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Manin, Yuri I.

Mathematics, art and civilization. Translated from the American by Jochem Berlemann and Marietta Ehret. (Mathematik, Kunst und Zivilisation.)

Die Weltweit Besten Mathematischen Artikel im 21. Jahrhundert 3. Lemgo: e-enterprise (ISBN 978-3-945059-15-9/pbk; 978-3-945059-16-6/ebook). 112 p. (2014).

The author (born 1937) is one of the leading figures in contemporary mathematics, who made fundamental contributions to various areas ranging from number theory and algebraic geometry to mathematical physics and algebraic analysis. Simultaneously, he is known as an intellectual and scientist with a tremendous breadth of interests, knowledge, and creativity, whose reflections on the interplay between philosophy, mathematics, physics, logic, language, art, and human civilization are utmost popular and appreciated. In this context, his book [Mathematics as metaphor. Selected essays of Yuri I. Manin. Providence, RI: American Mathematical Society (AMS) (2007; Zbl 1172.00003)] is one of the most prominent examples, which is now followed by the German translation of a further essay titled “Mathematics, art, civilisation” [unpublished, (2009)]. The theme of this essay is the development of natural and formal languages with regard to mathematical concepts, numbers, abstract structures, and geometric configurations. More precisely, the author depicts the connection between mathematical thinking and expression, on the one hand, and the development of art and civilization on the other, thereby analyzing the persuasive power of mathematics within the latter through concrete examples and instructive illustrations. Among the topics touched upon are: mathematics and the history of mankind, the development of number systems, formal languages, geometry, diagrams and categories, the foundations of mathematics, the relation between discreteness and continuity, the role of mathematics in our civilization, and the linking ideas between them, art, and general human civilization. As it is pointed out in the preface to this enlightening booklet, the target audience are readers interested in formal languages, history of art, and with a sense for abstraction. For those readers, the author once more offers a wealth of unexpected insights into the multifarious relations between mathematics and society, without assuming any higher mathematical education on their part. Werner Kleinert (Berlin)

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