Correspondence

DEAR EDITOR,

A4 paper

Following up on the Teaching Note [1], I was recently at a symposium organised by the William Shipley Group for the history of the Royal Society of Arts. The day was all about the legacy of David Garrick, the actor and entrepreneur. One of the talks featured the German scientist Georg Christoph Lichtenberg (1742-1799). He came to visit London twice in the early 1770s and was hugely affected by Garrick's performances and by Hogarth's engravings. In his London Scrapbook he wrote: "What work might one not write on Shakespeare, Hogarth and Garrick?". He became a huge Anglophile. As a scientist he worked on electriciy. Volta visited Göttingen to see him and Gauss sat in on his lectures. He was elected a member of the Royal Society in 1793.

Apparently it was Lichtenberg who proposed, in a letter in 1786 to Johann Beckmann, the standardised paper size whereby cutting a piece in two gives a sheet of the same relative dimensions, which of course results in the ratio $\sqrt{2}$: 1 for length : width. And the largest size, A0, has an area of 1 square metre. The A4 dimensions are usually quoted as 297 mm and 210 mm. That gives a pretty good estimate for $\sqrt{2}$.

Reference
1. N. J. Lord, Using A4-sized paper to illustrate that $\sqrt{2}$ is irrational, *Math. Gaz.*, **101** (March 2017) pp. 142-145.

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DEAR EDITOR,

I wanted to draw readers' attention to a series of books they may not have seen, while it is still available. This is *Our Mathematical World* published as a weekly collectable series by National Geographic. I bought the first issue out of curiosity when I spotted it at a newsagent on Boxing Day. Given the difficulties of writing mathematical material for public consumption, I was surprised to see a magazine-style serialisation of mathematics and I expected the content to be 'trivial'. However, I was pleasantly surprised by the first issue and immediately signed up for the series. If you subscribe to the series, you also get some 'toys'. I had fun yesterday evening playing a 3D version of '4 in a row' / 'Connect 4' with my flatmate.

The series is nicely presented in hard-back volumes, each with around 150 pages. The layout of the material is very appealing and includes plenty of sidebars, snippets, illustrations and graphics. It is written at a similar level to other recreational maths books, such as the ones by Ian Stewart, but without shying away from equations. I think this series would be ideal for

whetting the appetite of keen A-level students or as an addition to a school library.

To give an idea of the scope, the themes of the books I have seen so far have been: the golden ratio, cryptography, prime numbers, non-Euclidean geometry, Pythagoras' theorem, pi, Fermat's last theorem, game theory, fractals and the fourth dimension.

There were plenty of things I hadn't seen before and the topics were accompanied by information on their historical background and the lives of the mathematicians involved. I now know that the QR in the name of the square bar codes stands for 'quick response' and I have at least an inkling of what modular forms are and how Andrew Wiles proved Fermat's Last Theorem.

The series appears to be a translation from Spanish and in one or two places the wording is a bit odd or sounds old-fashioned (e.g. talking about 'resolving' equations). I had not met the word 'catheti' before (used to refer to the two shorter sides of a triangle), but that could be just my ignorance of geometry. I also had *déjà vu* once or twice where some popular topics reappeared in a later volume, but then you are probably not intended to read four books in one evening! I don't recall seeing any technical errors in the sections I read in detail.

In short … highly recommended! You can subscribe to this series or order back issues online at http://www.ourmathematicalworld.co.uk.

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