

Once upon a time ...
Historical vignettes from the Archives of ICMI:
A glance at archival material in action

Commission Internationale de l'Enseignement Mathématique
(The International Commission on Mathematical Instruction)

Bernard R. HODGSON

Over recent decades, a number of books have appeared casting light on various facets of the history of the International Commission on Mathematical Instruction (ICMI). A cardinal example of such a book [15], published already a quarter of a century ago under the pen of Olli Lehto, Secretary-General of the International Mathematical Union (IMU) for the period 1983–1990, remains a prime source concerning many crucial episodes in the life of ICMI, as seen within the global context of IMU history. Readers of this column would have noticed how often I am referring to Lehto's treatise in my ICMI Archive vignettes. While the book is not about the history of ICMI by itself, it offers a solid and informative vision of the evolution of the Commission, from its early days, prior to the establishment of IMU per se, up to the attachment of ICMI to the "new IMU" as its education commission, in the middle of the past century, and the spectacular development that followed for ICMI, including a gradual gain of a certain form of autonomy.

Another book of more recent vintage also written from an IMU vantage point is Norbert Schappacher's monograph [17]. This book resulted from an open call made by the IMU Executive Committee and is connected to a symposium held in 2021 to mark the centennial of IMU. (The birth of IMU in fact occurred in 1920, but the centennial gathering had to be delayed by a year because of the COVID pandemic.) I have already presented in a previous vignette [12] salient features from Schappacher's work. While the exposure given to ICMI remains delimited, due to the general emphasis and scope of the book, the reader will find condensed and up-to-date historical information about

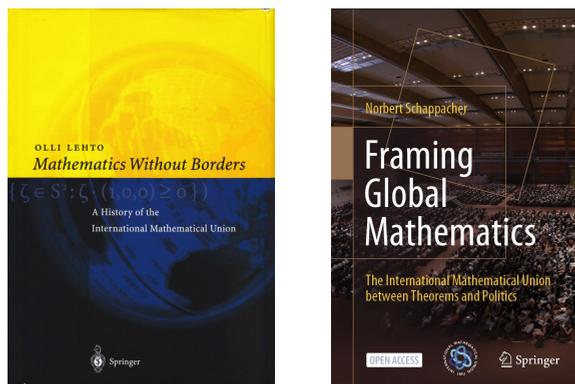


FIGURE 1

Lehto's *Mathematics Without Borders* (1998) and Schappacher's *Framing Global Mathematics* (2022) (Source: IMU Archive).

“the resilient nucleus of the IMU” (expression taken from the title of Schappacher's chapter devoted to ICMI). See Figure 1.

Other books set forth an explicit connection with the history of ICMI. Such case is the proceedings [16] of the centennial symposium organized in 2008 in Rome, the birthplace of ICMI on the occasion of the fourth International Congress of Mathematicians (ICM). Proposing a threefold perspective on ICMI—the past, the present, and the future—the symposium was “based on [the] conviction that history is a powerful and appealing means not only of giving an account of the past but also of building the future”, with the aim of identifying “the future directions of research in education and possible initiatives for improving the level of mathematics culture in the various countries” [16, p. 4]. The program of the symposium consisted of nine plenary lectures, eight short talks, a panel discussion, and five working groups. These proceedings will possibly remain as a landmark in the literature about the history of ICMI, if only in the way they reflect what was then a recent and most dramatic development in the infrastructure and governance of ICMI, above all with respect to the ICMI election procedure (on this account, see my Archive vignette [10]). Comments about this astounding episode—still highly unexpected at the turn of the century—are to be found at various places in the ICMI centennial proceedings.

Another book celebrating a centennial linked to the origins of ICMI is the proceedings [2] of the symposium organized jointly by the Université de Genève and ICMI to celebrate the first century of the journal *L'Enseignement Mathématique (L'EM)*, established in 1899 and the official organ of the Commission from its inception in 1908. This symposium was not intended to cover a large spectrum within the history of

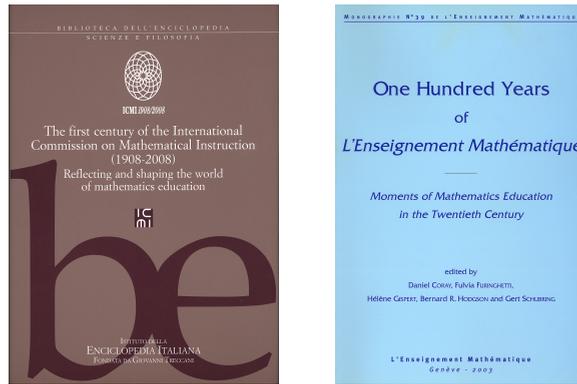


FIGURE 2

ICMI Centennial Symposium (2008) and *L'Enseignement Mathématique* Centennial Symposium (2003) (Source: IMU Archive).

ICMI itself, as the bulk of the program was built around three main themes—geometry, analysis and applications of mathematics—considered via documents having appeared in *L'EM* (among other sources), so to foster reflection on the evolution of mathematics education over the twentieth century as crystallized at three different periods: 1900, 1950 and 2000. Yet the program also proposed ingredients about the early years of ICMI, in particular with respect to the spirit of internationalism and scientific solidarity that animated those behind the establishment of both *L'EM* and ICMI [3, pp. 11–12], and most notably Henri Fehr (1870–1954), founding co-editor of *L'EM* and ICMI first Secretary-General. See Figure 2.

An example of a bona fide ICMI history book is the monograph [14] edited by Alexander Karp and concentrating on a very specific perspective and period of ICMI, namely, actions taken by some of the so-called national subcommissions of ICMI during its very early days, in the years 1908–1920. The original mandate given to ICMI by the IMU General Assembly held during the 1908 ICM called for “a careful examination of the programs and methods of mathematics teaching at secondary schools of the various nations” (quoted in [9, p. 7]), and for a report to be presented at the next ICM. Eventually, the mandate was extended, and the work of the Commission continued despite the turmoil provoked by WW1 so that by 1920 a total of 300 reports summing jointly to 13,565 pages had been produced from eighteen countries involved in the work of ICMI (plus some reports from the Central Committee, the ancestor of the ICMI Executive Committee) [4, p. 31]. Karp’s book proposes an in-depth case study for six of these eighteen countries: France, Germany, Great Britain, Italy, Russia, and the United States. See Figure 3.

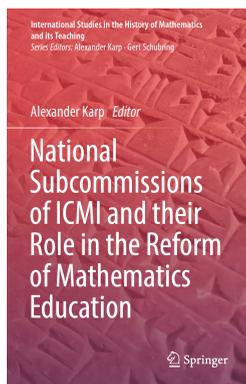


FIGURE 3

Karp's *National Subcommissions of ICMI* (2019).

The theme of the present vignette stems from a recent publication fully devoted to the history of ICMI and proposing a kaleidoscope of perspectives on its first hundred years: the book [6], edited by Fulvia Furinghetti and Livia Giacardi. A most welcome addition to the ICMI history literature, this 700-page volume is closely related to the *History of ICMI* website [5] launched by the two editors in 2008, on the occasion of the ICMI centennial symposium. In the words of the editors, “the purpose of this volume is to understand and outline the evolution of the objectives and field of action of ICMI, from its creation in 1908 in Rome until 2008, through the description of the main events and protagonists of ICMI history” [6, p. viii]—an objective clearly closely related to that of their history website. See Figure 4.

The book is divided into three parts.

- Part III (pp. 347–707) accounts for a little more than half of the book (indexes excluded) and is a distinctive feature of the approach proposed by the two editors. It is in direct link with the “portrait gallery” found on the history website and proposes a total of 63 biographical portraits (revised and expanded to some degree) of people having played important roles in the life of ICMI. Among these, 54 concern members of the ICMI Executive Committee (or Central Committee) who had passed away at the time of the ICMI centennial symposium. And 9 portraits present other “eminent figures” close to ICMI, for instance, Charles-Ange Laisant (1841–1920), founding co-editor of *L'Enseignement Mathématique* together with Henri Fehr. Emphasis is placed on the involvement of these scholars within ICMI or more generally in mathematics education.
- Part II (pp. 239–346)—about 15% of the book—is entitled “Events and Data” and offers a miscellany of basic factual information about ICMI. One will find there,

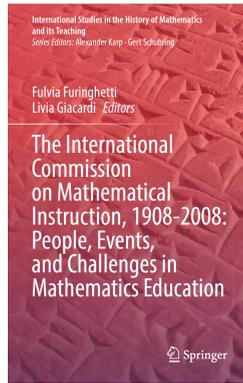


FIGURE 4

Furinghetti and Giacardi's *ICMI 1908–2008* (2022).

for instance, a timeline of marking moments (substantially expanded from the website version) providing a most useful chronological framework about ICMI; the list of all the ICMI Executive Committees members, from 1908 to 2008; the contents of all the education sessions held during the International Congresses of Mathematicians, from the very first one in Zürich in 1897 up to the 2006 Madrid ICM; or an illustrated presentation of the process of internationalization of ICMI over its first century, through a series of maps pointing to the countries that are members of ICMI.

- Part I (pp. 1–238), which makes up a third of the book, comprises four chapters, three of which aim at providing a historical background to the rest of the book, and in particular to the portraits of Part III: a first chapter by Gert Schubring on the early years of ICMI, up to WW2; another chapter by the two editors looking at the rebirth of ICMI in 1952 as the education commission of the newly reestablished IMU, up to the vibrant term of Hans Freudenthal (1905–1990) as President of ICMI; and a chapter by Marta Menghini on ICMI in the “post-Freudenthal era” [8], in the light of the series of International Congresses on Mathematical Education, from ICME-1 (1969) to ICME-8 (2008). Part I closes with a fourth chapter by Livia Giacardi presenting a selection of ICMI Archive documents, on which I now wish to expand.

Authors preparing a paper dealing with historical matters need to count on reliable information so that access to archive documents typically becomes highly crucial for them. The various books that I have mentioned in this vignette—and in particular the three history chapters of Part I of [6]—are a clear testimony to this essential need. In that connection, Giacardi’s chapter [7], entitled “The voice of the protagonists: A

selection of unpublished letters”, is quite unique in the ICMI literature, as it proposes a set of 69 archive documents (68 letters and one report) presented in extenso.

In the introduction to her paper, Giacardi points to the importance of having access to original correspondences and archival documents so as to better “reconstruct the spirit of an era in its various facets” [7, p. 137]. I have myself often used, in this series of vignettes, short excerpts from various documents found in the ICMI Archive (letters, reports, etc.). But giving access to the full document provides a much stronger feeling for the background behind the issue at stake.

Giacardi also stresses some of the difficulties in relation to archival search, a major one being simply . . . the absence of documents! For instance, the ICMI Archive—a subset of the IMU Archive, now located in the IMU permanent Secretariat in Berlin—encompasses no personal documents pertaining to the pre-1950 period of ICMI. Of course, a lot of “public” documents about that period are easily accessible (on the web or physically in the IMU Archive), including proceedings of ICM congresses or reports on ICMI appearing in early issues of *L'Enseignement Mathématique*. But for more personal (or private) documents, one must rely on other archives.

Among the 69 documents reproduced by Giacardi in her chapter (including a scan copy of four of them, three being handwritten), 44 belong to the IMU Archive, coming from Boxes 14A (ICMI 1952–1966) and 14B (ICMI 1967–1980). For documents pertaining to the “Old ICMI”, she relies on the Smith Professional Papers Archive located at Columbia University, using 13 letters ranging from 1908 to 1920. The Smith Archive is related to David E. Smith (1860–1944), ICMI President (1928–1932) and proponent as early as 1905 of the establishment of an International Commission to study issues pertaining to the teaching of mathematics—which eventually became ICMI. Giacardi also includes a few documents coming from four other archives: Felix Klein (1849–1925), Guido Castelnuovo (1865–1952), Georges de Rham (1903–1990) and André Delessert (1923–2010), who all played substantial roles at some point in the life of ICMI. The documents selected by Giacardi altogether make a hundred pages and cover the period 1908–1974, running over eight different Executive Committees of ICMI and including the first six that followed the reestablishment of ICMI as an IMU Commission after WW2. It may be noted that 15 letters come from the time when Klein was ICMI President, and 23 from Freudenthal’s presidency—an indication of the major influence that these two Presidents had on ICMI, as reflected in the expressions “Klein era” and “Freudenthal era” coined by Hyman Bass for his lecture at the ICMI centennial symposium [1, pp. 9–10].

Space prevents me from entering into any details inside the superb collection gathered by Livia Giacardi. Yet to provide an example of the bonus obtained by gaining access to original documents, I mention a letter, dated October 15, 1970, from IMU President Henri Cartan to Secretary-General Otto Frostman, starting with

the heartfelt exclamation: “Freudenthal me donne encore du souci”. Cartan was then complaining that so near the end of his term as ICMI President, Freudenthal was still making decisions with major impact, among others about the following ICME congress, without any consultation with the elected President James Lighthill, who was to take office a mere few months later. Referring to this episode in a paper I coauthored with Mogens Niss [13, p. 233], we had, because of space limitations, to restrict ourselves to the quotation itself, plus a few words alluding to context. It is really something else to provide full access to the letter of Cartan [7, pp. 220–221], thus allowing the reader to develop a better feeling for the crux behind this moment of tension.

The open accessibility of archive documents is a sensitive issue that has of course to be considered in a long-term perspective (including, but not restricted to, embargo aspects). Thinking of the paper documents now found in the many boxes of the ICMI Archive, it would be a rather expensive and challenging operation to aim at promptly making “everything” available digitally on the web. But this will eventually come. After all, taking the example of the official organ of ICMI, all the issues of the journal *L'Enseignement Mathématique*, from its beginning in 1899, are now easily available on the web. The same is true of the proceedings for all the ICM congresses and the ICME congresses, respectively accessible on the IMU and the ICMI websites. Still digitization and management of letters imply a more complex process.

The other side of the coin concerns the current cumulation of new archive material for the future. In the “old days”, many officers of ICMI and IMU—but not all of them—proved to be truly efficient in keeping a personal archive of all the documents related to their duties (including letters received or sent), and eventually depositing this material into the ICMI/IMU Archive. As is well known among archival milieux, the arrival of email (much more than fax, a few decades earlier) has brought substantial new challenges. Many contacts and deliberations are now taking place via email. Moreover, the writing style for emails (not to speak of SMSs) is typically quite different from the one that may have been prevailing when writing a standard letter. How can we ensure that those who are now “making history” through their actual involvement in the leadership of bodies such as ICMI will leave enough traces for the historians of tomorrow, and in a format and style accessible to them? There is no easy answer to such questions. The *modus vivendi* inside IMU and ICMI is currently to automatically archive all emails sent to the official email addresses of the officers (@mathunion.org).

At the IMU Secretariat, all digital files including emails are kept on a long-term storage file system. In a first step, emails with their attachments are converted into PDF/A files. The converted files of a mailbox remain in the original folder structure by using software which has been developed in cooperation with a commercial company and the IMU Secretariat. So, all content of mailboxes or mailing lists are kept in a stable, long-term format. In a second step the PDF/A files are read by an archival

software program, which gives structure (via thesaurus, indices) and access to all documents: photos, files, etc. Deeper structuring of these emails to facilitate access is still a challenge.

But there is hope: according to Olli Lehto's personal testimony, paper archiving also brought substantial challenges of its own—a challenge that he was able to gradually overcome, when the “formidable” volume of IMU Archive material was moved to Helsinki in the mid-1990s (see [11, p. 6] and [15, pp. v–vi]).

References

- [1] H. BASS, Moments in the life of ICMI. In *The first century of the International Commission on Mathematical Instruction (1908–2008). Reflecting and shaping the world of mathematics education*, pp. 9–24, Istituto della Enciclopedia Italiana, Rome, 2008. See ref. [16].
- [2] D. CORAY, F. FURINGHETTI, H. GISPERT, B. R. HODGSON and G. SCHUBRING (eds.), *One hundred years of L'Enseignement Mathématique. Moments of mathematics education in the twentieth century. Proceedings of the EM-ICMI Symposium, Geneva, Switzerland, October 20–22, 2000*. Monogr. Enseign. Math. 39, Genève: L'Enseignement Mathématique, 2003. Zbl 1017.00009
- [3] D. CORAY and B. HODGSON, Introduction. In *Proceedings of the EM-ICMI Symposium, Geneva, 2000*, pp. 9–15, Monographs Enseign. Math. 39, Genève: L'Enseignement Mathématique, 2003. See ref. [2].
- [4] F. FURINGHETTI, Challenges, hopes, actions, and tensions in the early years of the International Commission on the Teaching of Mathematics. In *National subcommissions of ICMI and their role in the reform of mathematics education*, pp. 1–34, Springer, Cham, Switzerland, 2019. See ref. [14].
- [5] F. FURINGHETTI and L. GIACARDI, The first century of the International Commission on Mathematical Instruction (1908–2008). www.icmihistory.unito.it, visited on 5 May 2024.
- [6] F. FURINGHETTI and L. GIACARDI (eds.), *The International Commission on Mathematical Instruction, 1908–2008: People, events, and challenges in mathematics education*. Springer, Cham, Switzerland, 2022.
- [7] L. GIACARDI, The voice of the protagonists: A selection of unpublished letters. In *The International Commission on Mathematical Instruction, 1908–2008: People, events, and challenges in mathematics education*, pp. 137–238. Springer, Cham, Switzerland, 2022. See ref. [6].
- [8] B. R. HODGSON, ICMI in the post-Freudenthal era: Moments in the history of mathematics education from an international perspective. In “*Dig where you stand*”: *Proceedings of the Conference on On-going research in the history of mathematics education*, edited by K. Bjarnadóttir, F. Furinghetti and G. Schubring, pp. 79–96, University of Iceland, Reykjavik, Iceland, 2009.

- [9] B. R. HODGSON, Once upon a time... Historical vignettes from the Archives of ICMI: The (first) ICMI birth certificate. *ICMI News (March 2019)* (2019), 6–7.
- [10] B. R. HODGSON, Once upon a time... Historical vignettes from the Archives of ICMI: The ICMI election procedure. *ICMI News (July 2020)* (2020), 11–13.
- [11] B. R. HODGSON, Once upon a time... Historical vignettes from the Archives of ICMI: Two or three reflections inspired by the postponement of ICME-14. *ICMI News (March 2021)* (2021), 6–10.
- [12] B. R. HODGSON, [Once upon a time... Historical vignettes from the Archives of ICMI: The IMU centennial](#). *Enseign. Math.* **68** (2022), no. 1, 237–242. Zbl 1495.00092
- [13] B. R. HODGSON and M. NISS, ICMI 1966–2016: A double insiders' view of the latest half century of the International Commission on Mathematical Instruction. In *Invited lectures from the 13th International Congress on Mathematical Education*, edited by G. Kaiser, H. Forgasz, M. Graven, A. Kuzniak, E. Simmt and B. Xu, pp. 229–247, Springer, Cham, Switzerland, 2018.
- [14] A. KARP (ed.), *National subcommissions of ICMI and their role in the reform of mathematics education*. Springer, Cham, Switzerland, 2019.
- [15] O. LEHTO, *Mathematics without borders: A history of the International Mathematical Union*. Springer, New York, 1998. Zbl 0889.01021 MR 1488698
- [16] M. MENGHINI, F. FURINGHETTI, L. GIACARDI and F. ARZARELLO (eds.), *The first century of the International Commission on Mathematical Instruction (1908–2008). Reflecting and shaping the world of mathematics education*. Istituto della Enciclopedia Italiana, Rome, 2008.
- [17] N. SCHAPPACHER, *Framing global mathematics: The International Mathematical Union between theorems and politics*. Springer, Cham, 2022. Zbl 1502.01009 MR 4461006

(Reçu le 29 juin 2023)

Bernard R. HODGSON, Département de mathématiques et de statistique, Université Laval, 1045 avenue de la Médecine, Québec, G1V 0A6, Canada; *e-mail*: bernard.hodgson@mat.ulaval.ca