

Preface

In Chapter 4 of our *Rewriting the History of School Mathematics in North America 1607–1861: The Central Importance of the Cyphering Tradition* (Ellerton & Clements, 2012), also published by Springer, we summarized our journey which enabled us to recognize the large influence on school mathematics, over many centuries, of the cyphering tradition. Since writing that book we have continued our investigations into the cyphering tradition, and have now analyzed about 1000 handwritten cyphering books—most of them prepared in the United States or in Great Britain between 1630 and 1880.

The cyphering tradition *controlled* the intended and implemented curricula of pre-college mathematics education in Great Britain and North America between 1600 and 1850. And, although the influence of that tradition declined sharply in the second half of the nineteenth century, it lingers almost ghost-like, affecting school mathematics programs in every country in the world. Much has been written about historical circumstances which influenced presidents, prime ministers, great literary figures, large corporations, and about the rise and fall of civilizations. However, very few books have been written on the history of school mathematics—something which has affected, and continues to affect, vast numbers of people, everywhere.

“But,” one might respond, “not everyone is greatly interested in the history of electricity, or of the automobile, or of the internet, and yet electricity, cars, and the internet, are all vitally important in today’s society. One simply does not have enough time to take a scholarly interest in everything that is important. So why should one have an interest in the history of school mathematics?” If you are a mathematics education researcher, or education historian, then you might have wanted to add that scholars must be selective in what they choose to research, and that so far as school mathematics is concerned the most important task is to improve *present* practices. To such an argument we would respond by pointing out that most people have an interest in their family roots—they want to know from whom, and from where, they have come. From that perspective, it would appear to be reasonable to expect mathematics teachers and mathematics education researchers, and those concerned with school curricular issues, to have some interest in the roots of today’s school mathematics curricula and practices.

This book does more than provide a complement to our *Rewriting the History of School Mathematics in North America 1607–1861*. Here, we extend our analysis to the history of the cyphering tradition in the United Kingdom, covering the period from about 1630 to 1850. As well, the book adds flesh to our earlier analysis of the cyphering tradition in North America. The methodology employed is the historical case study. Eleven cyphering books were chosen as cases to be studied, and each was, in its own peculiar way, “extraordinary.” The analyses presented are more qualitative than quantitative.

One of the chapters provides the most detailed analysis of Abraham Lincoln’s cyphering book ever presented—that chapter is the first to examine all 22 surviving pages of what is easily the oldest surviving handwritten manuscript prepared by the future president. Another chapter analyzes the hauntingly beautiful composite manuscript of Martha and Elisabeth Ryan, who, around 1780, studied arithmetic to a level well beyond what was expected of girls in North America. Another manuscript was probably prepared somewhere in New England in the late 1660s—if it was, then it is easily the

oldest extant North American cyphering book. One chapter analyzes the incredible 671-page navigation cyphering book prepared by Charles Page, a boy attending the Royal Mathematical School at Christ's Hospital, London, in the 1820s. Another chapter presents an analysis of a navigation cyphering book that may have been prepared as a gift for the King of England. Space does not permit each manuscript to be mentioned here, but each is, in its own way, remarkable.

Throughout the book a critical stance has been adopted. Some of the analyses reveal that students and their teachers were more interested in preparing attractive books than in developing an understanding of the mathematics that should have been the main focus of their attention. The final chapter begins with a discussion of whether it makes sense to claim that “lessons for today” can sensibly be identified from history. Then six lessons that we believe emerge from our analyses in this book are, in fact, identified.

Those who read this book will, we trust, gain a deeper knowledge of the history of school mathematics. They should also gain new perspectives on today's problems, and challenges, with respect to school mathematics. Perhaps, too, they will be inspired by the “stories” emerging from our analyses of the extraordinary cyphering books. We were.

This book analyzes cyphering books prepared at various times in either North America or Great Britain between 1630 and 1836. During that period there were name changes with respect to both nations in which the books were prepared. The term “United States of America,” or its abbreviated form, the “United States,” will be used to denote the nation comprising those states which, after 1776, comprised the United States of America. The term “Great Britain” will be used to describe the nation comprising England, Scotland and Wales, which was formed by the Act of Union passed by the Scottish Parliament and by Westminster in 1707 establishing the Kingdom of Great Britain. After the Irish Parliament voted to join the Union in 1801 the then Kingdom of Great Britain became the United Kingdom of Great Britain and Ireland.

In this book many of the figures are photographic images of handwritten pages from cyphering books. Often it is difficult to decipher the writing—sometimes (as with the surviving pages of Abraham Lincoln's cyphering book), the pages were very worn, and the writing faded. Also, the ways letters were formed have changed—so that an “s” will often appear to a modern reader like an “f.” The writing is sometimes very small, and on numerous occasions we used enlarged images for analysis.

A careful reader of this volume might notice that, from time to time, there is repetition of points made earlier in the book. Individual chapters of this book will be available for purchase in electronic form, and therefore it makes sense to repeat material important for a chapter, even if that material has been discussed earlier in the book. We have attempted to limit such repetition to cases where what is being repeated represents essential knowledge if the present chapter is to be understood as a stand-alone document. Another feature, in line with opportunities provided by technology, is that there is a reference list at the end of *each* chapter, and a *composite* reference list after all 12 chapters have been presented.

Toward the end of some of the chapters we have acknowledged those who have assisted our research in major ways with respect to those chapters. Although we will not repeat those acknowledgements here, we do wish to thank all who have so generously extended to us their time and expertise as we progressed along “the way.” That general acknowledgement takes into account numerous persons working in archives in various parts of the United States of America and the United Kingdom.

Of course, we would offer a special “thank you” to Fred Rickey, who has written the Foreword to this book. Fred, a fellow researcher in the history of mathematics education, is someone whose work we greatly admire. Fred, and two of his colleagues, are currently in the process of writing a book on the cyphering manuscripts prepared by George Washington in the 1740s. We await the outcome of this research with much anticipation. We also wish to thank Valeria Aguirre Holguín, of New Mexico State University, for her contributions to the chapter on Abraham Lincoln’s cyphering book, and George Seelinger and other colleagues within the Department of Mathematics at Illinois State University.

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