

Book Review



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Rocks, Radio and Radar: The Extraordinary Scientific, Social and Military Life of Elizabeth Alexander by Mary Harris, Singapore, World Scientific Publishing Co., 2019, ISBN 978-1-78634-664-3 (hardcover), ISBN 978-1-78634-666-7 (electronic).

This memoir of pioneering scientist and educator Frances Elizabeth Somerville Alexander is an excellent example of not only STEM research, but also interdisciplinary research in geology, physics, and electromagnetics. In the recent New Zealand government declassified World War II documents, Elizabeth was described as the world's first radio astronomer by the then director, Wayne Orchiston, of the Carter observatory in Wellington. Her life work straddled four continents in colonial England, including the countries of India, Singapore, Malaysia, New Zealand, Australia, and Nigeria. She was one of those forgotten world wartime revolutionary scientists that had to be resurfaced by her well-wishers rather than her colleagues or the respective engineering societies.

The author of the memoir is Elizabeth's daughter, who is an accomplished scientist. Dr. Mary Harris has done exquisitely detailed work in collecting and describing the socio-economic, cultural, political, and military history of the era based on Elizabeth's personal diary, scientific articles, unclassified government records, archived materials in government organizations, museums, and personal knowledge. I also believe that one of the major contributions of Elizabeth and Norman scientists is their overwhelming involvement in building and rebuilding the STEM educational institutions both in Singapore and Malaysia.

The book describes the detailed scientific work of Alexander, such as radio direction finding, Norfolk effect, and geological map of Singapore, etc. However, the book provides an amazing roadmap of the science and scientific laboratory activities and power struggle of the countries during the first and second world wars. It is also a window into the accomplished scientist lifestyle in colonial England, as well. Even though the scientists belonged to the middle

class in England, they had very lavish and respectful social status in the colonies, such as India, Singapore, and Nigeria, etc. Working women or not, while living in Singapore, the English women didn't need to burden themselves with taking care of their children or household work. It was all taken care of by the servants and Ayahs. It is an account of English, Australian, and New Zealand scientists that were the privileged under colonialism. Job opportunity was endless for English scientists as long as they wanted to leave England. The book is also a good read on some relevant historical aspects of colonial England, such as the opium trade, indigo farming, etc., which economically benefited England and oppressed the natives. It provides a detailed description of the beginning of commercial intercontinental flights that included frequent overnight stops, and boat travel and other transportation of the time.

Alexander did have miserable war-time living as a single mother of three in New Zealand for three years, when she had to leave everything behind in Singapore, and her husband became a prisoner of war in Singapore. Those three years were also one of her most productive times as a professional. I believe that shows her strength and resilience the most as a woman scientist.

Even 100 years after Elizabeth was born, women in STEM research are still a minority. Unfortunately, even in the 21st century, they still have to go extra miles to survive and be recognized in the field. This book again proves that throughout history, life is different for women in any society if they belong to the privileged class. As a privileged class, opportunities for women were available for them to be successful. Overall, this is a very interesting book for not only scientists or historians, but for all readers that are interested in that era's lifestyle.

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