EDITORIAL

The three papers in this issue of the *Revue d'histoire des mathématiques*, despite the various approaches they use and the different periods they study, address in fact the same question: how is a mathematical text appropriated? According to which reading schemes? How do these put their marks on editions, translations, commentaries and interpretations? What is transmitted from what one discovers while reading a mathematical text? What selections or additions are made?

In the first paper, Sonja Brentjes describes an Arabic manuscript of Euclid's *Elements*, which she discovered in Mumbai in the 1990s and dated to the first half of the ninth century. Such a discovery is in itself an event in a field of study where the corpus of texts is rather stable. This manuscript has interesting features which clarify, in Brentjes's view, the textual history of the Arabic *Elements*, a history she describes in terms of a double transmission process: transmission is termed 'primary' if the texts, together with their revisions and editions, were translated directly from the Greek or from Syriac; it is termed 'secondary' when it is a matter of epitomes, commentaries or paraphrases of texts already in Arabic, together with their translations into other languages like Latin, Persian or Sanskrit. The Mumbai manuscript could derive, at least partly, from primary transmission of a text of which we do not possess a reliable copy. It could include an older stratum of the Greek *Elements* than the text established towards the end of the nineteenth century by the Danish philologist, Johan Ludvig Heiberg; the latter text should thus be revised according to the wishes formulated as early as 1996 by Wilbur Knorr. Moreover, the Mumbai manuscript uses (up to Book VII) a terminology which was thought to have been linked to an ancient practical tradition: squares and rectangles are called bricks. Brentjes argues that this language may have been introduced in the process of secondary transmission at the beginning of the ninth century in a philosophical context, which valued arithmetic over geometry. Numbers are of the highest rank because they have neither matter nor position, whereas geometry, the objects of which have position without matter, is considered a mid-level science. While the language of bricks cannot suit arithmetical books, it establishes in books on plane geometry an arithmetic of surfaces, thereby elevating the status of geometry. In the difficult process of transmission, which Brentjes carefully describes, philosophical positions, subjective interpretations, selective readings, as well as limited choices due to the rarity of available texts are all seen to be at work.

Dating a letter written by Descartes, the subject of the second paper in this issue contributed by Sébastien Maronne masks the question of Descartes's participation in the Latin edition (1649) of his *Géométrie* edited by Frans van Schooten. This latter question is interesting because Descartes himself may have concealed his participation. Maronne considers the interpretations of three sets of chronologically removed editor-commentators of Descartes's correspondence: commentators from the end of the seventeenth century who annotated Clerselier's edition of Descartes's letters; Charles Adam and Paul Tannery, editors of Cartesian texts from the turn of the twentieth century; and finally Charles Adam and Gaston Milhaud, editors of Descartes's correspondence from the middle of the twentieth century. Maronne analyzes the practices these editors used in determining the date of Descartes's letter and simultaneously displays his own, which is erudite, detailed and grounded in a thorough knowledge of the context in which that letter was sent. The reader is thus invited to follow Maronne along the tortuous path of his work as an historian, as he analyzes all of the elements of the letter to be dated as well as all of the elements of the datings given by his predecessors. Among these are the notes by Florimond de Beaune on Descartes's *Géométrie*(1637); the mathematical posters by Stampioen; the letters by Descartes, van Schooten, Mersenne, Huygens, De Beaune, etc.; the various controversies; and the criticisms of the Pappus problem, namely, the famous problem solved in Book I of *La géométrie*: If n straight lines are given in position, it is required to find the locus of a point P "from which as many other lines may be drawn, each making a given angle with one of the given lines", so that a certain ratio (dependent on oblique distances from P to the given straight lines and on the number of lines) will be constant. Descartes's solution was judged incomplete by, among others, Roberval after he had read the no longer extant solution by Pascal. These criticisms may well be responsible for Descartes's silence concerning his participation in the Latin edition of *La géométrie*. Finally, in the final paper of this issue, Sébastien Gandon introduces us to a complex case of appropriation within the context of the foundations of geometry at the end of the nineteenth century. Giuseppe Peano read Moritz Pasch's geometry course (1882) with his own *Calcolo geometrico secondo l'Ausdehnungslehre di H. Grassmann* (1888) in mind. Peano's reading of Pasch, marked by the idea of the Grassmannian calculus, influenced according to Gandon the writing of his *Principii di geometria logicamente esposti* (1889) and explains the methodological gap between the two texts; the first text relies on the model of the algebraic calculus, while the second makes use of an axiomatic approach. The gap between the two methods may have gone unnoticed not only by commentators on Peano's work but also by Peano himself, owing to a theme common to both the *Calcolo* and the *Principii*: the critique of natural language as something ambiguous and from which it is important to distance oneself. In 1888, Peano substituted for ordinary language an artificial language based on the letter model in algebra. In 1889, he deduced all of the fundamental concepts from two undefined and experimentally recognizable geometrical notions: point and segment. He thus inherited from Pasch an understanding of geometry as a science of nature. But, while translating Pasch's axiomatization into his own artificial language, he cut the axioms from their natural moorings. Gandon shows that Peano gave Pasch a highly selective reading that not only did not do justice to Pasch's program but also changed its perspective radically. By detaching it from its empirical moorings, Peano exploited the possibilities in calculating offered by his translation of Pasch into his own logical language. This paper presents a finely grained study of the process of appropriation understood as selective reading, as the diversion of the author's program, and as the incorporation of elements that echo the reader's own approach.

We now invite our readers to discover and to appropriate for themselves these articles, without relying on the reading, one among many possible, offered in this editorial.

The Editors-in-Chief