

International Studies in the History of Mathematics and its Teaching

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Alexander Karp

Editor

National Subcommissions
of ICMI and their Role
in the Reform of
Mathematics Education

 Springer

Editor

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Introduction

This book focuses on the national subcommissions of the International Commission on Mathematical Instruction (we use the contemporary name of the commission and the contemporary abbreviation of that name, ICMI, although during the time with which this book deals, the German or French name and abbreviation were usually used, and even the commission's English name was somewhat different, the International Commission on the Teaching of Mathematics). Probably, the first to propose the idea of writing such a book – at a conference on the history of mathematics education in Turin in 2015, during which a report on the Russian subcommission (Karp 2017) was presented – was the then president of ICMI, Ferdinando Azzarello.

Indeed, by that time, studies devoted to specific subcommissions already existed (such as Giacardi's (2009) paper on the Italian subcommission), but in many countries, their work was virtually unresearched, and moreover, what had been done was scattered among various publications devoted to other subjects, not gathered together.

Meanwhile, the whole importance of ICMI's work becomes clear only when we see that the movement initiated by David Eugene Smith and headed by Felix Klein involved not just the dozens of scientists and teachers who gathered together at international congresses and conferences – all of them undoubtedly highly gifted and deeply interested in the development of mathematics education – but in fact hundreds and probably sometimes even thousands of people in different countries who in various ways, if only in the passive role of observers, participated in the work of the national subcommissions.

The main task of the International Commission formed in 1908 consisted in preparing national reports, which was the purpose for which the national delegations (subcommissions) were formed. Naturally, it was expected that the mutually enriching exchange of information would lead to further improvements in education. This book focuses on a relatively short period. In 1914, when the First World War began, international meetings ceased, although the subcommissions could continue working on their reports. By 1920, the publication of these studies had been completed, in one way or another, and the International Commission itself was dissolved.

This is the period – from 1908 to 1920 at the latest – that this book chiefly focuses on. A little space is usually given in its chapters to subsequent years as well, when ICMI was revived and, under the presidency of Smith, and later of Hadamard, attempted to continue its prewar activities, until this attempt, too, was cut short by the Second World War. Admittedly, some of the contributors to the present volume remark on the derivative character of ICMI's work under Smith and Hadamard – there were no new ideas. More precisely, the postwar shock had not been overcome, and the changes that had occurred had not been fully acknowledged.

In this connection, one must appreciate the fact that people working at the beginning of the twentieth century were in a certain sense far more optimistic than subsequent generations. After living through world wars and decades of continuing conflict, which on numerous occasions could have brought about the destruction of civilization, we instinctively are far more skeptical about the possibilities of collaborative work among different countries for the welfare of humanity as a whole. That was not the case in the late nineteenth and early twentieth centuries. Naturally, this time can by no means be considered a golden age – colonial empires flourished, racial and social inequality remained as strong as it had ever been in some places, and in some, it became even stronger. But very many people had a sense of technological progress and along with it – as they wanted to believe – of social progress. It is no accident that in several chapters in this book, the development of mathematics education is examined in connection with the broader struggle for the democratization of society.

The world was developing. Communication was improving. The need for technically educated individuals was growing – and hence also the need to expand and improve the teaching of mathematics. The desire to focus on it and improve it collaboratively was in the spirit of the times – one might marvel at Klein's and Smith's tirelessness, but the actual direction of their work was at the time not so surprising. These were decades of associations and unions, and representatives from different regions and countries wanted to collaborate.

Naturally, the millions – to paraphrase Schiller's "Ode to Joy" – did not always seek to embrace one another, and in the work of the commission, rivalry can be clearly detected, including occasional joy about the fact that "we" (our country) are ahead of the others. But Lenin's frequently quoted words about the start of the World War – "two bandits launched an attack before three bandits had time to obtain the new knives they had ordered" – express a view of the world that became widespread only later and led, already after the end of the war, in 1920, to the dissolution of ICMI and to the collapse of international collaboration in the field of mathematics instruction. Before the war, people were thinking not just about knives, and they did not assume that there were only bandits around them. Working on the history of the short period to which this book is devoted, it is impossible to shed the sense of the tragedy of what happened in the world, and in mathematics education.

But in 1908, all this was still in the future. The call had gone out, and it had found a response. We should say at once that the present book by no means aspires to be an exhaustive treatment of the subject, if only because it contains chapters only about a relatively small share of the countries taking part in the movement (although

these countries were indeed very important). One would like to hope that, in time, this book will have a continuation devoted to other countries. But even in terms of the countries that are covered in this book, one can hardly hope to exhaust all aspects of the work of each of their respective subcommissions in a single chapter.

Participation in the work of the International Commission took place within the context of attempts to reform mathematics education in each of the countries, and this prehistory of the national subcommissions, as it were, deserves study. Each country's delegation (i.e., each country's official representatives in the International Commission) relied on the work of a kind of active core group (which was very small in some cases and relatively large in others), and the lives and work of all of these people are of interest. The ongoing life of each subcommission itself – its organization, arguments, agreements, financing – tells us a great deal both about the history of its country, in general, and about the history of that country's mathematics education. The reports of the subcommissions and contemporary publications concerning their work have previously not been sufficiently analyzed, but they tell us both about the state of education in each country and about the viewpoints and aspirations of their authors. Finally, mention must also be made of the movements that sprung up in participating countries in response to the work of the subcommissions.

The chapters published in this book differ in approaches and in their authors' main interests. By no means, all of the topics alluded to above are treated in them in equal detail, nor were the roles of the subcommissions everywhere identical – it is clear, for example, that in Germany, with its developed reform movement and large number of various professional associations and, so to speak, platforms for discussion, the subcommission's role was somewhat different from what it was, say, in Russia, where its work in many respects stimulated the formation of such platforms. All of the questions raised in this book can and should be investigated further – as, for example, a discussion of the financial aspects of the subcommissions' work can shed light on the mechanisms through which social institutions operated in different countries (or even in countries with different degrees of centralization, whose governments consequently played different roles).

The International Commission did not carry out its work to the end, since the juxtaposition, comparison, and generalization of the accumulated materials were not carried through to substantive results, although attempts to do so were undertaken, at least in Germany and the United States. The generalization of the materials of the national commissions remains of interest to this day, over a hundred years after they were collected, but it too remains largely outside the scope of the present book.

And yet, the chapters of this book, which in many cases rely on previously unpublished and unanalyzed materials, offer a great deal of information for those who are interested in history and in the history of mathematics education and indeed in mathematics education in general. We are presented with an experience of collaboration between research mathematicians (including very prominent ones) and teachers that is today probably inconceivable on such a scale, in the course of which questions were posed and discussed that would be resolved in various ways in the course of

the century that followed, and probably to this day have not all been resolved. Today's research in mathematics education cannot fail to take this experience into account, especially because it reflects the specific characters of very different countries, which subsequently – even if not necessarily following the path that the leaders of their national subcommissions envisioned – continued to play important roles in the world system of education. One cannot embark on new research without knowing about research that has been done in the same field earlier, and this book tells about what was perhaps the most important stage of this research.

The book's structure is simple. The chapter by Fulvia Furinghetti, which opens the volume, discusses the work of ICMI as a whole during the years under examination, providing a kind of general background against which the national subcommissions operated. This is followed by chapters devoted to specific countries and their subcommissions. The countries are dealt with in alphabetical order, chapter by chapter: France by Renaud d'Enfert and Caroline Ehrhardt, Germany by Gert Schubring, Great Britain by Leo Rogers, Italy by Livia Giacardi, and Russia and the United States by Alexander Karp.

In conclusion, I would like to express my gratitude to all those who took part in reviewing the materials for this book.

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