well acquainted with Clavius’s medieval and Arabic predecessors and draws helpful conclusions after the ends of the different chapters and Part 1 as well. Four appendixes comprehend an enumeration of the different editions of Clavius’s Elements, a comparative table of the readings of the definitions in the editions by Campanus, Zamberti, Commandino, and Clavius, a list of the postulates and axioms of Books I and VII, and a French version of Euclid’s definitions (Elements III, 5–III, 10) and propositions (Elements VI, 33) and Clavius’s comments regarding the similarity of circular segments.

Such a diligent historical analysis based on a sovereign command of Latin is a highly appreciated contribution to the history of mathematics.

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Newton et les origines de l’Analyse: 1664–1666

Folks who want to read about Newton can get lost. There is a wealth of literature available on Newton’s life and science, which is likely to become more abundant as the years go by. Marco Panza has made a thorough study of the young Newton’s early work, the scholarly literature on which is rather less abundant, and come up with a reconstruction of Newton’s intellectual path.

Panza’s primary source is the Whiteside edition, mainly the first volumes [Newton, 1967–1981]. His aim is to rebuild in synoptic fashion the main part of Newton’s analysis, to show the epistemological and structural difference between Newton’s work and the differential and integral calculus.

Panza’s bibliography is quite rich, as far as studies of Newton’s mathematical works are concerned. He refutes Henk Bos’ recent reconstruction of Descartes’ La Géométrie, and proposes another in its place. Bos considers that the “book’s primary aim was to provide a general method for geometrical problem solving and not to establish a technique for studying curves” [Bos, 2001, p. 228]. Panza prefers to understand this book as an attempt to deduce the fundamental geometrical properties from the equation of any curve (p. 42). Now, there are two ways to read Descartes, with two objectives. In summary, Bos studies Descartes qua Descartes, while Panza focuses on Newton’s reading of Descartes.

Panza begins by retracing the background to Newton’s work, paying attention to two forerunners in particular. The first of these is Wallis, with his method of quadratures in the Arithmetica Infinitorum. The second is Descartes, famous for the geometrical algebra featured in all versions of La Géométrie. Wallis, in his Arithmetica Infinitorum, gives two methods of quadratures, the first devolving to the hyperbola and the second to the circle. Panza describes these two quadratures and explains how Newton makes a simple algorithm of a quadrature of some classes of curves (from early 1664 to summer 1665). The author sets out his interpretation and Newton’s modification of Descartes’s method of tangents and normals. He also mentions how Newton has widened the field to draw in results on normals and the radius of curvature. Panza explains Newton’s attempt to unify the algorithms of normals and those of quadratures. Newton introduced the notion of motion into this field of research in early autumn 1665, enabling a transformation of the algorithm of normals into an algorithm of motions.

This raised the question of motion composition. Newton rephrased and extended Roberval’s method of tangents so that he could turn his algorithm of motions into a velocity algorithm, which is the central point of the method of fluxions. Panza believes the Treatise of October 1666 to be the founding act of the method of fluxions. Indeed, all previous work (from early 1664 to May 1666) was taken up in this manuscript, resulting in an algorithmic procedure known as fluxions, for use in solving various sorts of problems.
The reader without knowledge of Latin (or Whiteside’s translation) will have difficulty following Panza’s quotations of Newton, which are almost invariably in the original language. This obstacle notwithstanding, Panza’s study is innovative, in that his textual sources rarely form the object of scholarly attention. Trying to understand the young Newton’s reasoning at a time when he was working out the method of fluxions is a worthwhile endeavor. Panza’s reconstruction is bold, but well supported by examples. Scholars of the history of science will find Panza’s book useful, especially those with an interest in the birth of a mathematical theory or in how Newton went about creating his method of fluxions. The book provides new perspective on the structural difference between Newton’s method and the one that is employed today.

References


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The Political Pamphlets and Letters of Charles Lutwidge Dodgson and Related Pieces: A Mathematical Approach

The statement of the identity of Charles Lutwidge Dodgson, mathematics don at Christ Church, Oxford, and Lewis Carroll, the author of the Alice books and other humorous literature, is often taken as a description of contrasting personalities. Dodgson, the shy, retiring mathematician, was not a particularly good lecturer and wrote texts that have fallen entirely out of use. Lewis Carroll, the wit and story-teller, ranged over the whole kingdom of the imagination and has put generations of children and adults in his debt. It is almost a Dr. Jekyll and Mr. Hyde contrast, although perhaps a mathematician might bristle at the comparison with Hyde.

More thorough study of aspects of Dodgson’s life, however, suggests that there is a greater continuity than in the popular account. Issues that were of importance to Dodgson also came up in the writings signed with the name “Lewis Carroll”, and Dodgson did take an interest in matters that went beyond the walls of the college and the university. It was not only the Lewis Carroll side of Dodgson who had an audience in the corridors of power, although he may not have been so effective there at bringing about change as he would have wished.

Professor Francine Abeles of Kean University, New Jersey, has put the scholarly community in her debt once more with her collection of the pamphlets, letters, and articles by Dodgson devoted to the political topics of representation and elections. This is one of a series intended to make all of Dodgson’s publications that had not previously been available in hardcover (other than poetry and fiction) more accessible. Some of the items reprinted here had already found their way into other anthologies, but the extent of this selection helps to put the items in context.

The three main sections of the book correspond to the topics of fair elections, tennis tournaments, and parliamentary representation. Dodgson was a contributor to the public discussion of all three via pamphlets (frequently printed and