

Preface

*It is not by one way alone that we can arrive at so sublime a mystery
(attributed to Quintus Aurelius Symmachus, 384)*

Conceived as a series of more or less autonomous essays, this book exposes the initial developments of continuum thermo-mechanics in a post-Newtonian period extending from the creative works of the Bernoullis to the First World War, i.e., roughly during first the “Age of reason” and next the “Birth of the modern world.” The emphasis is rightly placed on contributions from the “Continental” scientists (the Bernoulli family, Euler, d’Alembert, Lagrange, Cauchy, Piola, Duhamel, Neumann, Clebsch, Kirchhoff, Helmholtz, Saint-Venant, Boussinesq, the Cosserat brothers, Caratheodory) in competition with their British peers (Green, Kelvin, Stokes, Maxwell, Rayleigh, Love,...). It underlines the main breakthroughs as well as the secondary ones. It highlights the role of scientists who left essential prints in this history of scientific ideas. It shows how the formidable developments that blossomed in the twentieth century (and perused in a previous book of the author: “Continuum Mechanics Through the Twentieth Century,” Springer SMIA series, Dordrecht, 2013) found rich compost in the constructive foundational achievements of the eighteenth and nineteenth centuries. The pre-WWI situation is well summarized by a thorough analysis of treatises (Appell, Hellinger) published at that time. English translations of most critical texts in French or German are given for the benefit of the readers.

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