Review from *The Mathematical Gazette*, March 2014

Knots Unravelled, by Meike Akveld and Andrew Jobbings. Pp. 118. £12. 2011. ISBN 978 0 9555477 2 0 (Arbelos).

This little book is full of big ideas and exudes all the qualities associated with first-rate mathematical exposition. It provides a clear and stimulating introduction to the profound area of mathematics known as knot theory. It does this in such a way that almost the first half of the book can be understood and enjoyed by anyone with very little mathematical knowledge.

The book's central theme is the classification of knots by invariants under distortions known as Reidemeister moves. The invariants include crossing numbers, un-knotting numbers, three-colourability, linking numbers and knot polynomials. This range of ideas is heuristically developed by means of a lively narrative and an abundant supply of tasks and exercises, for which solutions are provided.

Knots, in this book, are essentially 3-dimensional objects, but they are represented 2-dimensionally in the form of knot-projections. And, although the basic ideas are clearly presented, the task of working from diagrams alone proves to be very difficult. Consequently, in order to be able to skip (rather than stagger) through the book's contents, a piece of thin rope for constructing and experimenting with the various knots is almost essential. In other words, theory and pratice go hand-in-hand from start to finish.

There are dozens of different knots analysed in this book. Some are very familiar, and others are less well known; they are, however, all attractively illustrated and the various types are summarized in tabular form in an appendix. Throughout the book, there are very many historical observations and references to ongoing research. Hence, the reader is aware that knot theory is a subject with an interesting past and is one that will be alive and kicking for a long time to come.

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