

Spanish about research in mathematics and mathematics education, a teacher from a Latin American country approached the speaker. Almost in despair, she wanted the speaker to tell her which were the three most important research papers in mathematics education, so that, after reading them, she would know how to make a success of her new position as head of department in a secondary school.

□ I overheard yet further expectations from some researchers attending ICME 8. In particular, the wish to establish a productive dialogue with practitioners (teachers, teachers of teachers, textbook writers). Instead, many discussions were less concerned with the ideas than with “mundane” problems such as: How do I convince my principal to allow me to introduce change in the directions you recommend? How do I get to build a computer lab? How do I access continuous support for my attempt to implement this innovation?

□ Some researchers expected to find fellow researchers who were interested in sharing and discussing present trends, “cutting edge” news and innovations. Yet they found that some colleagues seemed to remain focused on issues and methodologies of earlier days.

Great expectations hung in the air — and after the conference was over they were probably left hanging. And yet... I am sure that, like myself, most participants picked up, consciously or unconsciously, ideas, insights, and issues to reflect upon, from the sessions or in small talk over coffee.

A conference like ICME may not be able to fulfill great expectations, or provide overnight breakthroughs. But is that not intrinsic to our field? Our field would seem to advance by small steps; great strides are anyway prone to “backlash”, as some past experiences would seem to show. And it is not only advances that concern us. Mathematics education is also concerned with change, necessitated or made desirable by the changing mathematical, cultural, and even political environment in which it operates. If we acknowledge that we came back home with food for thought on some of these issues, then attending ICME 8 can be regarded as a positive experience, in spite of the many unfulfilled, perhaps unrealistic, expectations.

## A story we are the heroes of

### COLETTE LABORDE

I was among several thousand participants of ICME 8 swarming over the Campus Reina Mercedes at Sevilla, but I missed seeing many colleagues and friends despite the “Happy Hours” that favoured the conglomeration of participants around some sources of refreshment. Indeed, the regulation limiting the consumption by each person to one glass of soda or beer and to one piece of bread stuffed with ham, led some participants to sulk and miss this opportunity of meeting. Such is the destiny of congresses with more than 3,000 participants (3,481 on the day before the opening, including accompanying persons): a series of regrets, aborted appointments, forced omissions, misunderstandings, but also pleasant encounters and fruitful fortuitous events that cancel out the bad side. Everybody individually experienced some such events, sometimes to his/her great surprise. The

most unexpected event for me was certainly meeting a California poet of Chinese origins, publishing his work in English and speaking French, as well as being an *amateur* of “foies gras” from Périgord and a friend of Paul Erdős.

I was confronted with the peculiar very early in the course of the Congress. What for all the other participants consisted of listening to a lecture in uncertain sound conditions, was transformed for me into a stimulating exercise, thanks to a sudden last-minute proposal. The evening before the Congress, the chief organizer asked me to introduce the plenary lecture by Anna Sierpiska with which the Congress would begin. I was given the written text of the lecture, and had to put the transparencies on the overhead projector at the right time — a fearsome synchronization task when like all the other participants I could hardly hear her voice. However, I managed to read the text with one eye while trying with the other to follow the rhythm of the speaker by deciphering her lip movements. This method of reading, that did not tolerate either re-readings or stops for reflection, has proved very effective in showing me the extent of the speaker’s work, the quality of her synthesis of research on the teaching of mathematics, and the due place given to French research. A lecture that opened the Congress well and that will be an important reference in the future.

#### *An itinerary*

My itinerary at the Congress was guided by my interest in new technology and in geometry: I followed Working Group 15 (The impact of technology on the mathematics curriculum) and Topic Group 19 (Computer-based learning environments). The audience at the Working Group played an important part and attended assiduously. My interest fluctuated; the range of softwares presented went from specific software designed by its author to satisfy a youthful fantasy dating from the time of his studies in mathematics to software seeking to give new means and ways of working on concepts whose difficulties for the learner had been identified. Some of the speeches (for or against the use of technology) were as inflated with ideology as balloons, a small touch of a pin would have reduced them to nothingness. But their authors were most often better speakers than others and had an impact on their audience before one could even reach for a treacherous pin. It seems that we now enter an era in which we need precise reports and analyses of teaching experiments integrating technology.

The crowd filled the great amphitheatre during the entirely bilingual presentation (thanks to the spontaneous translation by Carlos Vasco) of the ICMI study on geometry: a great richness despite a too strong emphasis on the Occident and on secondary schools, as was remarked by a participant. The planned book will certainly fill a lack that has been created by the renewal of interest in geometry in the curriculum, including university level.

An international congress such as ICME 8 is a preferred place for a project like the “Multicultural Dynamic Geometry Project” because it gathers various experiences from around the world. This project presented teaching experiments and the uses of dynamic geometry software, from Catalunya to Japan, passing through South Africa and Argentina. Examples well illustrated the influences of culture on the curriculum, but time did not allow the examples

to be gone beyond

#### *The ordinary day of a ICME 8 participant*

My normal day at ICME 8 began at 8:30 a.m. with the Working Group and finished after midnight with an andalusian dinner, preferably outside in a courtyard ventilated by some tiny emanations of freshness. Besides lunch for 600 pesetas in a small restaurant next to the campus, my day was punctuated by breaks devoted to refreshments, to meetings, to visits to exhibitions. The non-commercial exhibition was for me an oasis between two sessions. It allowed me to meet colleagues, and to discover new publications. I also used the strategic position of a small bench at the crossing-point of the alley by the maths and physics buildings and the one that led to the commercial exhibition: I looked for known faces in the flow of participants. I simulated reading the congress daily newspaper, "Diario de Sevilla", but in fact studied the wave of people that flowed close to me. One morning the two pages devoted to veterans (participants that have attended all the ICME congresses, "old hands" in English) nevertheless captured my attention to the point that it distracted me from my supervision. Not one woman in the eight or ten veterans! "Beards" could have been used instead of "hands", following the sexist French way of speaking. I knew them all, and nevertheless could not recognize their faces on the photograph taken during the first ICME at Lyon in 1969.

#### *New trends*

The specificity of this ICME resided in the dialectic contrast between internationalism and hispanism.

The Web constitutes without any doubt the greatest novelty since ICME 7. The three Ws have become a classic ornament at the bottom of name cards. Servers of associations and various organisms are now flourishing. The Web results in some new possibilities for communication within the community of mathematics educators and the appearance of new bibliographical data-bases, such as that of *Thales*, the Spanish association of mathematics teachers, and the French data-base regrouping publications on mathematics education in the French language (two demonstrations took place).

The principle of drawing on international solidarity to enable less wealthy countries participate in ICME began to operate in Quebec in 1992. It was taken a certain extent further at Sevilla where more than 7% of the delegates (260 delegates from 65 different countries) were subsidized through a 10% surcharge on the standard registration fee.

ICME 8 was marked by a strong Spanish imprint: the thick air of the andalusian heat, the meals schedule that challenged the Anglo-Saxon and Helvetic traditions, and the resonance of the language, infinitely more present than French was at ICME 7 (900 Spanish participants, 554 from Latin America).

The history of ICME is forged over the course of time. Concluding the Congress, Mogens Niss, secretary of ICMI, sketched this evolution: *from* attention to problem solving and to curriculum design *towards* more interest in cognitive aspects, meaning and making sense, in teachers' and students' attitudes and beliefs, in the professional development of teachers, in proof and geometry, in teaching at university level.

Such reflections that take for their object a process in which one is personally involved are not without the effect of provoking a light dizziness of anxiety mixed with a shiver of curiosity. Where are we situated in this evolution, to what extent do we contribute to the constitution of this history, are we valiant heroes or resigned and perhaps resentful characters? I ask you the question too.

#### *Final resolution*

Four years remain for me to start learning Japanese.

## **The lore of large numbers: The verbal and social fabric of big conferences**

DAVID PIMM

*In halls the people come and go,  
Talking of Ubi D'Ambrosio*

ICME occurs only once every four years. The social pressures to attend mount in the run up to the conference. And many past attendees do return, though this possibly reflects once again a triumph of hope over experience. Due to the time-lag since the previous one, hard-won knowledge about ways of contending with such a meeting is lost. This includes how to function when there is insufficient room for everybody, with simple individual choice a poor allocator; how to behave when there is a need to target specific talks and create space around them in order to be near the front of a queue; whether to adhere to a narrow and constraining, but frustration-avoiding, policy of "only go to people you already know speak well or interestingly". The halls in Sevilla rang with complaints of people unused to not getting what they wanted.

There are so many people. And there is such a weak allegiance to any possible speaker, group, or whole, that what occurs is rampant individualism, unfettered by any responsibility to a larger entity than themselves. There is so much going on, that *surely* something more interesting than where they currently are *must* be happening somewhere else. So much of what felt like gentle air conditioning in the lecture theatres was actually caused by the constant flow of people in and out of every point during a talk.

People do indeed travel hopefully rather than arrive, and do so with little awareness of their fellow travellers. An intellectual territorial imperative seems to pull them to roam rootlessly, nomadic hunter-gatherers adrift in a new and unfamiliar terrain. I too moved from place to place only to find I had remained in the same land, that of the reciting in public of pre-prepared written text, in most cases more or less tinged by the unaware imperialism of the native English speaker. Language choices also contain political traces. For example, Luis Puig had been asked by the ICME planning committee to speak in English rather than his native tongue. There were a considerable number in his audience who thought he should be speaking in Spanish (some of whom believed he would be, having been misled by an ambiguously-placed asterisk marking the single Spanish-language lecture in that time slot). Despite being invited to leave before the talk began, those preferring Spanish waited and left in concert a few minutes after he started to speak — a