

Preface

Historians of science acknowledge that the late eighteenth through mid-nineteenth centuries represent a pivotal era in the evolution of the geological sciences, in which geology became a bona fide and well-established scientific endeavor. At the same time, science was increasingly brought into the public eye, largely thanks to public demonstrations and lectures aimed at nonspecialists, at both professional institutions (such as the Royal Institution in London) and more informal ones (including the Lyceum movement in the USA). The availability of what would now be termed *free-choice learning opportunities* at the popular level opened up science to a significant new audience, women as well as men without formal education in the sciences. The education of children was also undergoing substantive changes, including the formation of girls' schools (at both the elementary and secondary levels), providing parents with options beyond private tutors and home schooling. But teachers, tutors, and homeschooling mothers needed to learn both the science of the day and effective pedagogies that could be used to make science both understandable and appealing to children.

This was also the heyday of the literary style known as the *familiar format*, books written largely *by* women *for* women and children in the form of letters, conversations, and catechisms. These works were commonly set in a domestic setting and featured children (both boys and girls) actively exploring the natural world through hands-on activities, experiments, and direct observations, guided by a patient and knowledgeable mother figure. This style of science popularization played a central role in both formal and informal science education during the same time period that geology was becoming a well-defined science. It is therefore surprising that a study of women's popular-level geological writing during this period has not yet been published. This work endeavors to fill some of that gap in our understanding of the role of woman popularizers, specifically those utilizing the familiar format, in shaping public understanding of geology in the first half of the nineteenth century.

Chapter 1 begins by surveying the status of geology in the early nineteenth century, including debates over terminology, physical processes, theology, and the accepted role of women. After introducing some of the longstanding political issues with the popularization of science in general, the bulk of Chap. 2 focuses on the

birth of the familiar format and illustrates the wide diversity of works that fall under its umbrella. Chapters 3–8 form the core of this volume, analyzing the lives, literature, and resulting lessons of six women who authored familiar format geological science books—Jane Marcet, Delvalle Lowry, and Maria Hack (Europeans) and Jane Kilby Welsh, Delia Woodruff Godding, and Almira Hart Lincoln Phelps (Americans). While these authors often found some level of fame in their lifetime, they have largely been forgotten today. This work is a first step toward righting that wrong.

Due attention will then be paid in Chap. 9 to three examples of women popularizers of geosciences during this era who elected not to write in the familiar format—Mary Roberts, Rosina Zornlin, and Mary Somerville—situating them in contrast to their colleagues. Finally, Chap. 10 explores the societal factors that led the familiar format to, metaphorically, go the way of the dinosaur, through the lives and writings of three women who, in their own ways, negotiated this transition to a more modern (and presumed to be more masculine) style of popularizing science: Arabella Buckley, Agnes Giberne, and Lady Grace Anne Prestwich.

This is the story of uncommon women who persevered in the face of a society that severely curtailed their access to formal education and male critics and rivals who alternately praised and ridiculed their popular level writing. These women persevered despite personal adversity, financial uncertainty, and onerous familial responsibilities, and at a time when the very science they were attempting to encapsulate was in the midst of seismic shifts of its own. They breathed life into the sometimes stiff and staid story of rocks and geological strata, and not only educated generations of children, but encouraged woman and men, young and old, beginner and practitioner, to think more deeply about the planet on which we all live. This book is an attempt to repay a portion of the debt that prior generations of children, and adults, owe to these women who persevered.

New Britain, CT

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The Women Who Popularized Geology in the 19th
Century

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2017, VIII, 216 p. 8 illus., 1 illus. in color., Hardcover

ISBN: 978-3-319-64951-1