

BOOK REVIEW

Zae-young Ghim 김재영 and Ja Hyon Ku 구자현 trs., *Jeongijagiron 전기자기론* 1, 2. Seoul: Hangilsa, 2021. 764 pp., 732pp. [translation of *A Treatise on Electricity and Magnetism* by James Clerk Maxwell]

Hasok CHANG[†]

The most remarkable thing about this Korean translation of James Clerk Maxwell's *A Treatise on Electricity and Magnetism* is that it was made at all. It must have taken an amount and intensity of labour that is almost fearful to contemplate. The translators display a remarkable degree of expertise, skill and care, not only in making the translation itself, but also in handling the technicalities of physics and mathematics that are challenging and unfamiliar to modern scientists. This is a monumental achievement deserving much admiration.

The translators, Zae-young Ghim and Ja Hyon Ku, are keenly aware of one basic question: why do we need a translation of Maxwell's classic text, especially now? Given how Koreans are educated in the 21st century, can't scholars who really want to read this book just read it in English? But the situation is not so simple. Maxwell's *Treatise* is not the sort of book that one would read from cover to cover. Most readers will first want to get a general sense of its content and structure, after which they will know which selected parts they want to read and digest carefully. For non-native speakers it is very difficult to make that kind of overview of a large and complex book, even in a language in which they are fairly proficient.

This translation will enable a sizeable new group of scholars to engage freshly with the original thoughts and concerns that gave rise to Maxwellian electrodynamics, which remains a cornerstone of modern physics and technology. I endorse and share the translators' hope (vol. 2, 12) that the readers of this Korean translation may even be prompted to come up with new answers to some philosophical and physical questions concerning Maxwell's theory that are still pertinent.

The translators have written three different introductory essays, which should be considered research papers in their own right. They provide a very valuable guide to readers who want to make the plunge into Maxwell's formidable work, by situating the book in the broader context of Maxwell's life and work. Ghim and Gu have gone

[†] University of Cambridge, hc372@cam.ac.uk

far beyond what translators normally do. They have mastered key secondary sources, studied Maxwell's other publications (including earlier editions of the *Treatise*), examined his correspondence, and even viewed his instruments preserved at the Cavendish Laboratory in Cambridge. These introductory essays tell us important things about why and how Maxwell wrote this book, which is historically interesting in itself, but also important for our full understanding of the text. They make valuable points about the subtle combination of the mathematical and the physical in Maxwell's thinking, as well as his blended use of different types of mathematics, incorporating cutting-edge developments such as quaternions and topology. I would especially alert readers to the third introductory essay, by Ghim, which may easily be missed as it is in the second volume. And to be somewhat parochial, we can take pride in this work as a new Korean contribution to the study of Maxwell, adding to Dong-won Kim's work on the history of the Cavendish Laboratory, and Sungook Hong's on electrical engineering and physics in the late 19th century.

I have a few minor critical linguistic points. Some of the proper names have not been transliterated accurately. For example, "Clerk" (part of Maxwell's name) should be pronounced like "Clark", and "Tait" like "Tate" (rhymes with "gate"). When in doubt, translators need to ask people who would know. Another perennial difficulty is the rendering of technical terms, especially archaic ones that are not used even by specialists today. The best attempts at meaningful translation can come out sounding quite mysterious and incomprehensible (for example, "사원수" for quaternion). In such cases it is helpful to give the original English, and the Chinese characters on which the translation is based; Ghim and Gu often do this, but not always when the term is first used. Finally, it is important to maintain consistency. This book uses two different translations of "field": the usual "장" and also "마당". The latter is an innovation adopted by Ghim, but not by Gu. I appreciate the effort to introduce pure Korean rather than Sino-Korean translations, but in this case there are some unhelpful connotations of the word "마당" (suggesting a confined "garden" rather than an open "field"). At any rate, the usage within one text must be consistent in order to avoid confusion.

Overall, Ghim and Gu have done a great service to all Korean-speaking readers who desire to reach a deep understanding of Maxwell and the physics of electromagnetism. I hope that they will be rewarded by productive uses of this book by historians, physicists and philosophers alike.