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**MR2962726 (Review)** 01A20 01A70**Beauzamy, Bernard** (F-SCMSA)**★Archimedes' modern works.**

Real Life Mathematics.

*Société de Calcul Mathématique SA, Paris, 2012. 220 pp. €80.00.**ISBN 978-2-9521458-7-9*

The book *Archimedes' modern works* is a successful attempt to understand the way of thinking of one of the greatest geniuses of all time, not from a historical perspective, but from the possibilities of modern and future applications. It is obvious that it is written by a professional mathematician, not a historian of science and mathematics. The book is devoted to contemporary and original reading of two of Archimedes' ideas which lead to completely new approaches to present problems. The first idea is what the author calls "Archimedes Maps" and the second one is what Archimedes called "The Method". The book begins and finishes with some brief historical facts about Archimedes as well as with Roman sources found on the Internet regarding the siege of Syracuse when Archimedes died. Between these two poles there are two main parts, Archimedes maps and the Archimedes Method, with two main lines of thought which are developed throughout the book.

In the first part the author presents modern applications coming from the traditional Greek comparison methods, and especially Archimedes' approaches to the comparison of a half-sphere and a disk, a disk and a triangle in the sense of the area, and a cone and a cylinder in the sense of the volume. The content of this part belongs to the foundation of modern mathematics, including the development of infinitesimal calculus. It also shows how "Archimedes Maps" and "Archimedes Transformation" can be applied to modern problems, such as monitoring, surveillance and resource allocation, with concrete examples to present concerns.

The second line of thought, for an average reader not so easy to follow as the first one, is developed in the second part of the book. It deals with the "weighing methods" which come from the study of the equilibrium of weights and is based on the Archimedes' text "The Method" which he regarded as his greatest achievement. In the first two chapters of this part, a comparison between the Method as Archimedes stated it [Archimedes, *The works of Archimedes*, edited by T. L. Heath, Dover, Mineola, NY, 2002; [MR2000800 \(2005a:01003\)](#); T. L. Heath, *The method of Archimedes*, Cosimo, New York, 2007; originally published, 1897] and these statements in a modern vocabulary is given. In the next six chapters the author turns to modern and future applications, such as satellite positioning, pattern recognition, electricity management, mechanics, probability theory, optics and even improvements upon the techniques which are employed in nuclear power plants for steam generators. Included texts of the letter written to the Lord Mayor of Syracuse (The tomb of Archimedes, modern times) and The modern siege of Syracuse (translated from SCM Newsletter no. 49, March 2010) should be regarded as the author's profoundly personal view of the treatment Archimedes' legacy receives in the present time and today's world.

This book is original and interesting, is easy to read, and is sometimes written in a witty style. It is not a book on mathematics in history, but on mathematics as an applicable science in the modern world. For its reading and comprehension it is not indispensable to have previous knowledge of the history of mathematics, but it is necessary to be familiar with various mathematical subject-matter. I would wholeheartedly recommend it to all open-minded scholars and engineers, as well as to

all those who consider mathematics to be solely a theoretical discipline.

*Aleksandar M. Nikolić*

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