

Making Lewis Carroll add up

Last Updated: 12:01am BST 13/07/2008

Jonathan Bate reviews Lewis Carroll in Numberland: His Fantastical Mathematical Logical Life by Robin Wilson

Would you rather have a clock that is right only once a year or one that is right twice every day? You instinctively choose the latter.

But suppose you have one clock that doesn't go at all and another that loses a minute a day. Which of those would you prefer? The losing one, naturally.

Then think this through. The stopped clock is momentarily correct twice a day, whereas the one that loses a minute a day has to lose 12 hours, which is 720 minutes, before it is right again - which means that it won't be right again for nearly two years.

So, to return to the initial question: absurd as it may seem, the once-a-year clock is the one you really want.

Problems and paradoxes of this kind fascinated that clever Rugby schoolboy called Charles Lutwidge Dodgson.

advertisement His gifts for logic and mathematics took him on to Christ Church, Oxford, where he remained as a 'student' - which in the looking-glass world of Victorian Oxford meant a tutor - for most of his life.

In his spare time, he scribbled poems, parodies and short stories. He did not think it appropriate to publish these under the same name as his mathematical treatises, so he used a pen name.

Charles in Latin is Carolus. And, as he explained to his editor, 'Lutwidge = Ludovic = Louis'. Hence Lewis Carroll.

Robin Wilson, himself an Oxford Fellow in Mathematics as well as holder of the ancient Gresham Chair of Geometry, could not be better qualified to write a book on Dodgson's career in numbers.

It is a fascinating story, in which even mathematical dunces such as your reviewer find themselves led by the hand across the *pons asinorum* or 'ass's bridge' - a rite of passage in mathematical education which involves grasping Euclid's principle that in any isosceles triangle two of the angles will be equal.

Further into the book, by summoning up extra reserves of concentration, we are even able to follow Wilson's explanation of Dodgson's innovative contribution to the use of determinants in the solution of simultaneous equations.

This was indeed the subject of one of his most important publications. A story did the rounds of the newspapers - Carroll, alas, denied it - that Queen Victoria so enjoyed Alice's Adventures in Wonderland that she asked for a copy of Mr Carroll's next book and was (not?) amused to discover that it was snappily entitled *An Elementary Treatise on Determinants with their Application to Simultaneous Equations and Algebraic Geometry*.

In his later years, Carroll developed a method of distributing the players in a tennis tournament that anticipates the Wimbledon seeding system. He also wrote a treatise on the mathematics of elections that assesses the relative merits of first past the post, single transferable vote and various other forms of proportional representation.

He was delighted when his system was used by the Governing Body of Christ Church for a vote on which of four architects to entrust with the restoration of their belfry.

Dodgson's mathematical career doesn't provide Wilson with quite enough material for a whole book, so **Lewis Carroll in Numberland** doubles in the role of an outline general biography of the man.

This is probably a mistake. A general biography of Carroll has to take on the question of his photography and that in turn leads into the very murky area of his obsession with little girls.

'Much nonsense has been written about Dodgson's friendships with children,' writes Wilson defensively. It has indeed, but this does not mean that the subject of what Vladimir Nabokov called 'those ambiguous photographs he took in dim rooms' can be dismissed out of hand.

Wilson also misses a structural trick by going through the principal mathematical games and puzzles in the Alice books in his introduction rather than weaving them into his narrative of Carroll's life.

'Show your workings,' our maths teachers always used to tell us. Wilson does so admirably for the maths, but fails to do so when he seeks to prove the biographical equation Dodgson = Carroll.

The White Queen tells Alice that 'sometimes I've believed as many as six impossible things before breakfast.' Fiction - and especially 'nonsense' literature - is the place where we go in order to develop our belief in impossible things.

Logic and mathematics are traditionally the realm of the possible, the rigorously true as opposed to the wildly inventive. By this account, Carroll and Dodgson should have been as different from each other as Jekyll and Hyde.

The triumph would have been to show what makes them one person. In this regard, the book is full of missed opportunities.

As a starter for 10, there could easily have been some consideration of the relationship between that question about the clocks and the first appearance of the White Rabbit: 'Oh dear! Oh dear! I shall be too late!'

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Fascinated by paradoxes: Lewis Carroll