REVIEW

John W. Arthur. *Brilliant Lives: The Clerk Maxwells and the Scottish*. Edinburgh: Birlinn Ltd., 2016. Pp. 357. ISBN 978-1-906566-97-5. £25.00.

John W. Arthur, physicist and trustee of the James Clerk Maxwell Foundation, Fellow of the Royal Society of Edinburgh, the Royal Academy of Engineering, the Institute of Physics, and the Institute of Engineering and Technology, and senior member of the IEEE, takes a different look at James Clerk Maxwell's life and scientific contributions in the nineteenth century. Instead of focusing on Clerk Maxwell's life for the entirety of the book, he instead goes back through the family lines of the Clerks and the Maxwells, as well as all of the families that married into those groups and explores how both families and their experiences during the Enlightenment made possible James Clerk Maxwell's scientific mind and contributions to physics. This work is a good contribution to the field.

Arthur uses a wide variety of research to support his argument though for his discussions on Clerk Maxwell's life he primarily uses an original biography written in 1882 by Lewis Campbell and William Garnett, both of whom knew the physicist personally and add a personalized account to their narrative of his life. Arthur, in the preface to the book discusses the sources he used in detail. He lets the reader know what archives and repositories the materials were found in, including where to find some sources online. He examines the strengths and weaknesses of the available resources, especially those concerning the women in the Clerk and Maxwell families.

The text of the book starts out with numerous family trees for both lines, allowing the reader to see from the beginning how all of the people discussed fit together. Clerk Maxwell came from two old Scottish families who, for generations, held positions of wealth and influence, and many members were brilliant in their own ways. Arthur then moves from discussing the family lines to a brief history of the Scottish Enlightenment and a brief overview of the Clerk Maxwell family.

The next chapter moves into a more detailed biography of James Clerk Maxwell starting with his parents meeting and ending with the death of the physicist. He goes into detail not only looking at Clerk Maxwell's life, but also his academic career and innovations and contributions to science. He provides unbiased analysis of the strengths and weaknesses of Clerk Maxwell's personality and his teaching ability. The physicist struggled with meeting his students on their level of understanding and therefore was not always seen as the best lecturer. He also expresses admiration for the innovations that Clerk Maxwell came up with in physics.

From there Arthur moves backward in time to look at the history of the Clerk family and then the Maxwell family. These cover the bulk of the chapters in the book. Arthur looks closely at the family histories and the contributions of significant family members leading up to the joining of the families with George Clerk and Dorothea Maxwell. The book wraps up with a longer look at the Enlightenment in Edinburgh and how that laid the groundwork for James Clerk Maxwell.

The text does, at times, get confusing with all of the family threads Arthur is weaving together but the information is worth taking the time to work through. By doing so you emerge with a picture of how James Clerk Maxwell came to be. Arthur does a good job of showing how not only Clerk Maxwell, but his

ancestors, and his place of birth all made it possible for him to use his creative and innovative mind to come up with innovations such as his theory of electromagnetic radiation, his studies in color vision, on kinetic theory, and thermodynamics, and others. All in all this is a good addition to the body of work on Clerk Maxwell and brings a different approach to understanding the man.

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