speech utility more or less as good as Acorn's official speech chip, but has greater range.

The program takes up 1½K of program space and is incredibly easy to use. It merely requires a new command word which is *Say* preceded by a Star. You then type in your text between quotes in



conventional English (although the program is fussy about mistakes like double spaces). The end result is as good as anything I've heard this side of the Amiga and it'll make a stab at even the most ludicrous words constructed without vowels and at great length; EWWEGRETHEM-HOHOOTEPE particularly pleased me.

It is possible to add words to the computer dictionary where they are not said exactly as they would be, using phoneme analysis and also to vary the pitch of the spoken voice. You can also use the speech within a Basic program, using the *Say* command preceded by *OSCLI*.

The only problem with the program is the fact that it takes up quite a lot of memory should you wish to use it with your own, lengthy listings. But it is possible to load the program at a different address should it be incompatible with your own machine code.

A really superb release that allows everyone to play around with the wonders of

Dalek-speak for relatively little outlay. Why pay more?

Program *Speech*
Price £9.95
Micro BBC
Supplier *Superior Software*
Skinner Lane
Leeds 7

CORRUPTED

M Doc is a useful facility for Spectrum microdrive owners. It lets you, with a fair wind and bit of luck, recover corrupted microdrive files and repair them. It will even work with things like *Tasword Two* files and has a 'filter data' option to remove corrupted characters so that the file can be edited.

Assuming a program does appear using the *Cat* command, it can be analysed sector by sector using the program and a built-in monitor allows for the editing of hex, decimal or ASCII strings. If you can repair your data you can then rewrite to another, undamaged section of cartridge.

An extra utility called *B Doc* lets you edit basic programs in the same way. The program is fully compatible with all three versions of the Interface 1 Rom, and for people who bought an earlier version of the program called *C-Doc*, there is a cheap (£2.50) upgrade option.

Program *M Doc*
Price £6.95
Micro *Spectrum*
Supplier *Seven Stars*
34 Squirrel Rise
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Bucks
SL7 3PN



towns, barns, homesteads and deserts of a bunch of outlaws who are doing the usual things outlaws do to the usual innocent citizens such things usually get done to. You can tell who the baddies are, not only because they tend to be rough-looking types, but also because their

Dogsbody	Arc	Spectrum	£2.95	Bug Byte
Gladiator	Arc	Spectrum	£8.95	Domark
Myla D'I Kaich	Arc	Spectrum	£2.95	Global Software
Zoot	Arc	Spectrum	£2.95	Bug Byte
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73 Alcester Road, Moseley, Birmingham 13.
Interceptor, Interceptor Micro's, Lindon House, The Green, Tadley, Hampshire, 07356 71.
Kuma, Kuma Computers, 12 Horseshoe Park, Pangbourne, RG8 7JW, 07357 4335.
Mentor Educat., Trim, Co. Meath, Ireland, 046 31268.
Micro Power, Northwood House, North Street, Leeds LS7 2AA, 0532 434006.
Novagen, Freeport 142 Alcester Road, Birmingham B13 8HS.
Quicksilver, Palmerston Park House, 13 Palmerston Road, Southampton, Hampshire SO1 1LL, 0703 20169.
Rainbird, Wellington House, Upper St. Martin's Lane, London.
Seven stars, 15 Gloucester Avenue, London NW1 7AU, 01-485 7775.
Sinclair, Stanhope Road, Camberley, Surrey, GU15 3PS, 0276 686100.
Superior, Regent House, Skinner Lane, Leeds, LS7 1AX, 0532 459453.
Task Set, 13 High Street, Bridlington, YO16 4PR, 0262 673796.
US Gold, US Gold, Unit 10 The Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY, 021-359 3020.
Ultimate, Ultimate Play the Game, Ashby de la Zouch, Leicester, LE6 5JV, 0530 411485.
Vannin, 133 Boroughbridge Road, York, YO2 6AA.
Wd Software, Hilltop, St. Mary, Jersey, Channel Islands, 0534 81392.

This Week

NINETEEN EIGHTY-FOUR GEORGE ORWELL

Language barrier

Orwellian hysteria having lately calmed down after passing through the dreaded 1984, popular opinion would have it that we have escaped most of Orwell's dire predictions. Popular opinion, of course, chose in the main to ignore the fact that Orwell was not setting down a cast-iron prognosis for a particular year.

However, those who laughingly pointed out the absence of all-seeing tele-screens and the Thought Police could well be ignoring some grave and justifiable misgivings about Orwell's prediction about the gross misuse and distortion of language.

NewSpeak, as Orwell described it, alters the meaning of words. Some are employed which actually convey the reverse of that which is intended, and are expressed to be interpreted as polar opposites. Others are deliberately misleading, ambiguous and trap-laden for the unwary. We have to learn to understand the unsaid and interpret the actual messages being sent. It is a modern minefield, with euphemisms and acronyms abounding.

All professionals generate their own jargon. The initiated can bask within a wall of special speech which effectively keeps out the unwashed masses of the ignorant. Prospective joiners of the inner circles are also deterred by what is, effectively, a language barrier. Not only is the mystery of the craft to be learned, but the special accompanying language assimilated. For most, the sheer effort becomes too great. Within the confines there is ease and leisurely discourse but nobody else can join in. Watch that

group of computer enthusiasts and monitor their speech patterns. We are forever finding ways of non-communication with one another.

We can use these new words and phrases to obscure the severity of action or the depth of the occurrence. Thus, the policeman going to a riot where there are stone flying, bottles hurled and sheer pandemonium will describe his appearance as attending a disturbance, President Reagan talks about his 'misspeaks,' and the fire officer fighting a blazing inferno will record what happened as a 'four-appliance stop'. These perhaps are fairly innocuous but they mislead, as also does the estate agent who describes a piece of scrub land as 'lightly wooded', a bit of grass as 'laid to lawn' and a hovel as 'a bijou property'.

People in the computer world are real offenders. One does not switch on the apparatus but 'power up' and the instructions are never in action at once but are 'booted'. The machine is not easy to use but becomes 'user friendly'. Even the inert mass of junk called the hardware does not occupy a defined space upon the desk but must have a 'footprint'. We employ words like 'return', 'deliver' and 'debug' in strained usage and do so recursively. We talk glibly, uncaring about the listener, on Rom, Ram, ULA and Ascii. Using numbers, we confuse ourselves. Who knows the value of the prefix mega- or giga- and which is bigger? Who has not overheard the heated arguments on the relative merits of the Z80A over the 6502? Whatever became of the 6809 and how can there possibly be an intelligent conversation concerning the superiority of the 8086 over the 8088.

Recognise the dynamism of language and do not expect it to fossilise. In doing so, try always to be understood. Speak English wherever possible. Notice that common agreement is enhanced by the effort at sharing our thoughts. It is diminished by shutting out the vast majority of people who cannot, or decline to, keep up with the jargon. Remember what happens to people fed with NewSpeak.

Rod Dawson

Puzzle No 188

Ever since history came to be recorded in the mid-European state of Pandemonia there have been two major disasters to befall the country. The first of these was the invasion by renegades in 1306, and, more recently the Great Plague.

A curious connection was discovered linking the dates of these two disasters. For example, it was found that in each case the date was also equal to the sum of the first digit raised to the first power, the second digit to the second power, the third digit to the third power, and the fourth digit to the fourth power:

$$1^1 + 3^2 + 0^3 + 6^4 = 1306$$

Likewise, the date of the Great Plague also exhibits this strange property, and consequently such dates are regarded in Pandemonia as having special significance.

Can you determine the date of the Great Plague, and also advise the Pandemonians when next they should expect a major disaster?

Solution to Puzzle No 183

The field had sides of 24, 45 and 51 yards.

The problem requires us to find the sides of a right triangle having a perimeter of 120 yards, in which each of the three sides measures an exact number of yards in length.

```
10 FOR A=1 TO 36
20 LET B=1
30 LET C=120-(A+B)
40 IF A*A+B*B=C*C THEN PRINTA;
   " ";B;" ";C
50 LET B=B+1
60 IF B<C THEN GOTD 30
70 NEXT A
```

The program uses two FOR/NEXT loops A and B to generate the legs of a triangle with integral sides. The hypotenuse (C) is found by subtracting the sum of A and B from 120 (the perimeter). If the square of C is also equal to the sum of the squares of A and B (ie, the triangle contains a right-angle), the resulting values are printed.

Winner of Puzzle 183

The winner is the Rev Allan Buik of Kingstanding, Birmingham, who will be receiving £10.

Rules

The closing date for Puzzle 188 is Jan 15.

The Hackers



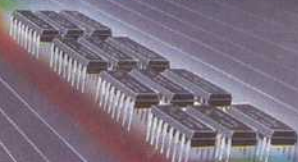
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