

POPULAR *Only 50p.* Computing WEEKLY

with Home Computing Weekly

20-26 March 1985

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Vol 5 No 12

SPECIAL FEATURE ISSUE Graphics . . .



The Art Studio on Spectrum

*. . . software starts
page 11*

*. . . hardware starts
page 14*



Wipacore Business MegaFloppy



Deluxe Paint on the Amiga

*. . . the future
page 8*

Amstrad's PC - more details

MORE details are beginning to emerge about Amstrad's forthcoming IBM-PC compatible, widely tipped as the next new micro from the Amstrad stable, and representing a significant move by Amstrad into the business market.

It appears that Amstrad is looking at two versions of the machine - one with at least one 5 $\frac{1}{4}$ inch disc unit, the second with a hard disc included. A suggested price for the first model is in the region of £790, for the second, under £900. Both models are expected to be sold with a colour monitor.

Amstrad has also been working to offer substantially improved graphics capabilities than IBM's own PC machines feature. It is thought that Amstrad is closely working with a major graphics development company to produce a built-in graphics board with the machine.

Amstrad PC manufacturers are currently being tested to ensure their complete software and board compatibility with the IBM standard, but Amstrad is not expected to announce the machine until the late summer.

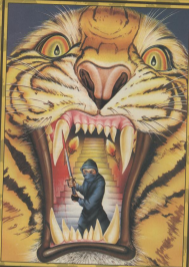
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five to be
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INSIDE) OLIVETTI SHUNS ACORN IN EDUCATIONAL DRIVE - P4

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TRIPLE-SCROLL
TRIPLE-SCROLL



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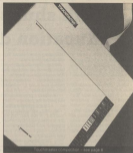
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The decline of Acorn computers from one of Britain's highly regarded manufacturers to a supplier of specialist machines to specialist markets has been sad to watch.

Sad, because the tremendous success of the BBC II in the educational sector should have been a launch pad for success in other market sectors - a compatible version for the home, for example, which the Electron never quite achieved, or a similar (30-bit) model for business use, to attract all those ex-BBC school users latched on BBC technology.

Instead it appears to have become an end in itself.

Acorn's problems in utilising the BBC's technology to sell its quality in a variety of market sectors and thus finance its research advances culminated in the takeover by Olivetti last year. One of Acorn's major setbacks had always been its failure to attract a large export market for the way into the US, for example, was disastrous. And exports are highly important.

More than half of Acorn's turnover is expected to come from overseas this year and should contribute to recent profits. Olivetti's success in Spain enabled it to share the cost of bringing out the 128 (and then out in the US).

One of the strong points of the Olivetti deal was the potential for strengthening Acorn's export performance. The opportunity is there with Olivetti's current drive into the Italian educational arena, which requires an 80,000 machine.

Now Acorn admits that its 80,000 compatible Master 512 is 'not ideally suitable'. The strong link from Acorn is that it is looking for a machine that will be 'viable'. Acorn also says that its RISC technology development will, when completed, solve many of these problems.

But Acorn has stated that RISC research will take around two years to come to fruition.

It looks as though the opportunity has been missed.

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Computer Trade Association Magazine of the Year

ABC

Olivetti shuns Acorn in education drive

ACORN has been dealt a blow by its parent company Olivetti, regarding the Italian firm's plans to supply the European educational computer market.

When Olivetti raised its stakes in Acorn to over 75%, part of the deal was that Olivetti would promote Acorn's educational machines in the European market. Now Olivetti is looking to its US partner AT&T to launch Olivetti's 8008 MS-DOS version, just two months after the launch of Acorn's Master series, which includes the MS-

DOS compatible Master 512, which runs D-OS Plus.

Senior Olivetti staff have been quoted as saying that Acorn's hardware base is "a real problem," although conceding that it has a "valuable software library."

"Overstated promotion is still part of the package," said an Acorn spokeswoman.

"The two companies are 'married', if you like, and we are working out how to act together and best attack the market - but it doesn't happen overnight.

"In Italy the government

has decreed that MEDICE is the educational standard, which means that in the short term our products are not ideally suitable. The Master 512 is in part suitable but it doesn't go the whole way. This will not be the case in the medium term. We are looking for machines which are capable of meeting the needs of various markets."

■ Hermann Haeber, co-founder of Acorn, has now been promoted to Olivetti's main board as director of advanced research and development.

Sinclair confirms portable will now be launched next year

FOLLOWING Sir Clive Sinclair's announcement that the Pandion Spectrum-compatible portable colour would be launched this autumn (see Popular Computing Weekly, February 28), the official Sinclair line is now that it will not be available until 1987.

"Some early production models may be available this year. We will be trying out these models in a number of defined market areas. But the machine will be launched in 1987," said a Sinclair spokesman.

One of Pandion's features still to be decided is its disk storage system. Sinclair has been looking at the possibility of implementing "read-only" style software, possibly Smart cards, for the additional software. A certain amount of software will be built-in to the machine.

But the spokesman did not rule out the question of floppy disk storage, which would be more viable if Sinclair wants to attract conversions of CP/M software to the machine.

"We have been looking into the hard question," the spokesman continued. "But there has been no firm confirmation of that."

It looks as though Sinclair is still aiming for a price for Pandion of around £260, although no exact amount has yet been fixed.

'Hackers' trial set for April 14

THE two men accused of "hacking" into the Prestel database, Robert Schifano and Steven Child, are due to stand trial at Southport Crown Court, on April 14 under the Forgery and Counterfeit Act, 1968. This comes after a number of preliminary hearings at Bow Street Magistrates Court.

BT warns against Prestel tricksters

BRITISH Telecom is warning its Prestel subscribers against confidence tricksters. The latest method being used to obtain users' security codes is deceptively simple. One person requesting particular services is telephoning customers posing as a Prestel official, and asking for passwords and identification codes. Once obtained, he can then charge his own Prestel dues to these other accounts.

BT has sent a letter to customers warning them not to release confidential information regarding passwords.

Exploding Fist tops Gallup 1985 charts

GALLUP, which compiles the weekly charts for Popular Computing Weekly, has announced its 'best of 1985' chart.

Top seller over all machine formats last year was *Way of the Exploding Fist* from Melbourne House. *Fist* was also the Amstrad number one in 1985. On the Spectrum and Commodore machines top slot went to the *Band Aid* charity tape *SoftMind*, with *Fist* second on both formats. *Elle* (Amstrad) was the number

one seller on the BBC, and *Maverick* (Newspen) on the Atari.

This is the 1985 Top ten over all machines: 1. *Exploding Fist*; 2. *SoftMind*; 3. *Elle* (Spectrum/Amstrad); 4. *Ghost-hunters* (Atari/Amstrad); 5. *Finders Keepers* (Master-



Fist last year's number one

tronic); 6. *Frank Stone's Army* (Siber); 7. *Commando* (Cine); 8. *Perennis One Simulador* (Mastertronic); 9. *Dukey Thompson*; 10. *Decision* (Cine); 11. *Impossible Mission* (Epps/CBS) (Siber); 12. *Gold*.

Amstrad show

THE first Northern Amstrad Computer Show takes place this weekend (March 22-23), at New Century Hall, Corporation Street, Manchester. Organizer Database Publishers expects over 60 new products to be launched at the exhibition.

8256 launched in America

AMSTRAD'S PCW 8256 should be available in North America through the giant retail chain, Sears, at the end of the month (see Popular Computing Weekly, December 28/January 5).

The deal with Sears means

that each Sears store (and there is one in nearly every town in the US and Canada) will be selling the 8256 with staff trained to answer queries on the machine. It will be priced at \$299 (just over £100).



First book on 8256 launched

SCMA Press launches a book devoted to Amstrad's PCW 8086 and 8512 machines next week.

Mastering the PCW 8086/8512 was written, inevitably, using a laserwriter, and aims to complement the machines manual, as well as clarifying parts of it.

It also devotes space to New Star's NewWord word processing program, as well as the CP/M operating system in general.

It will cost £5.95. Details from John Wiley and Sons, Baffins Lane, Chichester (0246 784571).

Pagemaker for Master 128

AMST's Pagemaker, one of a number of publishing programs now on the market, has now been made compatible with the BBC Master 128.

The package comprises a typesetter, graphics library and word processor, spread over two 800k cartridges and two disks.

In addition, this version is capable of formatting files from both Wordstar and View.

Pagemaker for the Master 128 costs £48.95. Further information from AMST at 199-170 Widdowpool Gateway, Warrington WA4 6QA (0583 432851).

RGB monitor

A NEW high resolution RGB monitor will shortly be released by Chromographic. Designed specifically for Spectrum 128, QL and BBC



machines, the monitor will be introduced at the competitive price of £228. It does not however, contain a sound output.

Details from Chromographic at 128 CME Road, Herxas, Bamberide.

Computer LP from Mupado

SOFTWARE, coupled with SoftShare? is a highly unusual computer package to be sold exclusively through WH Smith's branches and produced by Mupado.

Details, on side one of the tape, is effectively a computer LP, featuring soundtracks from computer games. The themes, which include Rambo and Hypernova, have all been re-mixed in a recording studio.

SoftShare? on side two, is rather more conventional. It

Anirog spans C16 and Atari ST

ANIROG is taking advantage of increased C16 sales to accent its C16 catalogue. Water Events, a six event Water Olympics simulation, at £1.99, and Space Pilot (£3.99) will both be released for the machine at the end of the month.

Anirog also intends to triple the Atari ST market this year, concentrating on entertainment programs.

is a database designed for young users.

The title should be available at WH Smith next week, priced at £4.95. Mupado can be contacted at Unit 11, Stamford Industrial Estate, Tringdon Road, Lutpeton, Oxford OX7 433BT.

Bug-Byte budget bonanza beckons

FOLLOWING the success of many companies with budget software, Bug Byte, now a publishing label within the Argus group of companies, is releasing budget productivity titles on disc.

Initially to be available for the Commodore 64 and 128, Lead 'n' Go is a range of titles licensed from the US, to be sold in the UK at £1.99 each.

The series includes a word processor, Masterword, a desk diary, Electronic Scheduler, a database, Office, a spreadsheet, Personal Spreadsheet and two home accounts programs.

Details from Bug Byte, Library House, 222 Regent St, London W1A 4BN (0499).

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Letters

Corrections

A couple of corrections to the final instalment of my wordprocessor (PCW 4-12/15).

Firstly the Delete function was misprinted as (CTRL)+A, it should, of course, have been (CTRL)+D.

Secondly, when converting the program to run and work on tape, do not delete lines 2880, 2885 and 2875.

Glen Council
215a Ashbury Rd
Oxford

Autorun facility

May I say that W Walco's program on Autorun programs on the Commodore 64 was a model of ingenuity and genius compatible with your usual high standards. However, spare your kindness, there is an autorun facility provided on the Commodore 64, contrary to common knowledge, eg. *Load "PROGRAM".R* followed by pressing the Shift and Run/Stop keys.

Note the colon, which must be included following the device number.

You may agree that this could be a little less cumbersome than a machine code program!

W H Corvelock
The Mayed Terrace
Bangor
Gwynedd

QL judgement

The juxtaposition of the letters by Paul Harty and Ken Whyld in Vol 8 No 10 on the subject of the QL makes its own judgement. Ken Whyld, who has used the machine regularly for over 18 months, finds it a great success.

Paul Harty, with no claim to any experience on it and no sign of any knowledge of it, seems to wish to bury it in an unconnected, slurry of computer-uses caustics.

This machine seems to have been accused by the letter in Vol 8 No 8 from LW Tomlin, again a user speaking from experience, expressing himself as so impressed by the positive qualities of the QL that he feels critical resignation is called for.

What Paul Harty's barrage of inconsequential clichés of doberling parents telling



'How was I to know it was their judgement's phrase number I was trying to get?'

unavailable machines on unrespecting adorning, and of disintegrative business sense doggedly demanding eliminative business software has to do with the comparative merits of the QL is quite beyond me.

There was certainly nothing of this in LW Tomlin's letter. There has equally been nothing of it in the actual selling of the QL. It has been consistently under-sold in the shops and overpriced in certain publications.

Don Quixote was thought to be a little careless of reality when he charged the wind-

mills. But at least they were real windmills. He did not invent them for the fancied pleasure of knocking them down.

The micro drives? They are the poor man's discs. The great merit is their price. They are infinitely better than any cassette system and in some respects they outperform certain disc systems.

I do not mind Zappara's leaving a reasonable doubt of the QL. I can always get my own back by reading that page last. But uninformative diatribes do annoy me as they obviously do many.

Time has come for a little pride in what is at its least an original and innovative machine.

I will stand any day at the shoulder of the Whylds and Tomlins.

Let the Hardies look to their laurels.

G C Wilson
Chisleho Rd
Croydon

That's definitely enough correspondence on 'The Zappara'!

Competition

TOUCHMASTER

Five Touchmaster graphics tablets to be won

If reading all about these graphic possibilities has inspired you, why not try your hand at some words of art yourself? You could win a Touchmaster graphics tablet.

The graphics tablet is a flat drawing area, equivalent to a piece of paper with an electronic stylus in place of a pen. With it you can create pictures which appear instantly on your screen. The big difference is that this pen and paper has options to use programmed circles, squares, rectangles, colour mixes and size-different types of brush strokes.

The Touchmaster graphics tablet is available for a variety of popular machines (see coupon) and special Touchmaster software is also available from the manufacturer. Normally, the tablet costs £18.95, but we're giving away five to the winners of our Touchmaster competition.

How to Enter

We're simply asking for an example of

your own computer art - using any computer graphics program you like. There's all there is to it.

Send us your picture either on a screen dump, or on cassette or disc - it doesn't matter. Tell us what package(s) you used to create your master piece, and enclose the coupon with your entry.

Then post the whole lot off to Touchmaster Competition, Popular Computing Weekly, 12-13 Little Newport Street, London WC2H 7PP.

Entry Rules

Entries must reach us by Monday April 11. We cannot return entries, so if you really like your masterpiece, don't send us the only copy. Pictures submitted in the competition should not have been previously published elsewhere. The five pictures judged to be the best, taking the graphics side into account, will each win a Touchmaster Graphics tablet. Only one picture per entrant please. The judges' decision is final and all normal competition rules apply.

Popular Computing Weekly Touchmaster Competition

Name _____

Address _____

Title of picture _____

Graphics package used _____

Machine (tick appropriate box)

- Spectrum 48K
 Dragon 32/64
 Commodore 64
 BBC B

EAST

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Set against a series of subtle backgrounds, *Sam Combat* has 8 skill levels and can be played by one or two players, with a choice of 16 moves. The combatant sprites are large and easy to control via keyboard or joystick.

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Spectrum 48K £9.99
Amstrad CPC £9.99
Commodore-64 £9.99 Cope
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Looking ahead

David Lawrence and Mark England assess the 'graphic revolution' which has taken place with the launch of the Atari ST and Commodore Amiga

One of the problems that always faces computer manufacturers is that when new technology comes along - say in the form of more freely available 16-bit processors - there are always two things that you can do with the increased power. Firstly you can decide to do existing things faster and better, which is what mostly happened in the early days of the home computer.

Alternatively, you can decide to do something new that previous generations of machines couldn't have handled at all. This decision is a very real one, because if you get it wrong the market will very quickly leave you behind, as Sinclair found when the QL was launched. Comparing it to a Spectrum, no one could really see what the power of a 68000 was being used for.

This year, manufacturers are in the happy position of knowing exactly what to do in order to satisfy the public. Whatever else a new machine must be, in order to be taken seriously it must represent a giant step forward in its graphical capabilities.

The cornerstone of the whole revolution was, of course Apple's Mac and Macintosh. To Apple goes the credit for making a reality of the fashionable prediction that one day users would be able to work with a simple graphical display like a desk-top. In 1988 it is difficult to imagine anyone fantasising a serious personal computer that doesn't work in that way, but the window icon-mouse-pointer-side-of-things is only one small part of the graphics revolution.

The most important thing to realise about the latest generation of graphics machines like Atari's ST and Commodore's Amiga is that the changes aren't just cosmetic. It isn't just a matter of adding a boring 16-bit micro and adding a lot of software to draw a few pictures on the screen or to make a few machines take orders in pictures. The new generation are in many ways built around graphics.

When you power up an Atari ST, the graphics routine that provide the graphical display of files and menus are embedded deep in the Digital Research designed Gem operating system. Where previous generations of machines had operating systems which knew how to access the screen, disc drives, printers and keyboard, the increasing number of Gem machines also know how to draw lines, polygons, cir-

cles, how to overlay a part of the screen with a box and then remove it, how to create a simple menu or move a design smoothly around the screen, how to dump a high resolution image to the printer. Tasks which software writers in the past spent days or weeks on can now be carried out by one or two simple instructions.

Commodore's new Amiga takes the process even further than Gem, with an operating system that is capable of moving or even accelerating objects around the screen without detailed supervision from the program. Perhaps the icing on the cake is that the Amiga operating system can be supplied with a lot of



separate images which it will then present in a series, thus making animated sequences a simple matter.

Alongside the revolution in operating systems goes the revolution in hardware. Some of that revolution is now the least technical. On a 68K micro, it is not surprising that few people are much taken in high resolution displays which took up more than half the available memory for a single picture. With Atari launching a one megabyte ST far less than £1800, the situation becomes a little different and the ST's 385 screen must now surely become the basic standard for future machines.

Other hardware features are not quite so familiar but they are almost all to do with solving two problems: firstly the continuous use of high resolution graphics can make big demands on the CPU chip on which the system is based, and secondly that the CPU is not necessarily

the best kind of chip for carrying out some of the tasks that graphics involves - it's simply too complex.

High resolution graphics uses a lot of memory. This is no problem from the point of view of the amount of memory available in total but constantly unchanging upwards of 32K of screen memory is an enormous task. Even the current favourite CPU, the 68000 has its limits and among them must be the fast and smooth scrolling of a 385 screen. It's not that it can't be done, simply that to do it requires a high proportion of the processing power available.

The solution is to take as much as possible of the graphics work out of the hands of the 68000 and place it into the hands of dedicated chips. Commodore showed this years ago with the 64, an unexceptional machine in basic yet with quite outstanding graphics facilities provided by the specialist Vix chip.

In the current generation Commodore still appears to have the edge with the Amiga's Agnus and Denise chips. Together these chips take out of the hands of the 68000 the tasks of line drawing, moving blocks of screen for the whole screen around, the handling of sprites, the waiting for the screen display to refresh itself and the translation of colour information in memory into a form suitable for sending to the screen. In the Amiga's case, not only are the tasks carried out faster, it also means that the main part of the system can get on with multi-tasking.

How long this edge can be maintained is anybody's guess, but it is significant that Atari, whose ST already appears to have one of the fastest screen displays around, at far less than the current price of an Amiga, have announced that buyers of the new one megabyte version of the ST will have the option of adding a "blitter" or "block image transferter" in the near future.

All of this is good news to the consumer. Properly designed graphics-based systems are easier and faster to use than text-based machines. Properly designed programs on graphics-based machines can be given all the attractive features of the machine with very little work on the part of the programmer. Indeed, one of the quickest and best ways of assessing software on the new machines is going to be to check whether they do make use of the enormous graphics capabilities of their display.

Finally, and perhaps most importantly, it's good news because the reaction to the ST and the Amiga have shown that graphics is the way that buyers want to go. They have generated an enthusiasm that has been missing for a long time. Nothing that enthusiasts, several other manufacturers are waiting in the wings to enter the fray. With Atari launching a 512K television-based ST far less than £400, the battle to bring the graphics revolution into the mass market is about to begin.

THE PLANETS



JOURNALS FOR THE RESEARCHER



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The missing link

As part of this month's Graphics feature we look at the hardware. Devices that form the link between your hand and the computer screen - which most closely matches your hand movements to plotting on screen?

Sophisticated

Programs: MS-2000 Micro Co-ordinator 94 (also MSX) Price £89.90 **Supplier:** Wignore House, 32 Serle Row, London W1X 1LQ

If you want the best in graphic packages, you should invest in a mouse - specifically, the Wignore House MS-2000, which certainly outperforms any of its rivals. We've looked at this product before, but, to recap, the MS-2000 is an excellent piece of hardware, based on the familiar mouse principle of a rotating ball beneath the unit to register movement, and two sensitive switches on the top. The software is also



very sophisticated, and is entirely controlled by icons.

The graphics software, *Chosen*, is available on tape or disc, and a font matrix is planned. The command

icons appear on the bottom of the screen, and to select your option you merely move the arrow over it.

All the usual options are there:



treatment done, line draw, dotted line, box, circle, fill, copy, delete, circle, solid circle, pencil thickness, "agony", zoom, mirror, flip left/right, and printer output.

What is unusual is that all the drawing is practically instant, the file very quick, and the "tile" effects in which you can paint whole areas in a pattern selected from choices are amazing.

The MS-2000 is a hefty 100.00, but worth every penny. It has its disadvantages: for instance, you cannot transfer tape files to disc if you update, and there is no text entry option. However, forthcoming software releases will include much more sophisticated packages, and the *Chosen* package provided with the mouse is very good to be getting on with.

Chris Jenkins

Flexible

Hardware: Megamouse plus software: Cadmouse, The Artist Price £67.95. Cadmouse £29.95. The Artist £38.50 **Micro:** BBC B (conversion to Commodore 64 planned) **Supplier:** Wignore House, 32 Serle Row, London W1X 1LQ

Wignore House's modestly named Megamouse is a sturdy looking device, and surprisingly heavy. The rotating ball is coated with rubber to enable you to use it more easily on a smooth desktop, and it has three control buttons at the front, allowing for flexibility. With a resolution of 180 points to the inch, it is compatible with AME's mouse, as if you already have AME's device, you can still use Wignore's software.

Software so far designed for use with the Megamouse comprises Cadmouse and The Artist (which is not technically a package but a different program).

Cadmouse is entirely icon driven - the icons set appears along the bottom and down the right hand side of the screen. As its name suggests, it is a design aid, rather than a picture editor.

Cadmouse offers a bewilderingly large set of options: it will work either in Mode 0 (two colours, 64x64) or Mode 1 (four colours, medium res), lines, fill, rectangles, circles, ellipses, polygons, rubber banding, cross-hatching, stretch, continuous x,y coordinate update, drag facility. Duplication and insertion, instant dimension lines, arcs to exact degrees, change speed of mouse mirror images, in fact, everything, and you can design the button stick. To be taken seriously.

The Artist, which runs in Mode 1, uses two separate screens for menus, which you must click to leave the drawing area to select options. Again, it's very flexible, and has the added perk of an animation option. All the usual drawing options (fill, stretch, etc) are here, plus some extras. A zoom mode is available, so that you can enlarge any area of the screen to get the drawing exactly right.

It will take in digitised pictures and alter them, and you can design your own brush - choose red and white stripes and draw long lines of both, for example. The only quibble is the fairly hefty price tag of £39.

Wignore also supplies a separate release pack for both programs in LIS which allows you to do colour screen dumps.

Christopher Jenkins



Worthy buy

Program: Trojan Cadmaster Micro Commodore 64 Price £10.95 **Supplier:** Trojan, 356 Detherys, Dartmat, Swansea SA2 7TF

Trojan produces a number of lightpens, including models for the Dragon and BBC. Cadmaster is the Commodore 64 version, and a worthy buy, offering use of all 16 colours on the 64, pixel accurate graphic editing, and a huge range of commands.



Particularly interesting are the Call options which give lines thicker along one axis than along the other.

At £10.95 the Cadmaster is not as advanced as the Microscribe, but offers more graphics options.

Chris Jenkins

Option range

Hardware: Amicon Microscribe Lightpen Micro Commodore 64 Price £20.95 **Supplier:** Amicon, 62-64 Queen's Road, Reading, Berks, RG1 4EF

For ambitious graphic artists who want more than software packages, it may be worth investing in some specialist hardware, such as a lightpen. Up until recently most lightpens were unreliable and poorly supported by software. Now there are several on the market which come with excellent graphics software, and are expected to reach higher standards.

All lightpens work by roughly the same method. By checking the position of the cursor against the screen scan timing, the software can react to the position of the lightpen on the screen to alter the graphics displayed. It's a fast and easy way of controlling graphics.

The Amicon Microscribe lightpen is a sophisticated piece of technology, which dispenses with the necessity for using any keyboard controls by having a sensor built into its tip. The



barrel is of stainless steel and there is a long flexible lead.

The lightpen plugs into the 64's joystick port. The software, provided on cassette with an option to dump to disc, interacts very well with the hardware, to the extent that the cursor will react to lightpen movements even when the pen is three to four inches from the screen.

The graphics software Creative (there are two other programs with the package, a graphic calculator and a programming utility) offers a good range of options, selected from a series of menus using the pen.

At £20.95 it's worth considering if you dislike the stressors of a joystick-driven system.

Chris Jenkins

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The Pixel Palette

For our special feature this month, we are looking at graphics on your micro. Here we review some of the most interesting software packages, looking not so much at those that would be useful for artists as those that make artists of us all . . .

The idea of what a graphics package is has changed recently. It's a change as much to do with intentions as it is to do with technology.

Even a couple of years ago, all that was expected of a graphics program was that it should give the artist freedom and flexibility that were as close as possible to those of paint and paper, with some instant geometric shapes and a few time-saving elements thrown in. The presumption was that the skills necessary to create pleasing results were acquired elsewhere. The programs were tools for artists more than tools to make people into artists.

Recently that view has changed. Some of the programs mentioned here have features so powerful that familiarity with the system and imagination have become considerably more important than the computerised equivalent of conventional drawing skills. Get a shape right once and you need never get it right again - use powerful commands to take that shape and repeat it endlessly on your screen. Getting precise details right is made much simpler by options to magnify the screen and work pixel by pixel . . . and so on.

Colourware, though conceptually different from the other programs here, with different intentions, exemplifies some of the changes outlined above. It produces astounding and changing graphic visions, using principles of sequencing more like those found in electronic music . . .

Drawing mode

Program: Degas Micro ST Price £28.95 Supplier: Artisoft, 65 Long Acres, London WC2.

Degas is one of the first graphics packages for the ST, apart from those supplied with the machine. It is quite amazingly easy to use, but fairly powerful. The on-screen help, of course, the screen read both for menu selections and the actual drawing on screen.

Degas uses a straightforward command format - options are simply listed in a series of menus and boxes representing choices. Combinations of choices are highlighted. It doesn't look particularly elegant, but proves considerably more helpful than a series of dodgy icons.

There are 18 brush styles available with a choice of drawing modes, depending on whether you current tool is freehand sketching or precision plotting of individual points. As a feature distinct from the brush style, there is a choice involving the actual kind of line drawn, eg. continuous, dashes, dots and dashes.

Degas can be filled with textures derived from a choice either of 38 preset patterns or from patterns you have customised yourself using a grid

representing each individual pixel. Again the mouse cursor is used to switch on and off the individual pixels.

More advanced features include copying blocks of screen from one location to another, particularly impressive is X-Ray Copy which takes your defined block and superimposes it on top of the existing background without rubbing anything else out. Another excellent feature with a wide number of possible parameters is Shadow which allows you to generate a 'shadow' of your drawing at a specified distance and direction.

Text and Font features form a significantly larger part of Degas than most other graphics programs. It is possible not only to design your own Font styles, but to use these styles in various permutations of height and width within Degas. All features associated with drawings can be used with text including X-ray superimposition and shadow.

The manual explains the features of Degas very clearly and includes some useful technical information on printing out your pictures, should your printer be significantly different from those already provided for on the Degas disc. Easy to use and powerful too. What more could you want?

Graham Taylor

Detailed

Program: Art Studio Price £14.95 Mitsu Spectrum Supplier: Paintbird, Upper St Martins Lane, London WC2.

A graphics program so good it not only has every feature professional artists could possibly want, it even does its best to rewrite the dreaded Spectrum hardware.

Art Studio has a feature which will ensure that your designs and drawings do not overlap an attribute square. It means that, although you can position everything exactly where you want, you can ensure that colours will always fill properly without any unexpected staircase edges of the wrong colour.



The cross used with Art Studio actually appears to help rather than hinder finding and selecting the right commands - not always the case.

The drawing pan is definable from a single pixel for tightly detailed work to a spray of pixels for an airpan effect. Like Degas, there are extensive provisions

for incorporating your own lines in the program.

Conventional features like circles, ellipses, squares and rectangles are mixed with sophisticated options like 'roughly' - to examine a section of screen in great detail - and block options to take an area of screen, manipulate it both in size and position and replace wherever you wish on the screen.

The program can be customised to work either via the keyboard or using mouse or joystick. The version of Art Studio for the 126 makes use of the greater memory of the machine for picture storage, but is not significantly different in any other way. Versions for Commodore and Amstrad are in preparation. A marvelous program.

Graham Taylor

Pedigree

Program: Melbourne Draw Micro
Amstrad Price: £34.95 **Supplier:** Melbourne House, 66 High Street, Hampton Wick, Surrey TW1 4DB.

Though there are undoubtedly many sophisticated packages, the Spectrum version of Melbourne Draw is probably still used by more programmers for games graphic design than any other package. The reason for its success seems to be due not so much to its range of functions as having the right functions – it is possible to achieve just about any effect using one combination or another.

Melbourne Draw has now been converted to the Amstrad, where end results are potentially far more impressive than on the 'you can't put that colour 'ere mate' colour attribute problem-ridden Spectrum.

Commands in Melbourne Draw are rather like those in Conscript and other business software. To begin with, selections are made via a series of drop down menus.

Once you become familiar with the program, almost all of these options can be accessed by simple one or two letter commands.

The real strength of the program resides in the way you need only do anything once. For example, if you design a complex shape (referred to by the program as a 'template') you can put the program to remember it and then use and re-use that template in any part of the screen.

You can even 'paste' with it, creating complex multi-layered effects. Sections of the screen may be similarly defined as blocks and mirror effects may be



achieved almost either a horizontal or vertical axis.

There are paint spray effects, a choice of cursors, you can include text in your picture and it has the ability to save not only pictures, but textures as well. The tape includes three basic programs for loading completed pictures into your own programs (one for each screen set) and an extremely helpful manual.

For final proof of just what this program will do on the Amstrad, take a look at some of the demo pictures provided with the program.

Graham Taylor

The Inner light

Package: Colourspace Micro
Amstrad £20.97 Price: £18.99 **Supplier:** Llaniasoft, 48 Mount Pleasant, Todley, Harle.

Colourspace was originally developed as Psychocadia on the Commodore 64, but the £20.97 version is superior even to the version of Colourspace on the night for Atari.

This is a live interaction 'light synthesizer', creating moving patterns under the control of a joystick (on the 520, the mouse). A cursor dot can be switched on or off and there are seven symmetry modes, four 'local lightforms' creating patterns close to the cursor position, four 'global light forms' for the whole screen, 'explosion' and 'explosion' modes, horizontal and vertical expansion, etc.

Increasing lines of blocks, squares, circles and so on can be created, as can more three-dimensional rotating patterns. The 520 Colourspace is compatible with Neochrome, the graphics package bundled with the 5T, so it's possible to load in still pictures and create moving patterns over them.

If you're prepared to accept slightly slower plotting, it's possible to use



a Sheffield background with various types of symmetry, which gives effects like the final screen of 2001. Colour and colour variation, symmetry and complexity of the patterns can be varied 'live'.

Although it can be sequenced, Colourspace is basically a live performance 'light instrument', a comparison with the opening credits of 2001 (who being only a starting point, inspired by 'Paul Floyd, Genesis, The Lesertans, Marillion, Rush and many more'). Colourspace can truly be described as the life equivalent of the glass kaleidoscope, only better. It really has to be seen to be believed, and should be a compulsory purchase for anyone interested in exploring the graphic abilities of the 5T.

Chris Jenkins

Textured

Program: QL Paint Micro QL
Price: £14.95 **Supplier:** Sinclair Research, Milton Road, Cambridge CB4 4BT

Not a lot of people know this, but Talent is the company responsible for the Amstrad version of Melbourne Draw featured also on this page. Sinclair's QL Paint program was also written by Talent and is very similar to its Amstrad counterpart.

QL Paint uses the same mixture of commands and drop down menus, although icons are used to represent the main menu options. It's becoming



less and less convinced by icons – the 'picture worth a thousand words' principle only works where the meaning of the picture is abundantly clear.

The features of the QL program are almost exactly the same as those on the Amstrad Draw. Basic drawing is via a variety of brush styles including an airbrush effect which gives a slightly hazy spray area.

Block commands allow you to isolate a section of your screen, save it, and use that defined section at will on the screen. Having drawn one house, for example, you could use a block command to create a row of them. Blocks can also be manipulated by 'mirror' commands.

The texture command allows you to create an area of your own design which can then be used as the 'paint' for the brush. For example, you could design a simple pattern to represent sets of grass and then 'paint' an entire field of them.

A nice touch with the package is a short section written by a computer artist, not so much on how to use the program, but how to get the graphical effects you imagine.

Graham Taylor

Graphics Reviews

Simple

Program: Paintbox **Price:** £2.95 **Manufacturer:** Commodore **Supplier:** Audioquest, 12 Chisham, Enterprise Centre, Station Road, Thane, Essex.

One of the best specified home computers for graphics use is the Commodore 64, with its 30 colours and wide range of graphics modes. It's no surprise then that there is a good deal of powerful graphics software designed for the machine.

Many of the best-known packages, such as QuikDraw's Double and the ZSoft Paint software distributed by Audioquest, have been available for some time and have been reviewed. There are, however, still good packages coming out, with a wide range of features and varying price tags.

Of the more recent releases, one of the best inexpensive packages is Audioquest's Paintbox cassette at £2.95. Backed with a version for the C16-Plus/4, Paintbox is straightforward to use. Over-

coming the perennial problem of having to flip from a main display to the drawing display by using a "docket" of options beneath the screen, Paintbox has a familiar range of drawing options: draw, lines, arcs, box, circle, colour, brush shape (a choice of eight), fill, copy, delete, and so on. The 64 version has two separate drawing areas.

Paintbox can be saved or loaded to tape or disc, and control is by keyboard or joystick. Paintbox is certainly a good beginner's package.

Chris Jenkins

Fine Art

Program: The Artist **Manufacturer:** Spectrum **Price:** £9.95 **Supplier:** Bookshops, 13/15 Riverside Street, Covent Garden, London WC2E 8LN.

The Artist is another graphics program for the Spectrum. In features it closely rivals the Art Studio and for some people can be considered an equally valid choice.

There are facilities to cut and paste sections of drawing, to enlarge the local area being worked on for fine detail work, as well as a choice of brush sizes and paint textures.

The Artist also includes extensive EDC handling facilities so that both text

and fill patterns can be totally redesigned.

The Artist uses a system not found in most other graphics packages to define line positions. The screen actually contains two cursors, one is the conventional one controlled by keyboard or joystick, the other is a "reference" cursor which mimics the movements of the main cursor at a given distance. Lines can be drawn from reference to main cursor or, in other modes, the two cursors can be used to tandem for parallel effects.

It's worth mentioning that the version of The Artist currently available is shortly to be superseded by Artist 2. Although unseen at present this is claimed to have built in routines for connections to a wide range of printers, lightpens and mice. The cut and paste facilities are



enhanced and spray effects are included.

Price for The Artist 2 will be £14.95 and it is intended to be compatible with most makes of mouse, as well as the more common joysticks.

Graham Taylor

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Terms and jargon

Finally, this week, thank you to everyone who has written to me with queries and ideas for the column. I'm still ploughing through all the correspondence, but I'll devote a Communications page soon to answering them.

In this issue, however, in response to a number of pleas, I'm going to start a glossary of terms and jargon (and there's plenty of it) associated with networking.

Some of the terms may seem very basic, like, for example, the word *modern itself*, but bear with me.

ASCII

The industry standard series of codes which represent different characters, eg. A has the ASCII value of 65. When modems talk to each other it is ASCII codes which are sent. ASCII stands for American-Standard Code for Information Interchange.

AArch

A variation of the standard ASCII used by Aarch; it stands for Aarch ASCII.

Baud

The measure of speed of data transmission in bits per second.

BB/BB

These are abbreviations for Bulletin Board.

Bulletin Board

This is a free service similar to Prozed/ Microwan. Bbs have many features including teleconferencing and E-Mail.

Carrier Tone

This is the name of a tone which is given if a modem is on-line.

CITT

The name of a body of people who have established world wide standards in speeds and other areas of communication. America is about the only country not to comply to these standards.

Compatible

The name of the software on which the IBM boards and some others run. It is called an Prozed compatible.

Dumb Terminal

This is the name given to a terminal on a network which has no computing ability. It is purely for transmitting and receiving of data. It has no 'intelligence', hence it is dumb.

Duplex

This describes whether communication is one or two directions at one time. Full Duplex - communications in two directions and data is sent in both directions at the same time. Half Duplex - communications in two directions but data is only sent in one direction at one time (sometimes called Simplex).

Echo

Echoing is printing of transmitted/received data to the screen or printer. Local Echo - This means that the data transmitted by you is 'echoed' or printed on your screen.

Electronic Mail (E-Mail)

This is a system which enables a person (or company) to have a 'mailbox' on a bulletin board. People can leave messages to the owner of a mailbox, and the owner (and nobody else) can see these messages or mail boxes the same electronic mail.

Information Provider

This is a person or organisation who provides information for Bbs. The largest and best known IP is Microwan 800, which is an information provider for the Prozed Bb. Sometimes another name IP or Prozed IP are not only for Prozed but for all of the other 'free' public Bbs.

Intelligent Terminal

Simply the name given to a terminal on a network, which has computing power internally and doesn't have to use another computer to perform all of the calculations etc., which it has to perform. Your computer with its modem is an intelligent terminal. This is the opposite to a dumb terminal.

Modem

Stands for MOdulator DEModulator. It converts signals from the computer to tones which may be transmitted over the phone lines and then converted back again.

Microwan 800

The information provider on Prozed which provides all of the information associated with computers and home computing. Microwan is Prozed's largest database with almost 25,000 subscribers. It is about to launch a 'Smiley Supplement' type magazine area, which will deal with many subjects not directly connected with computing.

MUD

Stands for Multi User Dungeons. It is a multi-user adventure which was begun at Essex University and is now available on computer and also from British Telecom. Many people with modems may log-on to a MUD game at the same time, and as they play they can meet each other, have fights, battles, conversations or even make friends. MUD is transcendable and I'll report on it soon.

Multiplexer

This is a device which combines data from many terminals into a single stream of data which may be sent over the phone lines. At the other end, another multiplexer can convert this single stream of data back to many individual

sets of data, the same as were sent.

MSB

The name of a piece of software on which some Bbs are run, on the BBC B.

Parallel

1) Refers to an interface used for parallel data transmission. The Centronics interface is the most common example on the market.

2) An expensive method of transmitting data, it involves sending the whole binary ASCII value of a character at the same time. Parallel transmitting is used a lot for sending data to a printer.

PS

Packet Switching System. PS enables you to call all over the world at the cost of a local phone call. You could phone Australia for the same charge as your next door neighbour. An initial charge, as well as a quarterly fee do make PS expensive to the average user. More on PS in future columns.

Prozed

The name of the largest Bb in Britain. It is run by BT.

Protocol

The data protocol is the number of bits, stop bits and whether or not the parity of the data is even, an example is 7 data bits, 1 stop bit and odd parity.

Rx

Abbreviation for Receive

More glossary and terms next week in the meantime here's this week's BB Top 10:

Rank	Modem	Rate
1	Modem	2400
2	2220	2400/3000
3	2220	2400
4	2220	2400
5	2220	2400
6	2220	2400
7	2220	2400
8	2220	2400
9	2220	2400
10	2220	2400

Three new Bbs for you this week: the first one's ARSE in London. It's 200/200 baud, 24 hours and number is 01-473 5011. Secondly there's the OOOO Bb, that's OOOO as in OOOO CComputer. It too is 200/200 baud and is in Tyne-side, the number's 081-285 1944 and it's 24 hours a day.

Lastly there's C01, this too is 200/200 baud but it's also a ring back line. I don't know the hours but the number is 01-429 2047 and so it's obviously in London.

David Wallis

If you have any queries, type an comments to make about any aspect of future communications, David Wallis would love to hear from you. Write to him at Popular Computing Monthly 12-13 Little Newport Street, London WC2R 3PP.

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EXTENDED BASIC

by Eric Deghave

Last week we looked at how we can tap in the Basic interpreter and introduce our own commands. But a problem appeared on how to control a large number of commands while still having a program that can be easily changed to particular needs.

One of the ways of solving that problem is by using some sort of 'look-up' table. The idea is a bit like using a phone directory: if you want to contact someone, the first thing you do is to look for their name in the directory. If it is not there then they do not possess a telephone. But if you find the name then you can look on the adjacent column for the number. I will use a similar technique here: we take a character from the Basic text and compare it to all our possible commands. If a match is found, the address of the particular routine concerned is found in an adjacent table. The address is picked up, and the program jumps to that particular address. After execution of that routine, control is given back to the Basic interpreter.

In the event that no match is found in the table, the program will jump back to the routine which associates a 'standard' Basic statement.

The program is divided into five parts. The first is just the initialization and the change of the routine address. Then next we have the routine that checks if we have a valid command, followed by the routine that gets the address of the particular routine.

Next we have the routines themselves which are called from Basic. (I will refer to these from now on as 'modules'), and finally the various tables containing the possible commands and the addresses.

The very last part is a routine that will create the address table, and once your extensions have been completed and tested and your table is filled, you can delete this routine, but it is most useful if you want to assemble at other addresses than \$C000.

Program Notes

Whenever the return key is pressed, the

characters typed in are checked by the program. What is checked first is an identifier character, in this case an underbar mark (this saves looking through the whole table for every character).

If the character is truly a 'T' then we check on the following character by going through the whole table and looking for a match. Once a match is found, the position of the command in the table will be held in *x*. We then use the contents of *x* to get the address of the module, and jump to that particular address. Simple isn't it? . . .

The modules included will work as follows:

It will change the colour of the border
It will change the colour of the screen
It will change the colour of the character

After introducing the extension, try and run the following basic program: `10 for x=0 to 10:20 print "hello"; 20 for i=0 to 40 next i.`

This should flash the screen while writing in different colours the word 'hello'. More next week.

```

1000 REM ***** EXTENSION ROUTINE *****
1010 REM THE ADDRESS OF THE ROUTINE *****
1020 REM *****
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1110 REM *****
1120 REM *****
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1190 REM *****
1200 REM *****
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Twice as difficult

An interesting review package attached to my desk the other day—The Spectrum 128 version of *Three Worlds in Paradise* from Micro-Cosmos together with a note apologizing about not announcing it sooner. You may have noticed that other *Shadow of the Unicorn*, the much publicized range of Micro-Plus games disappeared, or rather did appear but without the extra memory.

Now it seems that all the effort in producing the games has not been wasted and there is still the option of making it at least twice as difficult for yourself to rescue Wilma and the rest. (Incidentally if you aren't fond of the characters yet, it is better than any *Wally* game to date, shooting a refinement of all the techniques used. Highly recommended to any 128 owner).

What I can't understand is why the Spectrum 128 is getting a lot of new games software that uses all the memory, but the Amstrad and Commodore 128K machines have very little. Perhaps it's because they have more disc software instead so you get the same effect in the end or perhaps a lot of Spectrum software writers have been released from the prisons that they were really reaching the limits of its abilities.

On with the tips. Mark Lynch of Leighton Buzzard writes, "I have been looking at *Sphinx* for the BBC and Electron by Superior Software and have discovered the following:

"If you type `MA770+8AC4E6EA` then `CALL770` to start the game you will be able to see all of the maps.

"To redesign any of the maps you need to find the codes by which they are represented in memory.

"The maps are all 32 x 32 blocks in size but there are only 32 different blocks, so each map can be represented by a five-bit binary code. This reduces the size of the map in Ram to only 960 bytes. Each line can therefore be represented by 180 bits or 30 bytes.

"Reading from right to left, if you add each five-bit sequence in turn it will produce a long string of bits 30 bytes long. Repeat for all the 32 lines of the map and you will end up with 960 bytes in all.

"There is one final trick though, when they are stored in memory each byte has

to have the order of its bits reversed.

"By experimenting with this system you will find that you can discover the way the maps are created and can be stored. To find out which code belongs to which block on the map, create a dummy which uses all the five-bit codes 00000 to 11111 in turn and note the results.

"To load a new map into the game in place of the existing map you must load the last part of the program to address `A1100`. The first map will then be at `84900`, the second 940 bytes after this, etc.

"For anyone who thinks they will find this difficult, I have produced a program that will let you *Sphinx* maps be created on screen and compacted. If anyone is interested I would be happy to negotiate a sale."

Thanks very much for that, Mark. If anyone wants to get in touch write to him at 71 Cheshamton Road, Linslade, Leighton Buzzard, Bedfordshire LU7 3UB.

John Buckley of Liverpool has sent in a couple of useful tips for games without actually specifying which machine they run on. The choice is between Spectrum and Amstrad although I suspect that he actually has a Spectrum. Even so the tips may work for both machines.

"To see all of the rooms in *Cashflow*

two blocks that look completely impossible to reach. To get in it go down to level three and go around until you find a room with three skulls in it. In between these you will find a jump pad. You must drop two objects on to the pad so that they fly up a floor. Then stand on it yourself and you will come to land on top of the two objects in the impossible brownish room.

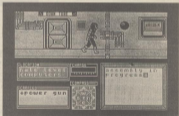
"A bug occurs when you pick up the brownie and the two objects. Sometimes when waiting off in a certain direction you will start to go all over the place and the only way to stop it is to reset the machine and load the program again.

"But I have found that you can stop this happening by getting the brownie before any other creature."

That's a timely tip for those of you who will be receiving your *Arcade Champion's* Handbook about now.

Paul Lynch, also of Liverpool and one of *A House of Holes* has both written with some plans for help with that other excellent *Changyia* game, *Manapart*. Again a complete map and helpful hints will be found in the *Arcade Champion's Handbook* but for now here are some solutions to your particular problems.

The reference to *The game* is the clue one, in the game room means that the key you must find is something to do with



Manapart/Three Changyia Games

by Palace Software go into any underground room and then press the *Q* key. You should then see a cursor appear on the bottom of the screen.

"Next type in any number from 0 to 90 to see all of the rooms. If you type 181 you will be in the Golden Brown room on top of the paragon. All you then have to do is jump right on to the broom to see the special message for those who have finished the game.

"You cannot get a top score in *Sweaver's World* unless you approach things the correct way. On the second floor down there is a brownie on top of

games. Try collecting the step ladder and the calculator (a, the actor - perhaps?) both of which you should have found by now and factor three.

This is a typical example of the dreaded game that permeates the white game. Another to the use of facts to get into the character (green).

When you get a satisfactory take note of the message about "things alive" - if you see this clue wisely you will find a connection between three objects that can be factored to give your game a boost.

Tony Kendall

Tony Bridge's Adventure Corner



Easy system

Over the past few years, Adventure Corner has been host to many Quill games, most of them written for the Spectrum. I've seen one for the Commodore, and one for the Amig, which I shall be looking at in more detail as soon as I can reconstruct my Amig. The Amiged has its own version of The Quill, but I have yet to see an adventure from this source. Incomat's GAC is, I think, rather more attractive to the novice, and I'm sure that we'll see a lot more adventures from this source in the future, although the newer versions of Gamed/Quill's Genesis may prove to be even better value.

Linda Wright, who is also known as the House Elf, is the first reader to send me a GAC'd game: her adventure is called Sharpe's Deeds, and concerns your quest, as the heir to great-uncle Ferdinand Sharpe, to find the 12 treasures of his Inquest and thus complete an unknown task.

I hope that Linda will forgive me making mention of her adventure here, as I believe that she has not intended to market the game, and in fact has asked me for advice in this regard. Good adventures will always find a market, but to get your game widely known, I would advise you to approach a mid-range adventure label. If they don't like your game, and you believe in it, then keep plugging away (just don't let any company keep your game for more than four weeks or so without a firm reply). If your adventure is better than the average, you will eventually get a release - and it is obviously better to let a professional

company handle all the necessary advertising and promotion, without which games just can't be sold in large numbers nowadays.

Linda makes some pertinent comments regarding GAC: "I have found GAC easy to use and flexible. I needed a system that was easy to understand - as for all the planning on paper that Kevin Martin complained of (PCW, Vol 8 No 2), surely that is a necessary requirement in producing any adventure (and part of the fun?). As for T. Corby's criticism (Vol 8 No 4) that altering the map during play is impossible, it isn't, as I have done so in Sharpe's Deeds. It takes a little thought, of course: hidden rooms, new exits and so on have to be regarded as objects and brought in when the player has disposed of the obstacle. My main criticism of GAC arises from my being able to use as many locations with graphics as they claim - how would you be able to have 9999 rooms with graphics and still be able to play any worthwhile adventure? It would also be nice if you could have a title screen to watch while the program was loading. Little points I know: steady,

compatible with my 64k! In the occasional strange hierarchy shows up, but fortunately, this doesn't detract too much from the general proceedings. The graphics are nicely drawn, and Linda has retained the temptation to cross very detailed, memory-consuming pictures, preferring rather to stick to simple line-drawings. These are, however, quite adequate - I can't wait, though, to see what authors might be able to do with disc storage, when they will be able to roll in pictures as required from disc rather than Ram.

I'll return to Quill's and GAC's adventures at a later date, as I still have several hiding in the In tray, but for now, there's just space to mention a D&D program for the Amig. Many readers have asked me over the years "do you know of a good old D&D book about?" and I have to say that there are not too many about, apart from the obvious Swords and Sorcery. The BBC has been particularly starved of such a program, but now Epic Adventures has come in the rescue with Demonic World Encounters to Hades, written by Clive Hooley.

This Monster and Dungeon Creator is disc-based, and extraordinarily colourful. It's also very good, boasting many very jolly tunes (and they get jolly exciting, too, as some things do take a while!). The manual that arrived with the program seems to be a production copy - I hope so, as the general text is understandably unimpressive and really wafery, not fitting for above the level of "watch the black-keyed object called a computer".

If you can resist the temptation to throw up, then you're in for a treat.

Several modules allow, first of all, the creation of characters (Fighter, Lord, Cleric, Mage and so on), armour, weapons (javelin-axe, dagger, sword) and spells (Maneater of Night, Inventory, etc), and then on to setting up the map for the adventure, which, as you can guess by now, is mostly combat-orientated. A maximum of 255 rooms can be set up, with 124 objects. These objects include 30 "portable" items, poisons, monsters and so on. A list of recognised words is then drawn up. Set up is accomplished by several very attractive and easy-to-use menus and situations can be made at any time.

The final adventure is a must for any fan of 'n' slash dungeons, as just it, it's surely the best value around for the Amig D&D set. Epic Adventures, PO Box 850, Bates, Surrey.



Swords and Sorcery

I'm pleased that I bought GAC and plan to use it frequently."

Linda's program is an attractive game, although the plot is not wholly original: the problems that you'll find are nicely logical yet diverting. With plenty of well-illustrated locations to be explored, Sharpe's Deeds is a good introduction to adventuring to anyone who has just invested in an Amiged. An interesting aspect of the game is that other characters in the scenario have to be spoken to and questions asked by you; only by doing this will you come into possession of items necessary to your further progress in the adventure. The adventure was written on Linda's CPOMAG, and isn't, therefore, 100%

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Peek & Poke



Off the screen

Simon Jay, of Solihull, writes:

Q Can you explain why, when using Prime MM's *OP 2.0* in a program for moving a character on the screen, the program stops working if the character goes off the screen.

A Firstly you have to think what it is you are actually doing.

You are poking the screen display file with data. If your character has disappeared off the screen then you must be poking somewhere outside the screen display area, and thereby corrupting another part of Ram, say, the program or variables area.

Try doing a few runs with values of *x* and *y* that take you

outside the screen and see what part of memory you would be poking.

Spectrum keyboard

D M Williams, of Liverpool, writes:

Q Readers of *Popular* may be interested to know that Spectrum membranes can be purchased for around 18. They are easy to install and are available from spare retailers. In case people cannot find one in their area, I can provide two addresses: EE Computer, Dale Street, Liverpool and, The Spare Workshop, 12 Station Approach, Epston, Surrey.

A It is good to hear that the old Spectrum keyboard membranes are still available at a reasonable price. I wonder if the same is true for other 'vintage only' components?

Power supply

Harold Fabian, of Bern, Switzerland, writes:

Q I own a Sinclair QL and I've the following

problems: very often the cursor on the screen stops flashing and I have to reset the QL. This also happens when I work with *Pain* programs. All things which were typed in are lost. Perhaps I have a problem with the power supply, as on the continent I work with 230 volts.

A My guess is that your problem is either caused by: a) a faulty QL... I suggest that you get that checked out by a dealer if you can, or, b) a 'dodgy' power supply. If the supply fluctuates greatly this could cause Ram contents to be lost, even if only partially. There is not much I can suggest there, except that you could investigate the possibility of running your QL via some sort of battery.

Musical notation

Frank Pascha from London writes:

Q I would like to play classical music on my Amstrad 126, but I don't know much about musical notation. Is there any way I can direct music from my cassette recorder into my computer, then by analysing the input, determine the

music being played?

A There's no single answer to your question, but some options that might suit your requirements. You could look at a music package like *Bandaid's Music Spaces* - this will allow you to compose music on the three channels of the Amstrad's sound chip in conventional music notation. Although you say you are not familiar with musical notation, you wouldn't find it too difficult to get hold of some music and enter it into the program. You could then listen to it and analyse it bit by bit.

You do have a problem when you specify 'classical' music as your interest with only three channels (three single voice instruments if you like). Most classical music is far too complex to replicate, although you might manage some simple Bach. My advice would be to seek out those special music score books which are designed for Games, Yamaha, and other keyboards with 'easy play' facilities. Here the music is simplified such that you might be able to squeeze it into your machine.

As another answer to your question, it is theoretically possible to convert sound into digital information on your Amstrad.

The Rogue Program



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Commodore 64 Chip	£2.95	6505	£2.95
Commodore 64 Chip	£2.95	6506	£2.95
Commodore 64 Chip	£2.95	6507	£2.95
Commodore 64 Chip	£2.95	6508	£2.95
Commodore 64 Chip	£2.95	6509	£2.95
Commodore 64 Chip	£2.95	6510	£2.95
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Top Twenty

1	(-)	Drillham (CMA)	Rowson
2	(2)	The Art Kang Fu (Various)	Imagine
3	(14)	Commando (Spectrum/CMA)	Elite
4	(3)	Hardball (CMA)	ES Gold
5	(-)	PA Cup Football (Spectrum/CMA/Amstrad)	Virgin
6	(4)	Exotic (Spectrum/CMA/Amstrad)	Cosmos
7	(21)	Big Fun (Spectrum/CMA/Amstrad)	Artisoft
8	(3)	Formula One Simulator (Various)	Mastertronic
9	(6)	One Man and his Droid (Various)	Mastertronic
10	(8)	Hyperspace (Various)	Imagine
11	(8)	Movie (Spectrum)	Imagine
12	(11)	Action Rider (Spectrum/CMA/CMA/Atari)	Mastertronic
13	(-)	Steve Davis Snooker (Various)	CDS
14	(-)	Barry McGuigan World Championship Boxing (Various)	Activision
15	(-)	Big Max (CMA/CMA)	Mastertronic
16	(-)	Lord of the Rings (Spectrum/CMA/Amstrad/EBC)	Melbourne House
17	(13)	Finders Keepers (Various)	Mastertronic
18	(10)	Water Games (Spectrum/CMA/Amstrad)	Epyc/ES Gold
19	(17)	Elite (Spectrum/CMA/Amstrad/EBC)	Firebird/Rowson
20	(14)	Way of the Exploding Fist (Various)	Melbourne House

Figures compiled by Gallup/Microscope

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Readers' Chart No 66

1	(2)	Elite (Spectrum/CMA/Amstrad/EBC)	Rowson/Firebird
2	(3)	Commando (Spectrum/CMA/CMA)	Elite
3	(2)	The Art Kang Fu (Spectrum/CMA/Amstrad/EBC/AGE)	Imagine
4	(8)	Movie (Spectrum)	Imagine
5	(1)	Lord of the Rings (Spectrum/CMA/Amstrad)	Melbourne House
6	(1)	Water Games (Spectrum/CMA/Amstrad)	Epyc/ES Gold
7	(8)	Search and Seizure (Spectrum/Amstrad)	ESL
8	(-)	Spellbound (Spectrum)	Mastertronic
9	(-)	Spindle Of (Spectrum/CMA/Amstrad)	Microsoft
10	(5)	Exotic (Spectrum/CMA/Amstrad)	Cosmos

Writing House No 66 "Spindle Post from Chess", from T & B Books, of London NW4, who will act as a reasonable middle man to Michael Knight, of Southampton, No. 10 Commodore press, then Ann W"

Commodore 64

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2	(2)	Hardball (ES Gold)	25.00
3	(2)	The Art Kang Fu (Spectrum)	25.00
4	(2)	Exotic (ES Gold)	25.00
5	(4)	Formula One (Spectrum)	25.00
6	(5)	Exotic (Chess)	25.00
7	(1)	Elite (Spectrum)	25.00
8	(4)	Elite (Chess)	25.00
9	(1)	Exotic (Chess)	25.00
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7	(-)	Water Games (Spectrum)	25.00
8	(-)	Spellbound (Spectrum)	25.00
9	(-)	Exotic (Chess)	25.00
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All figures compiled by Gallup/Microscope

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You can still vote to the chart without making up a slogan - but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to change your magazine) and send it off to: Top 10, Popular Computing Weekly, 12-13 Little Newport Street, London WC2H 7TF.

Voting for Week 66 closes at 5pm on Wednesday March 16, 1988. Entries received after that time will not be eligible for inclusion in that week's voting. The judges' decision is final. Only one entry per individual per week will be allowed.

Name	My top 3 Voting Week 66
Address	1
.....	2
.....	3
My phrase is	

New Releases

ENTERTAINING

All things considered, there are very few games programs based around the idea of looking into computers. Activision's *Wizard* seemed like it was, but wasn't really. Instead, *Spectra 2000* is the only example I can think of.

From then for *SuperCom* for the Spectrum, a real little program that has the additional advantage of being cheap at £1.99. It isn't terribly sophisticated, but it's surprisingly entertaining. The plot involves using your computer to find your way through to a computer controlled by the usual criminal mastermind, who is holding the country to ransom with the usual nuclear warhead.

The path through to the main computer is via dozens of numbers and codes which must be discovered through a mixture of deduction and trial and error.

Beginning with a half com-

pleted number, you use a link analysis device on each new telephone line to give you bits of information about numbers and codes. When you ring a number, the Spectrum makes a reasonably fair impersonation of phone bleeps and blips and if the number is correct, you are presented with a screen full of information that may contain more clues and more numbers.

It's not astounding - the screen displays are very basic-looking and the instructions don't tell you vital things like the 1 to 9 you need to return to the main menu. Nevertheless, I think you'll be hooked.

Program SuperCom
Price £1.99
Media Spectrum
Supplier Atlantic Software
18 Princes Street
London SW 8PZ

UNUSUAL

Animator 1 is a rather unusual utility for the Spectrum that is more than a conventional artist type program and yet not a complete games designer. It is best thought of as a package to help with all the graphics display elements of game design.

The program is designed around a series of separate menus each called by a Caps-locked key press. The most straightforward of these is *Design* which gives you attributes, variable cursor speed, colour, etc.

Line mode and Circle mode are subsets of this option, letting you draw basic outlines of shapes in the usual

Pick of the week

ESSENTIAL BUY

There's no denying it, there is a disturbing trend for the production of blatantly Sassy programs. 'Super graphics and sound' say the glossy ads - it looks fancy in the shop - but when you get it home and load it up, it plays like a pig. Oh, that more games were like *Thrust*.

Programmed reputedly by a physicist (who does what these rumours, it is said, these graphics make it look like an updated version of *Linear Launcher* or *Chamber* and the sound during the action is, well, minimal. So what makes it the best release of its kind this year?

The scenario is straightforward enough... you have a ship (under constant gravity - downwards...) with a limited amount of fuel. You must manoeuvre through subterranean tunnels (putting up some fuel - tapping/arriving gas emplacements) to collect a heavy ball, which attaches to your ship via a rigid, but

pinning rod... this is the clever bit. The ball is much heavier than your ship, but swings free - then you remember 'momentum'! Naturally, if you or the ball collide with the tunnel sides, you're dead. All you have to do then is get to the surface (you've not running out of fuel, are you?), blast the reactor (what reactor?) and you have ten seconds to reach the top of the atmosphere.

Maybe it's the playability, maybe it's the responsiveness of the controls (designed only... this is the stuff) or maybe it's because it is so different. Whatever it is, at £1.99, it can be regarded as the essential purchase for the hardcore gameplayer for this year.

Program Thrust
Price £1.99
Media C64/16
Supplier Firebird Software
Widdowson House
Upper St Martin's Lane
London WC2M

way. Print mode lets you shoot a line or text around and includes facilities to compress and alter the spacing between letters.

The *Screen Pad* contains a variety of options to manipulate the entire screen, allowing the bit image and/or attributes around by either pixel or single character.

Key to the program is the *Sprite menu*, which allows you to store sprite designs in memory, retrieve them and animate sprites by moving through a series of drawings at speed.

What does it all add up to? I'm not sure really. Certainly everything functions well and with a small amount of stu-



This Week

Program	Type/Store	Price	Supplier	Available Starting	Rev	Commodore 64	Price	Supplier
Batman	Arc	£2.95	Ocean	15/08/85	16	£1.99	Marketronic	
Powerzone	Arc	£2.95	Atlantis	15/08/85	16	£1.99	Marketronic	
Scavenger of the OS	Arc	£2.95	Atlantis	15/08/85	16	£1.99	Amco	
Way of the Tiger	Arc	£2.95	Combin-Graphics	15/08/85	16	£1.99	Malbourne House	
Kalder	S	£2.95	Atlantis	15/08/85	16	£1.99	Malbourne House	
Malbourne Drive	16	£2.95	Malbourne House	15/08/85	16	£1.99	Amco	
Steve Davis Snooker	S	£2.95	CDI	15/08/85	16	£1.99	Amco	
Project Phoenix	Ad	£2.95	Polina	15/08/85	16	£1.99	Amco	
Bram Plus	16	£2.95	Clare	15/08/85	16	£1.99	Amco	
Parkland Plus	16	£2.95	Clare	15/08/85	16	£1.99	Amco	
Maxxon	16	£2.95	Clare	15/08/85	16	£1.99	Amco	
Bongo	Arc	£2.95	Amco	15/08/85	16	£1.99	Amco	
Water Events	Arc	£2.95	Amco	15/08/85	16	£1.99	Amco	
Path	Arc	£2.95	Atlantis	15/08/85	16	£1.99	Amco	
Invisible Writing	16	£2.95	Atlantis	15/08/85	16	£1.99	Amco	
Shadows of the Asteroids	16	£2.95	Atlantis	15/08/85	16	£1.99	Amco	
War Play	16	£2.95	Atlantis	15/08/85	16	£1.99	Amco	
Muggy's Message	S	£2.95	Amco	15/08/85	16	£1.99	Amco	
Project Phoenix	Ad	£2.95	Polina	15/08/85	16	£1.99	Amco	
The Boat	16	£2.95	Clare	15/08/85	16	£1.99	Amco	
Return to Space	Ad	£2.95	Spectrum	15/08/85	16	£1.99	Amco	
The Last Phoenix Pit	Ad	£2.95	Spectrum	15/08/85	16	£1.99	Amco	
20 Games	Ad	£2.95	Spectrum	15/08/85	16	£1.99	Amco	
Batman	Ad	£2.95	Spectrum	15/08/85	16	£1.99	Amco	
Jack and the Beanstalk	Ad	£2.95	Spectrum	15/08/85	16	£1.99	Amco	
Way of the Tiger	Ad	£2.95	Spectrum	15/08/85	16	£1.99	Amco	
Muggy's Message	S	£2.95	Spectrum	15/08/85	16	£1.99	Amco	
Broomstick	16	£2.95	Spectrum	15/08/85	16	£1.99	Amco	
Key Ad - adventure	16	£2.95	Simulation	15/08/85	16	£1.99	Amco	
Key Ad - arcade	16	£2.95	Simulation	15/08/85	16	£1.99	Amco	

chine code knowledge you can use the sprites in your own programs. But I'm not sure that there are many people for whom this will be the right program. You can think of a sprite designer, but then it needs more to help you fully integrate those sprites into your own programs—there is only sketchy information about how to do this in an otherwise reasonable manual.

That £14.95 price tag puts it up against the likes of *Art Studio* from Rainbow and there is simply no contest on that level.

Program: *Animator I*
Price: £14.95
Micro: Spectrum
Supplier: Softart
 PO Box 39
 Marlborough
 Wiltshire

BIZARRE

Much as it amuses me to say this, that most ancient and tedious of games called, amongst other things, *Panic*, in the arcade, has now turned up on the QL (perhaps all the old arcade games past their prime go to rest). The *Quboids* is such a well implemented version of the game at such a reasonable price I find myself kindly disposed towards it.

Panic (so whatever the version you played was called) resides in one of the most bizarre plots ever to be found in an arcade game (I have a feeling that someone mis-translated Japanese narra-



tions somewhere along the line). You wear a space suit and must keep your air replenished by reflecting air bottles and not food that is lying about. Kill monsters by digging holes into which they fall, and then brain them with a gamma-ray hammer. Points depend on how quickly you clear the screen and how far the monsters fall.

The QL version features large smooth sprites and some amazingly good sound effects. I began playing it, sweating heavily, and in the end had to be forcibly dragged back to my desk. Evading the little monster heads was, I think, the oddest I've did it—the surprise on their faces. Odd to the point of sending the game idea may be, but *QL Quboids* is a fine program for all that.

Program: *QL Quboids*
Price: £5.95
Micro: QL
Supplier: Sirenia Research
 Milton Mill
 Milton
 Cambridge

GOOD CHOICE

In these days of game creators, a sprite and font package seems a seriously outdated affair, yet the *Anglosoft Sprite Designer* and *Font Designer* has some things to recommend it.

For one thing the package is very nicely designed, using icons and windows style displays, for another it has a very large range of features including, as part of the *Sprite Designer*, an animated feature in which a sequence of ten frames may be constructed using any of the sprite shapes in any order.

Sprites may be single or multi colour, although the good use to construct the shapes, pixel, obviously limited to horizontal resolution in the latter case. Other features include expanded size sprites, mirror and flipped images.

The font generator works in a similar way to the sprite designer and also offers multi colour and mirror/flip effects. Both fonts and sprites can be easily incorporated into your own programs.

I'm still not sure that there is really much need for packages such as this any more. Simpler versions appear almost every month amongst the resident programs in the magazines and game creators do a more complete job. Nevertheless, if you want a sprite designer this is a good choice.

Program: *Sprite Designer & Font Generator*
Price: £5.00

Micro: Commodore 64
Supplier: Anglosoft
 PO Box 80
 Conway
 Cumbria
 CW1 6ET

UTILITY

My Drive Doctor is a comprehensive utility that gives the Spectrum the kinds of error analysis and file repair features associated with disc drives and Talent's microdrive docks for the QL.

Though Spectrum microdrives seem to be pretty reliable these days, there are still a number of occasions where, for one reason or another, files get corrupted and impossible to load. *My Drive Doctor* allows you to examine files sector by sector and then dump each one to screen (whether corrupted or not) where each byte can be corrected by hand using a text cursor system.

The other features of the program, give it CFM like data handling features.

All the new file features are accessed via new additions to the Basic command set. Though you would probably need to be fairly thoroughly sophisticated to get the most from the program, the three missing commands for data storage it represents a useful utility.

Program: *My Drive Doctor*
Price: £3.95
Micro: Spectrum
Supplier: Speed Systems
 181 Millbridge
 Dullis Valley Way
 Barnet
 North EN6 2JW

This Week



Too little, too late

A person who has read many recent marketing magazines will know that the future seems to involve IBM compatibility. We are told that IBM-compatible items will most market a cheap PC-compatible design is considered the best way to sell DOS machines that can't really be called a-compatible. Other manufacturers have already launched their clones, and the price is gradually edging down towards the average home user.

All the signs seem to point towards a generation of compatibles that much cheaper PC clones, using the best chips and CPUs to duplicate the main features for a fraction of the PC's price. And as they become cheaper, so they will be bought more by home users, either seeking compatibility with office machines, or for their intrinsic worth.

The snag is that this generation of machines will probably rely on yesterday's software designs; the best and most innovative programmers are already working on programs for the latest IBM and Commodore designs.

The business application that is necessarily too important, the main problem here is likely to be the sheer price of programs. I don't mean likely that potential home users will be interested in a fairly standardised word processing package that costs more than their computer. The fair pricing exists here appears to be some programs costing IBM is £150 or all of the features seen in applications costing less or five times as much. Even at the price most software would seem overpriced to most British home users, it's likely that the introduction of cheap home machines will lead to massive price cuts.

Where PC-compatible software really lags is in the games field. Little or no innovative design seems to be undertaken, always re-copying material for PC-compatibility in a copy-paste from IBM machines. A current best option still is The Sultan, Pit Bull, Frogger, and even IBM for a slight similes. At least one

of these three is much cruder than its Spectrum equivalent. The existence of games clones there is an interest. And as much as you love home users, you love games players.

The IBM's minimum specification is better than most home micros, with the sole exception of graphics capability, where the IBM design shows its age; the most common IBM standard (set to 68 colours, graphics resolution 320 x 200 in 4 colours, or 360 x 200 in one colour) will probably be used in the new machines, to maintain software compatibility. But that will probably also include such features (but not standardised) high resolution colour modes. Unless a new standard is agreed the current IBM modes will continue to dominate, since most programmers won't want to rewrite their programs for a dozen different screen designs.

In the past British designers have shown a tendency to apply their industry in every new machine, and some of the leading programs written for IBM's 486 Vix and IBM Spectrum for example of low liquidity has struggled over the limits of hardware and common sense. It seems odd that there aren't more British programmers planning to push the limits of PC-compatibility.

Even without any innovative programming, and even before the anticipated flood of PC-compatibility games, the huge base of IBM games produced in the UK could probably be transferred to PC-compatible formats and at twice their normal price they'd still seem like bargains to the average PC user. Although there are obviously conversion problems, several software houses have already developed programming tools to make the transfer relatively painless. Higher level compiled languages such as Pascal, C, and Fortran are usually convertible, provided the programmer is prepared to develop an appropriate library of routines for graphics and sound.

As an example of what might be possible, the most popular game for IBM and compatibles is still Microsoft's Flight Simulator. It's held its place in the charts for at least ten years. Other popular PC games include several business simulations. It seems odd to me that Amiga don't seem to have even considered converting Elite to the PC...

It seems certain that we'll have a lot of PC-compatibles in the home within the next six to 18 months. If British software houses don't start thinking about the opportunity now, they'll be shuttled out by stretched American resources, so find that their programs will be too little and too late.

Maxwell S. Newland

Puzzle No 100

Can you solve "Popular Computing Weekly's" Puzzle? It uses the initial letters, 'P', 'O', and 'W'.

Take these three letters and substitute a digit for each. Remember that each different letter must represent a different digit. The number so obtained can then be cubed.

In the following three examples (each, of course, involving a different substitution), the resulting number contains one of the original three digits in all but one of its digits.

Here are the three examples, in each case the "P" represents the odd-digit out

POW x POW x POW = PP'PO'PW
 POW x POW x POW = PPO'OP'PW
 POW x POW x POW = P'PP'PO'PW
 Can you discover each value?

Solution to Puzzle 100

The multiplication was 8079 x 40 = 323160.
 As the product consists of six identical digits, it must be a multiple of 111111. To be more specific, it must be of the form 7 times 151111, where 7 is a number from 1 to 9.

The program works by using first *Pop* then *Word* loops, one to build the value 'T', and the other to build the three-digit multiplier. This is in the range of 111 to 999. Each of the nine possible products are worked out in sequence, and the value is divided by 'W'. A result that is an integer, and by it the range 151111 to 999 is a possible solution. However, as all of the digits are different, the correct answer digits are put into a string variable (S) and are used for digitisation of digits.

In the event of an eight being duplicated, the results are printed out, the correct seven possible sets of figures, but the operation stated that if you know the value of the third digit of the four-digit number you could find the answer. Only if this was a '7' would a unique answer be found as all other values will provide more than one answer.

Winner of Puzzle No 100

The winner is P. J. Gayler of Glasgow, who will soon be receiving the prize money of £15.

Sails

The closing date for puzzle 100 is April 15.

THIS WEEK

Program	Type/Mode	Price	Supplier	Specialist/Marketing	Price	Supplier
Balman	Am Amstrad	59.95	Ocean	Amstrad Marketing	11.99	Mastertronc
Paradise	Am Amstrad	59.95	Anticsoft	Amstrad Marketing	11.99	Mastertronc
Survival of the OS	Am Amstrad	59.95	Atlanta	Amstrad Marketing	17.99	Amstrad
Way of the Tiger	Am Amstrad	59.95	Orion/Softics	Commodore UK	18.95	Melbourne House
Kaiser	Amstrad	57.95	Anticsoft	Amstrad	17.99	Amstrad
Melbourne House	Amstrad	174.95	Melbourne House	Amstrad	17.99	Amstrad
Shave Davis Bookies	Amstrad	59.95	CDI	Amstrad	19.95	Argus
Project Theatres	Amstrad	59.95	Publica	Amstrad	17.99	Ocean
Brown Plus	Amstrad	180	Claris	Amstrad	17.99	Atlanta
Paradise Plus	Amstrad	120	Claris	Amstrad	19.95	Orion/Softics
Marathon	Amstrad	180	Claris	Amstrad	18.95	Melbourne House
Boops	Amstrad	59.95	Amstrad	Amstrad	18.95	Amstrad
Way of the Tiger	Amstrad	59.95	Amstrad	Amstrad	18.95	Amstrad
Key-Ad-adventure	Commodore 16	12.99	Atlanta	Amstrad	18.95	Amstrad

Spindizzy

A
3-D
GAME
OF
SKILL

BY PAUL SHIRLEY

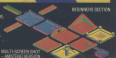


*Electric
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Available on the 48K Spectrum, Amstrad
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REQUIREMENTS

IBM XT-SCREEN (800)
- MAGAZINE ACTION

SOFTWARE



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