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INTERNATIONAL SYMPOSIUM

«One Hundred Years of *L'Enseignement Mathématique*:
Moments of Mathematics Education in the 20th Century»

*A REPORT ON THE INTERNATIONAL SYMPOSIUM
ORGANISED JOINTLY BY THE UNIVERSITY OF GENEVA AND ICMI
(Geneva, 20–22 October 2000)*

by Geoffrey HOWSON^{*})

It was in 1899 that Henri Fehr (Geneva) and Charles-Ange Laisant (Paris) founded the international journal *L'Enseignement Mathématique*. An event to mark that centenary was delayed by a year in order that the celebrations should also serve as a contribution to the World Mathematical Year 2000. The form that the celebratory symposium took was a historical survey of developments in mathematics education at key periods in the 20th century followed by a short discussion of the manner in which mathematics education might meet the demands of societies today and in the near future.

The meeting was jointly organised by the University of Geneva (the home of *L'Enseignement Mathématique*) and ICMI because of the long-standing relation ICMI has had with the journal. At the time that Fehr and Laisant launched it there were already a few periodicals devoted to mathematics education — but these were all national and normally the organs of national teacher organisations. The new journal was the first to seek an international audience and early in its life it began to carry articles describing current teaching practices in different countries. This led the US teacher educator, D. E. Smith, to suggest, in a paper published in its pages in 1905, that an international commission should be established to enquire into mathematics teaching in countries world-wide. Smith's suggestion was formally submitted to the International Congress of Mathematicians held in Rome in 1908 where it was accepted and resulted in the founding of the *Commission internationale de l'enseignement mathématique* (CIEM), the body from which ICMI developed. Fehr was appointed Secretary General

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of the Commission (a post he held until his death in 1954) and *L'Enseignement Mathématique* became the new commission's official organ. Since that time there has always been a link between the two bodies and it is in this periodical that the history of ICMI can best be traced. In that journal and in its indices we can, for instance, follow the development of ICMI's "enquiries" and "studies". (One in the index for 1959 I found particularly intriguing: «Appendice au questionnaire préparant l'enquête sur la pénurie des professeurs». No doubt "pénurie" should be translated as "scarcity" – a suitable topic for a present-day ICMI study – but the faux-ami "penury" would prove equally appropriate !)

Three periods, the beginning of the century, the years of "modern math", i.e. 1950–70, and the present, and three themes, geometry, analysis, and applications of mathematics: mathematics as a service subject, were chosen for study. Thus for example, one session was devoted to thirty-minute talks on geometry in each of these periods, a reaction and a plenary discussion. In the final session there were talks on international activity, current periodicals in mathematics education, and mathematics education within society. The meeting began with an account of the foundation of *L'Enseignement Mathématique*.

There was much of interest in all of these talks and as these will be published sometime in 2001, readers will be able to study these for themselves¹). Here I shall confine myself to some impressions gained from the meeting as a whole. How have things changed since *L'Enseignement Mathématique* was first published? Perhaps the most obvious change is that the periodical first appeared at a time when French was still the language of diplomacy and the idea of publishing an international journal with all its articles in French was conceivable, even if at that time limiting (and a policy later changed). One result was that the circulation — and the range of authors to be found in *L'Enseignement Mathématique* (apart from in some of the ICMI sections) — is very heavily biased towards a few European countries. Moreover, ICMI, in its early days, was led by university mathematicians with an interest in what was happening in schools, and it is the writings of such authors that are best represented in the pages of the journal, rather than those of schoolteachers, teacher trainers, or what came to be known as mathematics educators. Indeed, there have been periods when the periodical's papers were much more concerned with mathematics than with its teaching. As a result any survey based on papers to be found in *L'Enseignement Mathématique*, is likely to reflect not what was actually happening in schools but what some influential mathematicians thought might with advantage happen in them.

It is important though to remember that in the 1950s and 60s one could find in its and other journals' pages articles on school mathematics written by distinguished mathematicians such as Artin, Cartan, Dieudonné, Freudenthal, Leray, M. H. Stone, Thom and Whitney. Many of the papers were, in the words of Freudenthal, the equivalent of publishing theorems without proofs, for ideas were never worked out in a form that could be used in classrooms (or would fit naturally within a school curriculum). Nevertheless, the concern of the mathematicians and the professional strength of a considerable proportion of schoolteachers in that period did lead to some extremely good and impressive mathematical writing — even if on many occasions this also demonstrated either a lack of pedagogical understanding or ill-founded optimism. It was right, as was exemplified at the seminar, that the needs of university mathematicians

¹) Some of these talks are already available in preprint form on the Web site of *L'Enseignement Mathématique* (in directory <http://www.unige.ch/math/EnsMath/EM-ICMI/>).

should cease to be paramount — especially as secondary and higher education expanded to encompass a greater proportion of the population. Yet there was little to be heard at the symposium about what mathematics we should be teaching now and in the future. There were valuable comments on how technology could be employed to improve the teaching of “old” mathematics, but no concrete suggestions were made on what form “new math” might take in this new century. One wonders from what quarter such ideas are likely now to come.

The symposium demonstrated then how over the century the emphasis shifted from discussions of the mathematics to be taught to an élite, to the needs of a wider range of students and of society. Little was said though about the needs of, and for, teachers. Their problems of scarcity (and social status) have not lessened — indeed these would seem to increase year by year. We now have to tackle problems not only concerning the mathematics to be taught, the needs of the learner, the professional concerns of individual teachers, but also the well-being of educational systems. The last was not a great concern of educators from the developed countries during the 20th century — one suspects that it will concern us much more in its successor.

Yet, the symposium indicated the great advances that have been made during the last century: of how mathematics has been brought to so much greater a proportion of adolescents world-wide. It reminded us of the way in which two generations had tried to make enormous changes in the content of school mathematics and methods of teaching it. It gave us an opportunity to see where these earlier efforts had not been wholly successful and challenged us to determine why. With such an understanding we should be better equipped to tackle both the problems that now face us and those which will arise in the future.

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