

# IOWME NEWSLETTER

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Above is an image from IOWME's past, find out more inside in this special issue on the her-stories of our organisation

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<http://extra.shu.ac.uk/iowme/>

**INTERNATIONAL ORGANISATION OF WOMEN AND  
MATHEMATICS EDUCATION**

An affiliate of the International Commission on Mathematical Instruction

## Welcome to the third IOWME Newsletter of 2007

This is a special issue of the newsletter!!

Apart from some news and the customary list of convenors, it is entirely devoted to a narrative of IOWME's past that I have patchworked together from a range of sources. A few parts of this have appeared in newsletters before, some recently and some a very long time ago. However, I thought it was worth including these parts alongside all the new material so that you can read these her-stories of IWOME in their entirety. Although I struggled with the task of editing this account for ICMI's centenary, I also really enjoyed reading over old newsletters and 'talking' with people who have been involved with IOWME through the years. I hope that you enjoy reading the result. I'd like to thank all the people who generously contributed, and Fulvia Furinghetti and Hilary Povey who supported me in putting it together.

It is amazing for me to think that I have only one more newsletter to go before I hand over this job to someone else at ICME 11 in Mexico. So if you have been meaning to write something for the past three and a half years but haven't managed to get around to it yet, then please, please do it soon (and by the end of February at the very latest) otherwise you will miss your chance. I welcome all sorts of contributions including short items of news, reports on projects or conferences, discussion articles, interesting quotations, cartoons, reviews of relevant books or films and pretty much anything related to women and mathematics education. If you have an idea for a contribution but are unsure whether it would fit then please get in touch. My contact details are:

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Finally, Hilary and I are excited about seeing who will take over from us and what they will do with it. So if you are interested in becoming an officer of IOWME for the period 2008-2012, either as convenor or as newsletter editor, then do get in touch with one of us (Hilary's email address is [h.povey@shu.ac.uk](mailto:h.povey@shu.ac.uk)).

Best wishes, Heather

### Contents

Her-stories of IOWME - the International Organisation of Women and Mathematics Education.....	3
News .....	48
National Coordinators .....	53

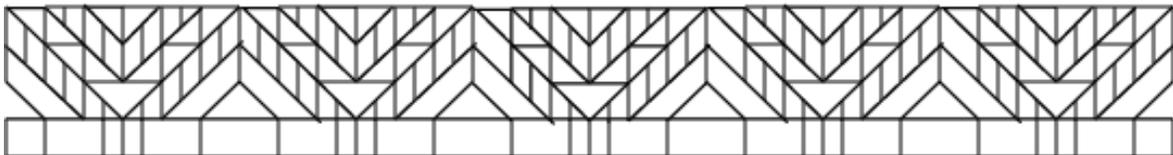
## Her-stories of IOWME - the International Organisation of Women and Mathematics Education

Edited by Heather Mendick, with contributions from Claudie Solar, Christine Keitel, Gila Hanna, Heleen Verhage, Hilary Povey, Leone Burton, Máire Rodgers, Mary Barnes, Nancy Shelley and Pat Rogers Roberta Mura

A collection of: specially commissioned articles, edited extracts from the newsletters, short reflections and editorial comments

### Table of Contents

Beginnings	4
A brief history of IOWME: 1976-1984	6
ICME 4, 1980, Berkeley	10
ICME 5, 1984, Adelaide	11
IOWME activities 1984-1988	15
IOWME, mathematics and peace	18
ICME 6, 1988, Budapest	21
IOWME activities 1988-1992	25
ICME 7, 1992, Québec	27
IOWME activities 1992-1996	29
ICME 8, 1996, Sevilla	33
IOWME activities 1996-2000	35
ICME 9, 2000, Tokyo/Makuhari	37
IOWME activities 2000-2004	39
ICME 10, 2004, Copenhagen	40
IOWME activities 2004 -2008	42
Endings and how far have we come?	45



Designed by Char Morrow for an article In Memoriam: Claudia Zaslavsky

## Beginnings

In autumn 2006, Leone Burton and I were asked by Fulvia Furinghetti to write a history of IOWME for the ICMI centenary. Leone was one of my doctoral supervisors and has a long association with IOWME. I thought this would be a wonderful chance to work with her again and to find out more about the rather strange organisation IOWME which I had allowed myself to be persuaded to become newsletter editor for at ICME-10 in Denmark. In accepting to do this "history", we were not intending to produce a definitive singular account following a timescale, but a sense of IOWME conveyed through stories, anecdotes, photos, and so on, in other words we wanted to collect a set of feminist her-stories of IOWME. Leone and I work with narratives in our research and so storying seemed a good way to proceed:

It's a way of explaining the universe while leaving the universe unexplained, it's a way of keeping it alive, not boxing it into time. Everyone who tells a story tells it differently, just to remind us that everybody sees it differently. Some people say there are true things to be found, some people say there are things to be proved. I don't believe them. The only thing for certain is how complicated it all is, like string full of knots. It's all there but hard to find the beginning and impossible to fathom the end. The best you can do is admire the cat's cradle, and maybe knot it up a bit more. (Jeanette Winterson, 1985, *Oranges are Not the Only Fruit*, London, Harper Collins, p.93)

At first we didn't know where to start because IOWME has never collected an archive and between us we had no newsletters pre-2003. Together we pieced together a list of the convenors and newsletter editors from IOWME's stormy beginnings 30 years earlier to the present day: Nancy Shelley, Leone Burton, Mary Barnes, Gila Hanna, Heleen Verhage, Christine Keitel, Anna Kristjansdottir, Teresa Smart, Lesley Jones, Jo Boaler, Megan Clark and Hilary Povey and me. We sent an email to all of them (except Nancy Shelley for whom we couldn't find an email despite much googling), we asked for:

- copies of newsletters
- photos of yourself and/or conferences
- reflections on your time in IOWME
- emails, notes, or other paraphernalia surrounding the production of books, conferences or anything else connected with IOWME
- information on IOWME sessions at ICME

Gila Hanna came through with most of the newsletters which arrived in a big green folder, later Mary Harris supplied the newsletters from the later years which had been missing from Gila's collection.

However, sadly Leone became ill shortly after we embarked on this project and it fell to me to pick it up again later in the year. My own knowledge of IOWME is sketchy so I have relied on what people have sent me - books, snippets of information, memories, photos. The result is a collage or patchwork of material that I hope is recognisable to those whose association with IOWME goes back further than mine. I have been very influenced by Stuart Hall's work on identity and what he says about individual identities also applies to those of organisations.

Far from being grounded in a mere 'recovery' of the past, which is waiting to be found, and which, when found, will secure our sense of ourselves into eternity, identities are the names we give to the different ways we are positioned by, and position ourselves within, the narratives of the past. ... Cultural identities are the points of identification, the unstable points of identification or suture, which are made, within the discourses of history and culture. Not an essence but a *positioning*. Hence, there is always a politics of identity, a politics of position, which has no absolute guarantee in an unproblematic, transcendental 'law of origin'.

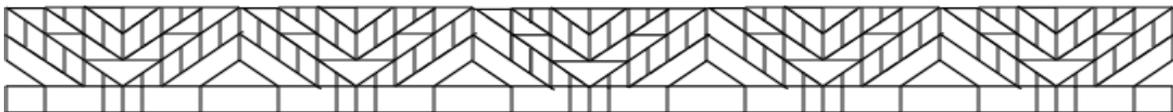
From: Stuart Hall (1990) Cultural identity and diaspora, in: J. Rutherford (Ed) *Identity: community, culture, difference*. London, Lawrence & Wishart, p. 225-226

There is no one true voice that can relate the story of IOWME; what I have crafted here is not in any simple sense an account of IOWME but part of that project of identity, not an essence but a positioning, which I hope can be a resource that we use to build a future.

IOWME is 31 years old and has had a presence at all the ICME conferences except the first two.

ICME-3, 1976, Karlsruhe (Germany)	ICME-4, 1980, Berkeley (USA)
ICME-5, 1984, Adelaide (Australia)	ICME-6, 1988, Budapest (Hungary)
ICME-7, 1992, Québec (Canada)	ICME-8, 1996, Sevilla (Spain)
ICME-9, 2000, Tokyo/Makuhari (Japan)	ICME-10, 2004, Copenhagen (Denmark)

Any organisation that lasts for many years and that brings together members from all over the world is going to have struggles and tensions as well as pleasures and celebrations. These are all part of the process of working collectively across difference and no learning is possible without this. I have tried to represent all facets of the work and life of IOWME in this collection. I begin at the beginning; as Chaim Potok wrote at the start of one of his novels: "All beginnings are hard" ...



## A brief history of IOWME: 1976-1984

By Nancy Shelley, Foundation convenor of IOWME

**First published in the ICMI bulletin and then reprinted in the first ever newsletter, April 1985, edited by Mary Barnes**

The International Organisation of Women and Mathematics Education came into being at ICME III in Karlsruhe in 1976, at a meeting arranged during the course of that congress to discuss the question of 'Women and Mathematics'. The calling of that meeting was initiated by two Australian women, Jan Kennedy and Nancy Shelley, who were struck by the lack of representation of women as speakers, panel members or presiders, despite the fact that nearly 50% of those attending the congress were women.

Eight years later, a somewhat more enlightened view is taken about women and the study of mathematics, and it is now acknowledged that much human potential is being lost by the fact that so few women consider mathematics to be a subject for them to study. It may, therefore, be a surprise to some to learn what the reaction was to the calling of that first meeting, to holding it, and to its outcomes. For the record, however, it needs to be told.

Having booked a room and time for the meeting with the appropriate office, we put up notices around the campus which said simply, in three languages: Women Participants of Congress are Invited to Meet on Friday at 1pm to Talk. Bring Your Lunch. Room K.

A male colleague who assisted in putting up notices was amazed to find himself verbally abused by another male participant as he put the notice on the door of one of the buildings! That colleague was heard to recall the incident at ICME 5 - the heat of the argument was still vivid in his memory!

About fifty people attended the meeting - both women and men - and my first task was to ensure that everyone present could have the comments translated into a language which she or he could understand, for, of course, we had no official facilities for this. I then asked if people had any comments to make about:

1. the place of women at this congress;
2. the relevance for women of the things that had been discussed.

Participation was right across the group and concern was shared; a need was expressed, and the ways of meeting that need were suggested and adopted. The third question put was 'Should we be giving more attention in future ICME Congresses to girls in mathematics in secondary schools?'

It was agreed to set up IOWME whose purpose is:

1. to bring together those who are concerned with the subject of women and mathematics,
2. to circulate among members any research already available concerning women and mathematics,
3. to found branches in as many countries as necessary, and
4. to encourages further research into
  - (a) Why so few women study mathematics, and
  - (b) What are the job possibilities for those who qualify.

The executive of IOWME consisted of 7 women, one from each of France, West Germany, Sweden, Hungary, USA, and Australia, and each undertook to set up a branch in her own country along whatever lines were applicable and to pursue the general areas of IOWME in the most suitable way. Nancy Shelley was asked to be the International Convenor for the next four years.

In addition to this it was felt that some expression of our discontent and dissatisfaction with the organisation of ICME should be given to the Congress and the basis of a resolution was outlined. The details of this were left to the executive to deal with and we were requested to see that the resolution was presented at the final session.

The statement was:

A group of some fifty men and women of the Congress who met to discuss the question of 'Women and Mathematics' approved the motion:

That we regret the poor representation of women at all levels:

in delivering main papers,

on panels

as reporters,

and in the planning of this 1976 Congress,

And make the following three suggestions: that in 1980

A group of women be included in the Organisational Committee;

1. A main speaker, preferably a woman be invited to speak on some aspect of women and mathematics;
2. Some opportunity be made for people interested in women and mathematics to meet, probably more than once.

The meeting was a very positive one and we felt that an historic step had been taken.

I was puzzled that Jan, who had been beside me at the beginning of the meeting, had disappeared and took no part in the discussion. When I saw her later, I said:

'Jan, what happened to you?' She replied: 'What happened to me was that Denis (her husband) and I spent the entire time trying to prevent some people at the door from breaking up the meeting! They maintained it was an illegal meeting and we had no right to hold it.'

Our next difficulty arose when we tried to get our resolution read at the final session. Initially I was told that it was out of order, because all matters to be included in the Vice-President's report had been decided the previous evening - though no public mention of this fact was ever made to the Congress. At length, I persuaded one of the executives to read our resolution. He then undertook, without promises, to see the other members of the executive of ICMI and seek their agreement to its being included.

Meanwhile, coloured pens and large sheets of paper were obtained and the resolution was written out in three languages and placed in the foyer. Just as the final session began I was told that if the Vice-President saw fit, it would be included. He did read it as the final item of his report and it brought laughter from the assembly as he read. However, at the conclusion of his reading there was applause for it.

Throughout the next four years there was a correspondence between the national coordinators and some branches were founded. There was a great deal of activity in the USA leading up to ICME 4 in Berkeley in 1980, and much of our Karlsruhe resolution was put into effect.

There were 4 sessions allotted to Women and Mathematics and 2 slots for IOWME to meet for discussion and organisational matters. In early 1980, Dora Skyeck wrote that "of the 430 speakers or panel members in the programme, 88 were women and 12 or so women have been asked to serve as presiders." She concluded with the comment "It is evident that the issues you raised at the Karlsruhe Congress has had an impact on the planners of this Congress."

At the second business meeting, Nancy Shelley was asked to continue as International Convenor for the next four years, and 14 national coordinators were found, an increase of 6 on the previous four years, with two from the USA. Each country would pursue the subject as best suited the local situation.

The Australian branch of IOWME held a two-day national conference in January 1982, in Canberra and research and experience were shared. Recommendations were also made concerning ICME 5 and passed into the organisers.

Also in 1982, An International Review of Gender and Mathematics was published by ERIC. This was edited by one of our foundation members, the national coordinators for West Germany, and six of the nine coordinators of IOWME.

Over these four years a great deal of work has been done in relation to both girls and women in mathematics. Much of this has been initiated by women concerned with equal opportunity and often not directly involved in mathematics. This should be

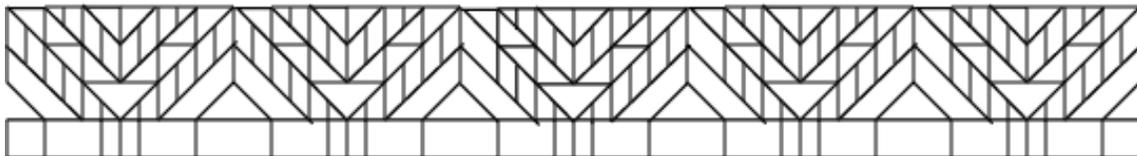
salutary; at the same time it bears out the wish of the Karlsruhe meeting to include those who may not be involved in mathematics education, yet are concerned with the issue - hence our title: Women and Mathematics Education.

In 1984 at ICME 5 in Adelaide, four sessions were held on Women and Mathematics under the Topic Areas and Study Group Section of Congress. In addition, two sessions were scheduled for business meetings, although a more appropriate time for these would be something to be desired at future congresses.

At the first of these business meetings, a group of five women were asked to seek an opportunity to speak with the President, Jean-Pierre Kahane, and others on the executive, to discuss the place of women in the running of the congress, their representation on committees, the possibility of guidelines for organisers and speakers and in relation to language and content; the possibility of representation IMU, and finally, the relationship of IOWME and ICMI. We had a very profitable meeting, and it was decided at the next meeting of IOWME to proceed with affiliation.

IOWME has also decided to produce a newsletter and Mary Barnes, Australia, is the Editor. The new convenor of IOWME for the next four years is Leone Burton, UK.

In conclusion, I should like to make the following comments. The study of Women and Mathematics is now generally recognised as a serious one. Certainly many people have accepted the necessity for greater participation of women in mathematics and in mathematics congresses. Yet, in attending to the issues of equity, what should not be overlooked is the contribution and insights women can make to mathematics - as women - which has the potential to affect the development of the subject itself.



## ICME 4, 1980, Berkeley

To supplement the account above the following sessions were held:

- Session 1: A COMMUNITY ACTION MODEL TO INCREASE THE PARTICIPATION OF GIRLS AND YOUNG WOMEN IN MATHEMATICS:

*Establishing the effectiveness of programs designed to increase women's participation in mathematics* by Elizabeth K. Stage, University of California, Berkeley, California

*EQUALS - A staff development program* Kay Gilliland, Emeryville Unified School District, Emeryville, California

*The development and growth of the Math/Science Network* by Nancy Kreinberg, University of California, Berkeley, California

*Women and mathematics in the United States: The new mythology* by Elizabeth Fennema, University of Wisconsin, Madison, Wisconsin.

- Session 2: CONTRIBUTIONS OF WOMEN TO MATHEMATICS EDUCATION

*Contributions of women to mathematics education* by Kristina Leeb-Lundberg, City College of New York, New York.

- Session 3: THE STATUS OF WOMEN AND GIRLS IN MATHEMATICS: PROGRESS AND PROBLEMS

*The status of women and girls in mathematics: Progress and problems* by Marjorie Carss, University of Queensland, Australia

*The status of women and girls in mathematics: Progress and problems* by Eileen L. Poiani, Saint Peter's College, New Jersey

*The humanness of mathematics* by Nancy Shelley, Canberra College of TAFE, Australia

*The status of women and girls in mathematics: Progress and problems* by Dora Helen Skypek, Emory University, Atlanta, Georgia, USA.

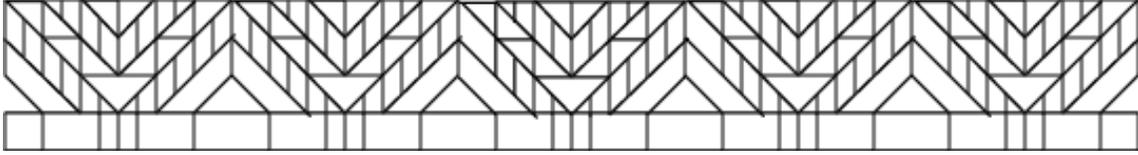
- Session 4: SPECIAL PROBLEMS OF WOMEN IN MATHEMATICS

*Special problems of women in mathematics* by Erika Schildcamp-Kuendiger, University of Saarbrücken, West Germany.

Mary Barnes sent me the list above, she made this comment:

Notable in this list is the predominance of US speakers (seven out of ten), and, in view of the subsequent history of IOWME, the absence of anyone from the UK. There *were*, however, several UK women mentioned in session 20.2 on women mathematics educators. I also found the papers interesting to read from this distance, and note how far we have come in

27 years. The language and the assumptions and the focus of research have changed a great deal.



## ICME 5, 1984, Adelaide

By Mary Barnes, Foundation newsletter editor of IOWME

Written July 2007

### **Women and Mathematics Topic Area sessions**

The program for ICME 5, held in Adelaide in 1984, included time slots for two meetings of IOWME and also four meetings of a Topic Area entitled "Women and Mathematics". Initially, the organisers of the Congress did not consult with IOWME in planning the Topic Area sessions. They appointed Joanne Rossi Becker as International Organiser of the Topic Area, with me (Mary Barnes) as Local Organiser. Neither of us had heard of IOWME until Nancy Shelley made contact with us and told us something of its history. We then invited Nancy to act as a consultant and she assisted in planning some of the Topic Area sessions.

At the time, data from the Second International Mathematics Study (SIMS) had recently become available, and two sessions were devoted to papers dealing with gender differences in the data. Erika Kuendiger began by presenting a conceptual framework for analysing gender differences in mathematics on an international basis. This was followed by reports on gender differences in the SIMS data from Canada, England and Wales, Scotland, Hong Kong, New Zealand and Australia. These were presented by Gila Hanna, Lesley Atkin, Pat Hiddleston, Magdalena Mok, Helen Wily and Gilah Leder respectively. Of these reports, two focussed on achievement, one primarily on attitudes and two on both achievement and attitudes.

The third session included reports on intervention programs designed to bring about change, to increase the participation of women in mathematics. There were three papers from the USA, presented by Joanne Rossi Becker, Ruth Afflack and Diane Resek, and one from Australia, presented by Mary Barnes. Joanne Becker gave an overview of intervention programs in the USA, while Ruth Afflack described college courses for adult women to combat mathematics avoidance, and Diane Resek spoke about women learning mathematics with computers.

The final session was entitled 'Women, Culture and Mathematics'. Roberta Mura (Canada) began by suggesting that under-representation of women in mathematics raised three types of questions: 'Why are there so few women in mathematics, and how can we change this?'; 'What is the experience of those women who choose mathematics?'; and, 'Which characteristics of mathematics are a consequence of the fact that it has been built mainly by males, and what might a mathematics built by women look like?' Asserting that most research to date had focussed on the first of these questions, Mura reported two studies of the second type that looked at the experiences of university mathematics specialists. She suggested that explanations for gender differences may lie in attitudes to risk-taking, and to women's

experiences in the wider society. Carole Lacampagne (USA) discussed some of the prevailing myths about women's role in society which could affect their learning of mathematics, and contrasted these with the realities. Nancy Shelley (Australia) responded to Mura's third question, about a mathematics built by women. She discussed the interlocking of women, culture and mathematics, by looking at each of the three in turn through the lens of the other two. She concluded: "In supposing mathematics to be both culture-free and value-free, we have failed to acknowledge that it is culturally arrogant ... Women have the opportunity to develop a mathematics which ... can provide the world with another way so that the planet lives and people the world over are fed and healthy".

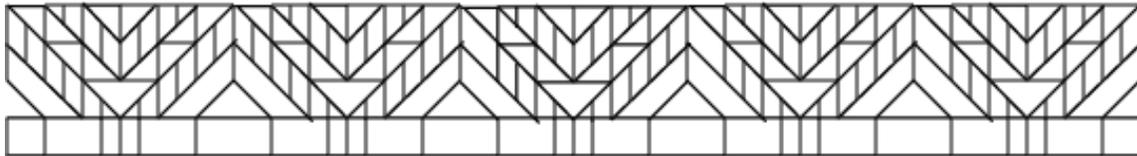
### **IOWME meetings**

The two IOWME meetings during the congress were scheduled during the 'Happy Hour'. The unfortunate result of this was that anyone wanting to attend the meetings had to pass up valuable opportunities for networking and interaction with other conference participants (as well as missing out on the free wine and nibbles!). This unfortunate timetabling may also have had the effect of reducing the number of women attending the IOWME meetings. At the first meeting, several participants expressed concern and indeed anger about the small numbers of women playing an active role in the congress, as speakers, organisers, planners, discussion group leaders and so on and at the widespread use of sexist language. There was a general feeling that the gains for women that had been made at ICME 4 (in Berkeley) had been lost. After some discussion, the meeting decided to ask a group of representatives to seek a meeting with Professor Jean-Pierre Kahane, the President of ICMI, and if possible other members of the ICMI executive, to discuss the role of women in the running of future congresses, their representation on committees, the possibility of introducing guidelines for organisers and speakers in relation to language and content, and finally the relationship between IOWME and ICMI. Nancy Shelley, Leone Burton, Roberta Mura, Joanne Becker and Mary Barnes agreed to undertake this task.

The above matters were raised at a meeting with Professor Kahane. Dr Geoffrey Howson was also present, and a productive discussion ensued. The ICMI executive members acknowledged the need for greater representation of women in the activities of ICMI and suggested that IOWME nominate three women for the International Program Committee for the next congress, ICME 6, to be held in Budapest in 1988. We were also invited to submit a short article describing the history and activities of IOWME. Nancy Shelley subsequently wrote this article, and it later appeared in both the ICMI Bulletin and the IOWME Newsletter. The ICMI executive members explained what becoming an affiliated organisation of ICMI entailed. The guidelines for affiliation included having some form of regular communication among members between congresses, by means of a newsletter or

journal, and if possible holding regular conferences, as for example, was done by PME. The IOWME representatives explained that most IOWME members did not have access to funding to travel to regular international conferences, but that it might be possible to hold local conferences where funds were available.

The second IOWME meeting of the congress dealt mainly with business matters. The most important decision made was that IOWME should take the necessary steps to apply for affiliation. A major step in this direction was to produce a Newsletter, and we decided to go ahead with this. It was also decided that the organisation of IOWME membership, and the distribution of the Newsletter, should continue to be through national coordinators. Newsletters were to be posted out to each national coordinator, who would copy them and distribute them within her country. It was agreed that a small membership fee should be charged to cover the costs of photocopying and postage of Newsletters, the amount to be decided by each national coordinator, with a sliding scale to allow for people who did not have much money. Finally, Leone Burton (UK) was unanimously elected as International Convenor for the next four years, with Erika Kuendiger (Canada) as correspondent and Mary Barnes (Australia) as Newsletter Editor. The meeting ended with a motion of thanks to Nancy Shelley for her convenorship of IOWME for the past eight years, carried with acclamation.



## **IOWME activities 1984-1988**

**By Mary Barnes**

**Written August 2007**

IOWME's main goals for the years 1984-1988 were to expand membership of the group as widely as possible so as to create a network of information-sharing and support, and to achieve affiliation with ICMI.

### **Membership**

It had been decided, for reasons of economy, practicality and social justice, that membership of IOWME would be organised through national coordinators. This was particularly necessary at that time, when most people did not have access to email, so that of necessity most communication was by post. Each national coordinator was asked to publicise IOWME and recruit new members in whatever way seemed appropriate in her local context, and to charge a small membership fee - again, if that was appropriate. As a consequence, no listing or numerical count of members world-wide was available. Instead, IOWME's growth was measured by the number of countries involved in its activities, that is, the number with national coordinators.

When IOWME began in 1976 there were national coordinators from seven countries. By 1980 this had grown to thirteen (fourteen coordinators, including two from the USA). However, at the end of the 1984 meeting, I was given a list of only eight coordinators (again including two from the USA). The countries involved were USA, UK, Canada, South Africa, New Zealand, Australia and Sweden. A notable feature of this list is that it consists mainly of English-speaking, 'first-world' countries. The South African representative was a Scottish woman who volunteered at ICME 5 in Adelaide to be the Scottish coordinator, but moved to South Africa soon after and volunteered to be the coordinator for that country.

During the next few years, Leone Burton made a major effort to publicise IOWME and to recruit more national coordinators, especially from non-English-speaking countries and developing countries. After every international conference she attended, I would receive a list of additional women who had agreed to take on the task of national coordinator, to whom I should distribute the Newsletter. By the end of 1985, in addition to the seven listed above, we also had national coordinators in Denmark, Israel, the Netherlands, the Federal Republic of Germany, France, Hong Kong and Nigeria, making fourteen in all. Over the next two years, this list was increased by the addition of Sierra Leone and the Republic of Korea, plus a Northern Ireland coordinator to assist the UK coordinator in her part of that country.

Thus, shortly before ICME 6, we had coordinators in sixteen countries, with two in the USA, and two in the UK. On paper this looks like an amazing growth. In practice,

however, there is considerable doubt about how much activity there was in some of the countries listed. In a few cases, after people agreed to be coordinators, we heard nothing at all from them, and had no way of knowing how many members they had recruited, if any, or how many copies of the Newsletter were being circulated. People changed jobs, or for a variety of reasons were no longer able to carry out the task of coordinator. In these circumstances, some looked for a friend or colleague who would be willing to take over from them, but others did nothing. For example, I discovered at one point that the person who had agreed to be the Hong Kong coordinator had moved to Australia, but had neither told us nor found a replacement. So for a couple of years, Hong Kong had been listed but in fact had no coordinator. We could not tell whether similar things might be happening elsewhere. Before email, there was no way of knowing whether letters and newsletters were being delivered to the addressee or simply going into the 'dead-letter' box.

### **Affiliation with ICMI**

It seemed that lack of official recognition had contributed to ICMI's failure to consult with IOWME during the run-up to ICME 5. We felt it was important to gain this recognition, so that IOWME could have input into the planning of future congresses - not only sessions on Women and Mathematics, but also other aspects of the congress, such as selection of the International Planning Committee, major speakers, chairing of sessions and so on. So, as directed by the meeting held at ICME 5, Leone Burton set about applying for IOWME to become an affiliated study group of ICMI.

For IOWME to qualify for affiliation, the executive of ICMI was looking for evidence of a well-organised group engaged in scholarly activities such as holding conferences. They wanted information about elected officers, membership, and the means of communication among members. IOWME's informal and decentralised organisation and the lack of a membership list made these requirements a little difficult to fulfil. For this reason, we made a point of asking each National Coordinator to report the number of members in her country, and some did so. These numbers were published in the Newsletter, and enabled Leone to make a rough estimate of the number of members world-wide.

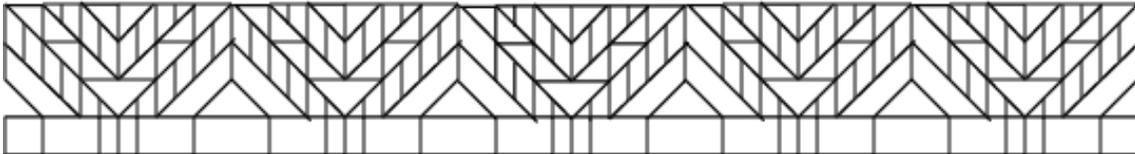
The Newsletter was crucial to the recognition process, so a strong effort was made to ensure that two issues were published every year, with reports from as many countries as possible. I also reproduced conference papers and presentations, abbreviated where necessary, and book reviews. The Newsletter also served as a forum for discussions among members about issues such as the goals of IOWME and questions about membership and structure of the organisation.

Another requirement of affiliation was that we should hold conferences. This was difficult for IOWME to organise, as few members had access to funding for travel to an international conference of this type. As a compromise, IOWME sessions were

held in association with the PME conferences in 1986 (in London) and 1987 (in Montreal). This was facilitated by the fact that IOWME had strong branches in both England and Canada, and some IOWME members served on the organising committees of both PME conferences. But the drawback of holding an IOWME conference 'within' the conference of another organisation was that it privileged people who belonged to both organisations. The cost for anyone wanting to attend the IOWME meetings only was prohibitive, as they would have had to pay the full registration fee for the PME conference. It was later suggested that separate IOWME meetings could be held immediately before or after other conferences, rather than as part of them, and that organisations other than PME could also serve this purpose. In addition to these two international IOWME meetings, IOWME groups in some countries held local conferences, or gave support to local organisations with similar aims, such as Women in Mathematics Education (USA), EQUALS (USA and New Zealand), Girls and Mathematics Association (UK), Vrouwen en Wiskunde (The Netherlands) and Girls and Mathematics Action (Australia).

Leone Burton sent in a report to ICMI on the activities of IOWME, and we heard in October 1987 that we had been granted official recognition as an international study group of ICMI.

Another achievement for IOWME towards the end of 1987 was the award of a grant from UNESCO. Ed Jacobsen, at that time the mathematics education specialist in UNESCO's Division of Science, Technical and Environment Education, told us that UNESCO had a program to increase the participation of women in mathematics and the sciences. Since IOWME's aims were complementary to UNESCO's in this field, they wanted to support us. IOWME received a grant of US\$3000 to assist in its activities and in particular in planning the sessions at ICME-6 and publication of the Newsletter. UNESCO also helped by publicising the work of IOWME and distributing the Newsletter more widely.



**IOWME, mathematics and peace**

By Roberta Mura, Leone Burton, Máire Rodgers and Mary Barnes, edited by Heather Mendick

An edited version of a series of articles first published in the IOWME newsletter, 4.1, June 1988, edited by Mary Barnes

In the lead up to ICME 6, there were many debates about the future directions of IOWME: When and where should conferences be held? What languages should be used? Should women in South Africa be boycotted? However, for me, the most fascinating of these debates was around that aims of IOWME and, in particular, whether these should explicitly relate to the relationship between mathematics and peace. These seem important debates to remember at this moment and so below I reprint the main contributions.

Roberta Mura kicked things off: "The original purpose of IOWME is reported on page 3 of the first issue of this Newsletter:

- "1. to bring together those who are concerned with the subject of women and mathematics,
2. to circulate among members any research already available concerning women and mathematics,
3. to focus branches in as many countries as necessary, and
4. to encourage further research into
  - (a) why so few women study mathematics, and
  - (b) what are the job possibilities for those who qualify

"Are all those objectives still valuable today? Do we wish to add new ones? It seems to me that we have already moved beyond the original stated purpose: we have encouraged not only "research into why do few women study mathematics", but also action aimed at increasing their number. More recently we have begun to produce a feminist critique of mathematics education and to investigate the possibility for extending it to mathematics itself. Should we incorporate these activities in IOWME's statement of purpose? Or should we look for a more general formula that would cover these as well as other possible future undertakings?

"I would recommend that we make explicit IOWME's commitment to the goal of offering **every** woman the opportunity to fully participate in mathematics, at all levels, regardless of her race, ethnicity, nationality, religion, social class, sexual orientation, etc. We must realize that this is a very demanding commitment: I am afraid that we are far from being actively working towards this goal at present.

A new kind of goal that I would welcome is a commitment to a peaceful use of mathematics. This implies, for instance, that we should encourage research and

action to link mathematics education and education for peace. I think that this is particularly urgent as more and more mathematicians are funded or employed by the military.

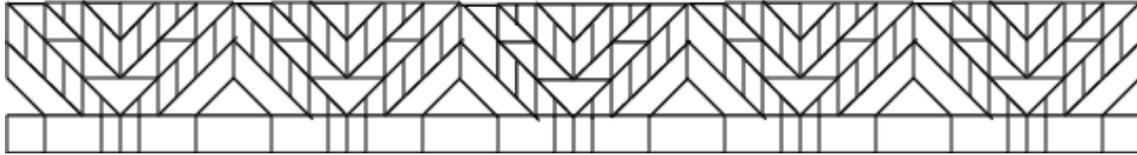
It may also be useful to define the term mathematics: for instance, does it include statistics or computer science?"

Leone Burton, the then National Coordinator, responded: "I endorse the suggestion that we might articulate a goal as specified by Roberta but I think we must also take on board how far away we are from it. Indeed, we are still distant from convincing mathematicians of the role that gender plays in mathematics education. Because of this I would be unhappy about us fragmenting our attention. While I personally am as committed as Roberta to a link between mathematics and education for peace, I do not think that making that an explicit focus for IOWME is central to our concerns at the moment."

Máire Rodgers responded: "I agree with Roberta's suggestion to include an explicit commitment to ACTION towards making mathematics available to all females. I also concur with her suggestion that we think about the connection between mathematics education and peace education. I understand Leone's concern not to fragment our energies. However, I think we need to keep asking ourselves to what extent are we encouraging women to enter the same mathematical fields as men without examining the nature of the activities in which they become engaged. If I can give an example: at an EQUALS IN COMPUTER TECHNOLOGY workshop with I attended at the Lawrence Hall of Science in July 1986 four highly qualified women were brought in as role models to talk about their work. One of them talked about her role in developing and 'penetrating' markets in the Third World in the field of computer technology. My unease about U.S. economic imperialism implicit in her presentation generated a useful discussion about the extent to which we may be unconsciously encouraging women to perpetuate the very structures which are oppressive not only to women but to the majority of the world's population. I think we need to find a way of keeping this question on our agenda."

Mary Barnes, the then newsletter editor, wrote in her editorial: "Roberta has raised the issue of the peaceful use of mathematics. While I understand Leone's concern about us fragmenting our efforts, I would like to make one point - many people, and especially many women, have very negative attitudes to mathematics precisely because they are aware of the extent to which mathematics in today's world is supported by military funds and used for military purposes. If women and girls are to be encouraged to study mathematics then this is a central issue that cannot be avoided: development of gender inclusive curricula in mathematics must include emphasis on the ways in which mathematics can be used for the benefit of our society rather than for its destruction. I wonder if a statement could be worded so as to indicate IOWME's support for peaceful uses of mathematics, and links

between mathematics education and education for peace, without necessarily committing every IOWME member to active involvement in these issues. I invite members to begin drafting what they would like to see as IOWME's objectives, and to bring these to the meeting in Budapest."



## ICME 6, 1988, Budapest

By Leone Burton, edited by Heather Mendick

**An edited version of an article first published in the IOWME newsletter, 4.2, December 1988, edited by Heleen Verhage**

According to the newsletter, about 120 people attended the sessions at ICME 6 from 27 different countries: Australia (19), USA (17), England (15), The Netherlands, (9), France (7), Sweden (6), New Zealand (5), Canada (4), Israel (4), Italy (3), South Africa (3), West Germany (3), Hungary (2), Denmark (2), Norway (2), and 1 each from: Austria, Belgium, Botswana, Burkina Faso, Costa Rica, Greece, Indonesia, Ivory Coast, Nicaragua, Northern Ireland, Singapore and Spain.

A report on these sessions written by Leone Burton appeared in newsletter 4. 2. This included an account of the discussion and points raised in the final session entitled: *Summary and synthesis - an agenda for action*. An extract from this is reproduced below:

It was generally agreed that classroom practice and the curriculum intertwine and that, although it was helpful to discriminate between them in order to have a sharp focus, the pupils' experience reflected their inter-dependence. The question of current interest in the performance of females and members of minority groups was raised. The answer offered warned of the link between economic pressure and demographic changes. In some countries, this is producing conditions which demand that the appropriate mathematical and technical skills be available from a broader range of prospective employees hence leading to interest in including those from previously disadvantaged groups.

Discussion groups drew attention to different aspects of classroom practice and curriculum when identifying their items for inclusion in an agenda for action. Ten different sub-headings covered all:

*Classroom climate:* Systematic work needs to be done on the effects of group work and discussion. In most classrooms the teacher is still a scarce resource, appropriation of which provides evidence of power and control. Can this role be changed, redefined, and what is the result of so doing? What strategies can teachers develop which do not reinforce attention-seeking behaviour by according it recognition?

*Labelling:* Is it necessary to label or even acknowledge certain contexts for aspects of mathematics as either male or female or can a mathematics which is inclusive of all groups be developed? What would it look like?

*Appropriateness:* How should decisions be made as to the appropriateness of content, of examples, and of presentation?

*Curricular changes:* The content of the curriculum is clearly undergoing considerable re-consideration in many countries in the light of both social experience and mathematical changes. We must be particularly aware of re-definition which leads to an easier curriculum (taken by girls) and a more difficult one (taken by boys).

*Resources:* In collecting examples, we should be actively seeking, collecting and sharing those which are gender inclusive, such as the embroidery example mentioned by Heleen Verhage, the investigation of the construction of a pair of socks and of an umbrella used by Mary Harris (GB) in the Maths in Work project, and the example given by Philip Davis during his presentation on the MES Day of the effects of removing gender bias from insurance calculations. One discussion group appealed that "we should go home and demand we get textbooks which give equal representation to girls and boys, equal numbers in the pictures, the names used, etc. we should demand texts dealing with areas of every day life with which girls are familiar."

*Language:* The use of language and its meanings in mathematics and mathematics classrooms is still under-researched from a gender perspective. An additional hazard to use and meaning is the metaphoric usage such that words like 'hard' and 'soft' become attached to, for example, pure science and social science which then carry gender passages.

*Assessment:* Despite some already established research results demonstrating gender differences in performance on multiple choice and essay type test papers, many countries continue to submit all pupils to such examining styles without apparently taking account of existing research or undertaking their own. More needs to be done on different assessment strategies. With current interest in extended investigations, practical tasks and group work, these too should be subjected to systematic investigation from a gender perspective. To date the only known studies have been undertaken in Denmark (on examination of groupwork), in Great Britain (on extended investigations) and in the Netherlands (on allowing pupils the opportunity to review and revise their assessments as part of the grading procedure).

*Classroom organisation:* One extended study on single-sex grouping has been undertaken in Great Britain. Further studies on different styles of organising the classroom are urgently required and, in particular, on their effects on pupil behaviour, attainment and attitudes.

*Cross-country studies:* Why do some countries produce better results than others? What does better mean in this context? Information on different countries' strategies and performance needs to be made public internationally.

*Teacher training:* Extensive monitoring is necessary to establish effective strategies and the conditions under which they operate. Sensitivity and awareness training being undertaken in some countries needs monitoring. Classroom behaviour and the propensity for making changes also needs monitoring. Teacher training

courses need to envelop classroom strategies which can be modelled as gender sensitive methods of instruction for translation into schools.

\* \* \* \* \*

### **Election of new officers**

At this conference Gila Hanna was elected as convenor and Heleen Verhage as newsletter editor. The changeover was photographed and is shown on the cover of this newsletter.

### **Reflections on Budapest**

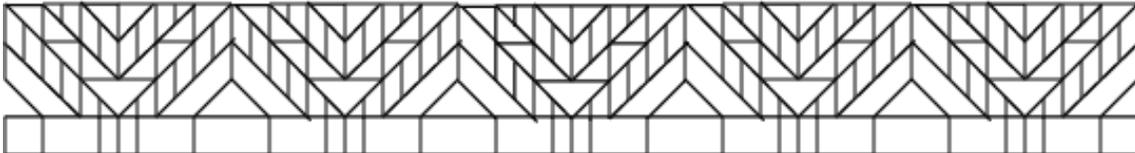
Mary Barnes writes: Recognition as an affiliated study group of ICMI meant that IOWME was invited to organise four one hour sessions during ICME 6. As International Convenor, Leone Burton had responsibility for planning these. Leone made appeals through the newsletter for suggestions, inviting people to offer contributions, and to nominate others who might have something of value to contribute. Her aim was to organise the sessions so as to involve much more interaction among participants than is afforded by the usual conference sessions - a series of paper presentations with each followed by a few minutes of questions or discussion. The first session was planned as a plenary, with two major presentations, one dealing with issues of classroom practice, presented by Gilah Leder (Australia), and one dealing with issues of curriculum content, presented by Heleen Verhage (the Netherlands). In the second and third sessions, participants were divided into smaller groups to facilitate discussion. The focus would be on classroom practice in the second session, and on curriculum in the third session. The final session was planned to be another plenary, in which the smaller groups would report on their discussions. The previous sessions would be synthesised and summarised and an attempt made to draw up an agenda for future action. To ensure plenty of time for discussion, there were no formal paper presentations during the second and third sessions. Instead, a collection of fifteen papers that had been submitted for the sessions was duplicated and circulated to participants for pre-reading, to help stimulate the discussion. Unfortunately, it was not practicable to circulate these papers before the congress, and we only received them at the first plenary session. Thus few people had time to read many of the papers in advance of the discussion sessions. In spite of this, these sessions achieved their aim of enabling people to get to know one another and to share their ideas in a very friendly atmosphere.

Christine Keitel writes: 1988 was a very good conference also for IOWME-members as there was the *Fifth Day Special Program: Mathematics education and society* - and of course many sessions were addressing gender issues. I edited the publication of this 5th Day Special Program in a UNESCO booklet (Keitel, C., Bishop, A.,

Damerow, P., Gerdes .P. (eds) *Mathematics Education and Society*. UNESCO publication, Paris 1989).

Heleen Verhage writes: In 1988 we had IOWME sessions at the ICME conference in Budapest. I've very good memories of that. There were a lot of people, and I did a presentation with between other thing a nice anecdote on an 'incubator'. Later on this paper was published in a book edited by Leone Burton. I met many women on that conference, amongst them Barbro Grevholm, Mary Barnes and all the others. For Barbro this 1988 conference was a big eye opener, and she started a lot of initiatives in Sweden. She organised one or two conferences in Sweden, one of them in Lulea, which I attended and where I did a presentation.

This conference led to the first ever IOWME publication *Gender and Mathematics: An International Perspective*, a collection edited by Leone Burton and published in 1990 by Cassell Education Limited. Mary Barnes recalls that it "was *explicitly* an IOWME publication. It was acknowledged as such at the beginning, and the *Notes on the Contributors* section immediately following made specific mention of people's links with IOWME and ended with a paragraph about the origins and aims of IOWME." It contained contributions from a remarkable collection of women mathematics educators: Mary Barnes, Joanne Rossi Becker, Leone Burton, Mary Coupland, Giuseppina Fenaroli, Fulvia Furinghetti, Antonio Garibalderi, Gila Hanna, Sue Helme, Zelda Isaacson, Berinderjeet Kaur, Erika Kundiger, Christine Larouche, Gilah Leder, Beth Marr, Prudence Purser, Máire Rodgers, Pat Rogers, Anna Somaglia, Lyn Taylor, Evangelie Tressou-Milonas, Heleen Verhage and Helen Wiley.



## IOWME activities 1988-1992

By Gila Hanna

Written July 2007

During the period 1988-1992 IOWME saw substantial growth in terms of international membership and activities. IOWME membership grew during this period from 17 to 39 countries. In 1988 IOWME had National Coordinators in the following 17 countries: Australia, Canada, Denmark, France, Germany, Hong Kong, Korea, Northern Ireland, Israel, The Netherlands, New Zealand, Nigeria, Sierra Leone, South Africa, Sweden, UK, and USA. In 1992 IOWME had National Coordinators in 39 countries in both the developed and the underdeveloped world. The additional 22 countries were the following: Argentina, Austria, Belgium, Botswana, Burkina Faso, Dominican Republic, Greece, Hungary, Iceland, India, Ivory Coast, Japan, Morocco, Mexico, Norway, Pakistan, Papua New Guinea, Portugal, Republic of Singapore, Spain, Swaziland, Trinidad.

IOWME only meets once every four years at the ICME conference. An additional IOWME two-day meeting attended by some ten members was organised by me in Assisi, Italy, in the summer of 1991, a few days prior to the PME 15<sup>th</sup> meeting. Among the issues discussed in this meeting was the organisation of the ICMI study on gender and mathematics education that was to take place in 1992.

Several countries, such as Canada, Norway, Portugal, Spain, Sweden and the UK, organised national or international meetings to discuss gender issues as well as research on gender and mathematics education. For example, in May 1992 the Nordic countries organised a conference on the need to increase the number of women in mathematics and the need to provide high quality mathematics education to both genders. The conference took place in Kristiansand, Norway. These were my opening remarks at the conference:

I think I should start by letting you know what my perspective is on the issue of women and mathematics. I look at this issue from a very simple premise, the one adopted earlier this year by the Canadian Committee on Women and Engineering: that there is no physical or intellectual barrier to women entering the engineering profession. I can certainly extend this to say that there is no physical or intellectual barrier to the participation of women in mathematics, science or technology. Having said this, I must ask myself: why don't they participate more?

There is no simple explanation for the failure of women to enter the mathematical sciences in greater numbers. If there are no physical or intellectual barriers, there must be social and cultural barriers that

account for their under-representation. For the most part these barriers have not been raised intentionally. They are an integral part of a social order that carries with it discrimination we no longer consider acceptable. Judge Rosalie S. Abella is an advisor to the government of Ontario on equity in employment, and she has posed the problem as follows:

"Systemic discrimination requires systemic remedies. Rather than approaching discrimination from the perspective of the single perpetrator and the single victim, the systemic approach acknowledges that by and large the systems and practices we customarily and often unwittingly adopt may have an unjustifiably negative effect on certain groups on society. The effect of the system on the individual or group, rather than its attitudinal sources, governs whether or not a remedy is justified.

"Remedial measures of a systemic and systematic kind are meant to improve the situation for individuals who, by virtue of belonging to and being identified with a particular group, find themselves unfairly and adversely affected by certain systems or practices."

In what follows I will try to identify the factors that discourage women from entering and remaining in the mathematical sciences, not in order to place blame, but rather to understand what is happening, to foster reflection and to suggest some possible solutions. In doing so I will draw upon the Canadian experience, setting out the problem as we have felt it and describing some initiatives which we think will help.

Another large meeting, a European conference on women and mathematics education, organised by Leone Burton took place in Birmingham, UK, in the spring of 1992.

In addition, in several other countries IOWME members held national conferences and workshops with the participation of teachers. In particular, teachers were made aware of a number of initiatives that were successful in promoting the study of mathematics and science among women. These initiatives consisted mostly of intervention programs such as, career awareness for young women, workshops for girls in order to improve their attitude towards mathematics, special problem solving classes and hands-on laboratories to increase girls' confidence in their ability to do mathematics and so on.

Heleen Verhage writes: Gila Hanna was the chairwoman during the years [that I was newsletter editor]. We e-mailed a lot, with was very 'modern' in that time, far before the big boom of the internet.



ICME 7, 1992, Québec

I received three reflections on the IOWME sessions at ICME 7 as well as copy of the proceedings which were published in both Spanish and English.

Mary Barnes writes: Nancy Shelley gave an invited sub-plenary address at ICME-7, which probably should get a mention in your history. Roberta Mura was responsible for her being invited (Roberta was on the International Program Committee). I think she also managed to obtain funding to bring Nancy to Quebec, since Nancy was retired and didn't have access to institutional funding such as a travel grant. The title of her lecture was *Mathematics: Beyond Good and Evil?* Although the second volume of the proceedings of ICME-7 consisted of "Selected Lectures" from the congress, Nancy's was not among those selected.

Pat Rogers writes: There were four IOWME sessions at ICME 7 organised by Gabriele Kaiser-Messmer, Germany and Pat Rogers, Canada. Each session consisted of contributed papers, which provided an overview of the most recent developments and changes in the field of gender and mathematics education. Contributors came from across the world, for example, Australia, Canada, France, Germany, Hawai'i, Malawi, New Zealand, Norway, Papua New Guinea, Singapore, Sweden, United Kingdom, and the United States. Funding was obtained from the Social Sciences and Humanities Research Council of Canada to partially subsidise the travel expenses of participants from developing countries. A summary of the conference themes, 'Gender and mathematics education', was published in Gaulin, C., Hodgson, B.R., Wheeler, D.H. and Egsgard, J.C. (Eds) (1994) *Proceedings of the 7th International Congress on Mathematical Education*, Sainte-Foy, Les Presses de l'Université Laval, pp. 304-309. Following the conference, the papers were gathered together and published in *Equity in Mathematics Education: Influences of Feminism and Culture*, (I was co-editor with Gabriele Kaiser), London: Falmer Press, March 1995. The book went beyond providing a review of current thinking in gender and mathematics by grounding the papers in the Peggy McIntosh model of curriculum transformation and locating the work in gender reform of mathematics education in the various stages of her model. The subheadings in this book give a flavour of the discussion and variety of perspectives presented at these sessions:

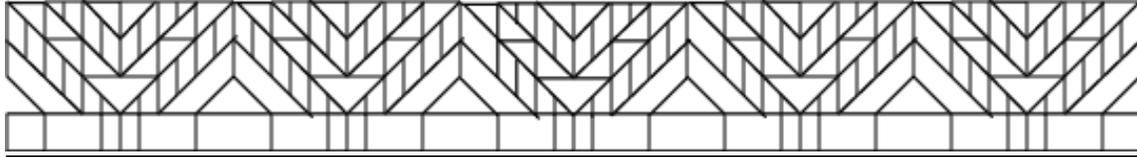
*Part 1: Effecting Change:* Intervening with female students, Working with female teachers, Focusing on practising teachers, Educating the public

*Part 2: The Cultural Context:* Comparative studies, Cultural perspectives

*Part 3: Feminist Pedagogy in Mathematics Education:* Feminist influences, Changing the discipline

The final chapter of the book contains the invited sub-plenary address, referred to by Mary Barnes, which was delivered by Nancy Shelley but not included in the conference proceedings.

Christine Keitel writes: ICME 1992 in Quebec had a well attended ICME-session, however there were some tensions about what should be the focus or how should we widen our perspectives from being mainly concerned to get much more girls and females into mathematics studies to reconsider also the (school) mathematical offers from the perspective of women and their needs and preferences and social justice in general. The publication of the proceedings of these meetings was a first milestone of IOWME as well and very well done by Pat Rogers and Gabriele Kaiser who decided to choose the challenging new focus of Equity! At Quebec I was elected Convenor of IOWME for 4 years - for me a big challenge and the beginning of a fruitful collaboration with my many friends since that time: Leone Burton, Mary Barnes, Claudie Solar, Pat Rogers, Megan Clark., Gilah Leder, and many other who came to join us.



**IOWME activities 1992-1996**

**The ICMI study on Gender and Mathematics, 1993**

**By Claudie Solar and Leone Burton, edited by Heather Mendick**

**An edited version of a series of articles first published in the IOWME newsletter, 9.1-2, December 1993, edited by Anna Kristjánsdóttir**

This was a conference organised by ICMI with the involvement of IOWME. Reading the accounts that appeared in the newsletter written at the time it feels like there was much contestation about the ownership of this. A long article about this conference appeared in issue 9. 1-2 of the newsletter; this collaged different views of it in a similar way to this narrative. Extracts follow ...

Claudie Solar from Canada wrote: "The first image of the conference which comes to my mind is that of a very deep inner smile. I thoroughly enjoyed this international meeting. All the women working and researching on gender and mathematics education, some very famous, some less famous but all concerned and trying to reach the same goal, the presence and participation of women in mathematics, its development, research and education. ... Although I felt privileged to have participated, there were times when the privilege disappeared. For example, the panel on ICMI and equity in mathematics education was entirely male, three members of the executive committee of ICMI. At best, they related equity to third world access to mathematics and mathematics education. At worst they blamed women for failing to take advantage of the opportunities offered them! The panel seemed incapable of relating personally to gender equity but the worst part was that it broke the enthusiastic atmosphere of the conference for at least a day. It also broke the collaborative climate between women and men participants and it took much individual work to begin to recreate it. ... I would like to have worked less, and have more time for interaction as part of the beauty of this ICMI study was the possibility to dialogue with other women explaining your frame of reference and receiving comments which moved you on. All this in a wonderful cosy environment with good company. I would like still to be there and laugh as much as I did....."

Leone Burton from UK wrote: "I had looked forward to the ICMI Study for the opportunities it offered to renew old friendships and make new ones, to hear directly of the work that was going on in many different countries and to share the struggle with others having similar experiences in the hope of resolving our outstanding queries, Indeed, that was, for me, the major benefit of the Study. Outstanding plenaries for me were Elizabeth Fennema's succinct presentation, and Karin Beyer's humour with a very serious sub-text. I gained greatly from my involvement with the Panel on Feminist Perspectives ... However, I, too was distressed by the style the Study was organised which seemed to me to represent

the worst aspects of conventional conferencing where the interesting thing is to give your paper not to engage in the discussion of ideas. The workshops were marginalised and when asked what was their purpose, one organised said "Just discussion". I was, indeed, lucky to be with a group of people who not only valued discussions but wanted that discussion to lead towards action. It appeared from the constitution of the public sessions, that it was not permissible to hold such a session without a man being involved as the presenter, the chair, or the reviewer. Like many others I found this unacceptable when these men were unknown for their academic contribution to the area of study and, in some cases, were associated with professional practices which were being challenged. Although the Study started out as a jointly organised ICMI/IOWME venture (indeed a letter from Gila Hanna referred to it as "the planned IOWME/ICME study"), by the time it occurred, IOWME's involvement had been lost."

Gila Hanna writes: Preparations for the ICMI study on gender and mathematics education, which had to be postponed to 1993 until funding was received from various Swedish agencies, took place in 1991 and 1992. Gilah Leder and I prepared a background document: *An ICMI study on: Gender and mathematics: Research background*, which was published in the *ICMI Bulletin of the International Commission on Mathematical Instruction*, 30, 22-29, in June 1991. This was followed by a discussion document for the conference, which was authored by Joyce Anyhow-Young and me: *Gender and mathematics education: Key issues and questions* and published in the *ICMI Bulletin of the International Commission on Mathematical Instruction*, 32, 3-12, in June 1992, and also appeared in a dozen scholarly mathematics education journals and in the newsletters of prominent national and international mathematics education organisations. The discussion document set out the scientific agenda for the ICMI conference and included a call for papers. The ICMI conference took place in 1993 in Höör, Sweden, with the participation of close to one hundred distinguished mathematicians and mathematics educators from twenty countries. The keynote opening address was given by Elizabeth Fennema. Barbro Grevholm, who was the National Coordinator of IOWME Sweden, headed the local organising committee.

Christine Keitel writes: A very important event in the history of IOWME was to get a special ICMI study on *Gender and Mathematics Education* at Höör in Sweden 1993, just one year after I had been elected as Convenor of IOWME. I then became a "natural" member of the Program Committee and could influence the program a bit ... The program of Höör was rich in challenging debates and critical presentations and could be seen as the very special event in our short history of IOWME, which divided the audience into women with more broader approaches and interests going beyond themes so far discussed including those who challenged mathematics as a

social enterprise, and those who had a more narrow focus on "How to get women into math" only. However, the diverse structure of the meeting and the invitation of many colleagues specialised and not specialised in gender research or intervention came together for challenging discussion, the format of the conference was nice and challenging as well. The book of this ICMI Study was prepared by Barbro Grevholm/Gila Hanna (eds.) *Gender and Mathematics Education*. Lund University Press 1995 - as the local organiser and the former convenor - but only contained the presentations, with few summaries of the more interesting debates and critical discussions.

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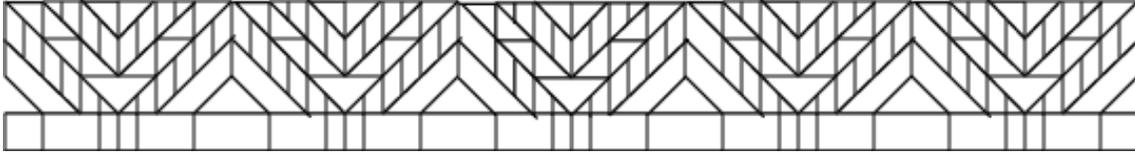
### **The newsletter**

The newsletter has a fascinating and important role, both reflecting and feeding the strength of IOWME. It had a confident start under the editorship of Mary Barnes with 2 issues a year. Within the pages, news from around the world and views on the way forward for IOWME and for women and mathematics education more generally were debated. However, after this the newsletter went into something of decline. Under the editorship of Heleen Verhage it maintained two issues though it was increasingly reliant on material reproduced from elsewhere. In the period 1992-1996 it went down to one issue each year and, in a heartfelt editorial in November 1995, the then editor Anna Kristjánsdóttir wrote:

This issue of IOWME Newsletter brings to you all season greetings and sincere good wishes for the year to come. There has now been a long pause in the distribution of news within IOWME, close to two years. Out of 23 pages of text in this issue 16 pages were received within the last ten weeks, two third of it from or through the help of Barbro Grevholm in Sweden. Then there are 2 pages covering all the news received in the entire year 1994 and first nine months of this year (except for a few announcements of gatherings to be which are out of date now). The rest is an article chosen and reprinted from a 1994 issue of the *GAMMA* newsletter, this editorial and the most recent paper on the aims and goals of IOWME reprinted from a former newsletter.

[...] How can this be possible? When the present editor was asked to volunteer for this work at ICME 7 in Quebec in 1992 it was clearly stated by those who knew the work well that sufficient amount of news always came in on request twice a year from the National Coordinators and may be others. The responsibility was to edit the received material, encourage people to contribute and to distribute the newsletter. The responsibility should not include finding suitable material and news, translate it into English or write the main body of the newsletter. These

were the terms laid out and these were the terms accepted. It looked as it would be possible to contribute to this very important area of concern without having been one of the most involved in research on Gender and Mathematics Education, without knowing personally a large group of forerunners and this even seemed possible for people who are more active in other areas of research than the one of Gender. I now doubt this and feel that it is necessary to speak out in the hope that this kind of mistake will not be made again, neither to IOWME not the editor to be.



## **ICME 8, 1996, Sevilla**

The programme of the IOWME sessions was devoted to the celebration of 20 years of IOWME and therefore had the title: *IOWME - 20 years of cooperative research on gender and mathematics*. There were two sessions involving keynote speakers, Joanne Rossi-Becker, United States, Claudie Solar, Canada, Gelsa Knijnik, Brazil, and Sue Willis, Australia. In the third session working groups occurred: Conceptualisation of Mathematics (chair: Diane Resek), Coeducation - pupils' and teachers' perspectives (chair: Teresa Smart), Social and Cultural Influences (chair: Lesley Jones), Policy Issues (chair: Gilah Leder), and Research Methodology and Theories (chair: Gabriele Kaiser).

### **Reflections on Sevilla**

**By Christine Keitel**

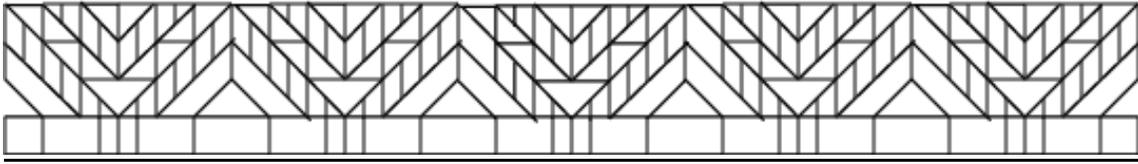
**Written July 2007**

We prepared the ICME 8 sessions on a workshop in January 1996 in Berlin and by a booklet *20 years of research on gender and mathematics - IOWME*, which contained all the abstracts and some of the papers from the "normal" Gender and Mathematics Working Group of the ICME - program run by Barbro Grevholm - and of all the sessions of the IOWME - special program of another whole day and with big audiences. The aims of the Berlin workshop were:

- disseminating information and current research in order to prepare for IOWME-sessions at ICME 8 in Sevilla/Spain
- exchanging and collecting perspectives and experiences from different countries around the world to develop proposals for new research questions and intervention programs aiming at social justice
- adopting/generating/critiquing new approaches and methodologies for research and policy on gender, class, ethnicity in relation to mathematics and mathematics education.

You know that the first actions to create an official affiliation of ICMI with special focus on gender issues in maths education took place and were successfully started in 1976 in Karlsruhe/Germany - so we could celebrate 20 years of IOWME in Sevilla 1996! ... [Our sessions there] were some of the biggest IOWME-sessions in our short history - thanks to the Spanish colleagues who worked extremely hard and were much engaged in helping to prepare the sessions and did a lot of advertising through groups of women in either the ADA BYRON or the EMMA CASTELNUEVA organisations. All sessions were very well attended and the Spanish press interviewed me as the Convenor of IOWME to make these activities publicly announced. Proceedings were distributed there and the sessions later formed the basis of a book: Christine Keitel (ed.) (1998) *Social Justice and Mathematics*

*education. Gender, class, ethnicity and the politics of schooling.* Berlin: IOWME,  
Freie University Berlin.



## **IOWME activities 1996-2000**

These seem to have been difficult years for IOWME. Noone has sent me any information about this period or any memories. In the newsletter two main issues came up: a crisis of leadership and communication problems.

### **A crisis of leadership**

Lesley Jones, the then newsletter editor, wrote in her editorial in issue 12.1, in 1998:

Late in 1997 and early in 1998 I met with Teresa Smart and we started to plan a strategy for organising IOWME for ICME 9. However, in September 1998 I am sorry to say Teresa decided to resign her post as International Co-ordinator. At that point I decided I had to take the initiative and I contacted the working group with a proposal that we ask Leone Burton to step in and fill the gap. There are quite a number of difficulties in managing aspects of an organisation which is world-wide and where the members may or may not access their email and receive messages. The responses I received were positive and Leone agreed to take on the work. Since then, others have expressed some reservations about this way of proceeding. I hope that all will recognise the difficulty of reaching a decision which is agreeable to everyone and support me in the decision I made. I must say it was a very lonely time as I felt, for a while, as if I was the only member of IOWME who had a job to do. I know there were times in the previous four years when Christine felt similarly alone and I think it must be a question we address seriously in the next IOWME meetings in Japan.

### **Communication**

In 1998, Barbro Grevholm issued the following "challenge for all my colleagues as National Coordinators for IOWME" within the pages of the newsletter:

When I was new as coordinator in 1990 we used to get letters regularly from the convenor, where she inspired us to write for the Newsletter. The consequence was that you could read in the Newsletters about all kinds of initiatives in different countries, which might inspire you to make changes in your own country. I am now challenging all my colleagues as coordinators to come forwards and make themselves visible by writing in the Newsletter. When I prepared the working group 6 on Gender and Mathematics for ICME 8 in Seville I approached by letters all the coordinators with a few questions about the conditions in their countries. It was sad to see how little response this gave. From three countries the letter were returned unopened, namely from Portugal, Republic of Singapore and South Africa. In spite of this the same names are on the

list of coordinators in the latest IOWME Newsletter from 1997. I am asking the Newsletter editors have you been able to reach these persons with the Newsletter. I visited Greece in March this year and wanted to see Evangelie Milonas, who so kindly answered my letter in 1996. When I arrived in Thessaloniki I learned that she was no longer there and she was impossible to trace by letter or phone. Does anyone know where she has gone? I wonder how many national coordinators do we really have? One of the questions in my letter to the coordinators in 1996 was to how many people the IOWME newsletter is distributed. The answer from Norway says that 10 people get the Newsletter (but many more in Norway get it through the Swedish Network), in USA the number is 150, in Canada 120, Israel 150 and in Belgium 5. I am sure that these answers are not giving a true picture of our international activities and please correct me here.

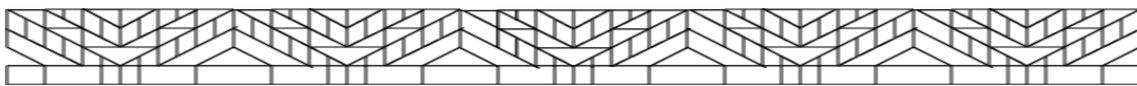
Lesley Jones responded in the next newsletter - 13.1:

Following the 'challenge' set by Barbro Grevholm in the last newsletter I have been attempting to establish how many of the National Coordinators are actively sending the newsletter to other members of IOWME and how many people in each country receive a copy of the newsletter. Unfortunately, even amongst the few coordinators for whom we have email addresses I only received a small number of replies, even fewer who let me know how many copies they send out. The message to anyone reading this editorial is, 'Please send me a note/email letting me know that you still act as National Coordinator and send out the newsletter to colleagues,' Otherwise, I may wonder whether I, or the newsletter, exist, if no-one reads it!

In this same newsletter Lesley Jones wrote in yet another heartfelt editorial:

By now, regular readers will have noted that the newsletter seems to be making an appearance once a year, rather than the two issues which we once expected. However, at least in 1999 it will reach your mailbox in the first half of the year. And of course, if you overwhelm me with material, you will see a second edition later in the year!

Newsletters were patchy during the years that followed, containing regular editorials and letters from the convenor, short items of news from around the world and the occasional original article. The newsletter did not really get revived until 2004.



## ICME 9, 2000, Tokyo/Makuhari

There were four dedicated IOWME sessions of one hour each at this conference:

- *Continued discrimination*: papers offered by: Berényi Zsuzsanna, Surja Kumari, Leigh Wood, Dubravka Viskic, Peter Petocz; discussant: Margaret Bernard, chair: Hanako Sunuma
- *Backlash*: papers offered by: Jo Boaler, Helen Forgasz, Mary Barnes, Robyn Zevenbergen; discussant: Christine Keitel, chair: Lesley Jones
- *Educating teachers for social justice?* papers offered by: Miri Amit, Swee Fong Ng, Maria Moskofoglu, George Papadopoulos (presented by Lesley Jones); discussant: Dylan Wiliam, chair: Sue Sanders
- *Transforming mathematics for social justice - summary and discussion*: the three discussants led the audience into a discussion about the previous sessions "pulling them together, presenting a global perspective and looking forwards" (from the introduction to the programme for the sessions).

Jo Boaler was elected as the new convenor of IOWME and Megan Clark and Sharleen Forbes were elected as joint newsletter editors.

Christine Keitel writes: Unfortunately, the newly elected convenor after Sevilla, Teresa Smart, could not really engage - for personal reasons and problems, so finally Leone Burton took over again and prepared late but very effectively the IOWME-session at ICME9 in Tokyo 2000. She invented a new format for the presentations which encouraged particularly discussions and critical debates, it was very good (see the example in the box below of how Christine responded to Leone's format in acting as discussant to the contribution of Helen Forgasz within the discussion on backlash). These sessions influenced very much the book Leone edited later *Which way social justice in mathematics education?* (published in 2003 by Greenwood press) but the book was richer in authors and contributions than the conference.

### **BACKLASH?**

#### ***Helen FORGASZ: Participation, achievement and attitudes: An Australian Perspective***

Helen Forgasz addresses the crucial role of media in framing political opinions and creating social prejudices on weak and superficial grounds or data interpretation. Media headlines ("Girls beat boys!") and reports about the Australian results in TIMSS or recent university entrance and school leaving exams suggest that not only girls do outperform boys to an extent that boys became educationally disadvantaged but, moreover, that the gains of females are reached at the expense of males.

In discussing "Backlash and education" she raises three major questions and tries to answer them by referring to empirical studies and respective data:

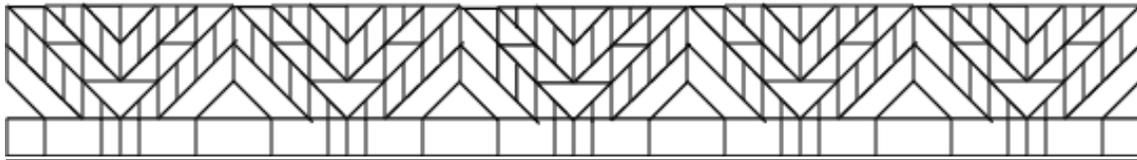
- Who studies what?
- Who reaps the rewards for education?
- Who shines in mathematics?

Summarising her findings she states that although there is an interesting trend in achievement of girls in assessment that challenges patterns of male superiority in performance in mathematics:

- There is still little change in patterns of (female) participation in studies of advanced mathematics, science, and technology.
- At the working place women do not profit from the benefits of academic success as their higher achievement in mathematics.

***Questions which might be discussed in the context of Forgasz' argumentation:***

- Why and to what extent do we have to worry that girls do not study: Highly demanding courses in school mathematics Mathematics, science and technology? (Should we really push girls into so-called career-driving studies independent of their interest?)
- Why is it still necessary to carefully watching data of assessment for trends if women do not profit from educational success in their working places or career? Does it mean that education - even mathematics education - does not matter so much when intending to enter prestigious careers?
- How could we influence - as Forgasz calls for - necessary changes in social status and equal opportunities by our concern in data gathering or mathematics education? Aren't we applying wrong means or working on wrong concerns?



## IOWME activities 2000-2004

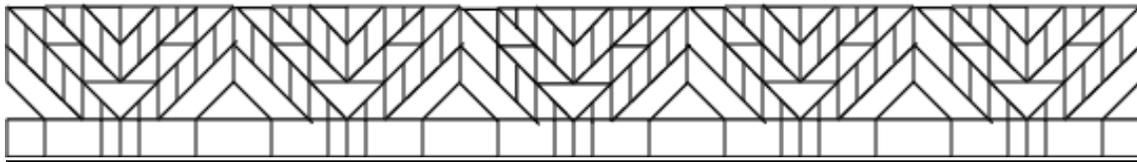
I have been unable to find out much about these years. Nobody sent me any memories and the newsletters during this period contained quite a lot of articles but few that talked directly about IOWME activities. The one exception is the website.

### **The website**

It wasn't till 2002 and due to the work of Jo Boaler that IOWME finally got a website. In the newsletter she wrote:

The site will feature an interactive discussion board where members can submit and discuss online ideas for the upcoming ICMI 10 conference, as well as other issues relevant to IOWME's goals and vision. There will be access to recent IOWME newsletters and ICMI 9 conference reports will be available for downloading at the news site. You will also find pages and links for relevant publications and related sites there, too. [...] This is our website... I have started it, but would really like others to contribute, with important links, articles, ideas etc, that can feature on the site.

Sadly, this never really kicked off, there was no discussion board and no newsletters were added. However, it was a start - we had a presence on the web, some resources were listed along with some information about the organisation and a list of contacts.



## ICME 10, 2004, Copenhagen

There were three sessions held at the 2004 conference on the themes of gender equity in elementary and secondary classrooms, gender equity in undergraduate classrooms and new initiatives in promoting gender equity. The following papers were presented:

- *Towards gender equity in education: How early childhood research can inform the greater mathematical community*, by Anna Rogers, University of South Australia
- *Showcasing recent Australian research in gender and mathematics*, by Colleen Vale, Victoria University, Helen Forgasz, Monash University and Marj Horne, Australian Catholic University
- *Gender imbalance in engineering mathematics courses: Can we increase female representation by introducing collaborative learning methods?* by Sabita D'Souza, University of Technology, Sydney, Australia
- *'I can do it, but it'll be a battle': finding her place as an undergraduate mathematician*, by Corinne Angier and Hilary Povey, Sheffield Hallam University, UK
- *Increasing women's participation in mathematics: The role of networking*, by Barbro Grevholm, Agder University College, Sweden

A summary discussion followed on the theme of *Where are we now? Issues for the future?*

In my first newsletter as editor, I wrote an account of the conference discussion:

There was a really good discussion at the conference about the way the IOWME sessions had been organised. Below is my, inevitably subjective, summary of this.

In terms of working within ICME there were questions raised about whether our main strategy should be directed at mainstreaming gender into the conference rather than having separate sessions. Many felt these should be parallel aims and were enthusiastic about the higher than normal proportion of women among the plenary speakers, regular lecturers, and chairs of the discussion groups and the topic study groups. There was a general dissatisfaction about the way that the first two IOWME sessions had been scheduled against the discussion groups and some discussion about the role of the IOWME sessions as compared with that of Topic Study Group 26 on Gender and Mathematics.

In terms of the IOWME sessions themselves the balance between research and practice was explored, as was the shift in focus from participation to quality of participation. Relating to this, questions were

raised as to whether we should be encouraging girls into mathematics given the current 'masculine' subject cultures.

Some people felt that the call for papers for the IOWME sessions sounded "elitist and exclusive" because of the way that papers were to be selected on the basis of peer review. Parallel sessions would solve this by enabling more papers to be presented. This raised the question of why do the sessions have to be structured around papers? There was a discussion of whether the organisers had got the right balance between papers and discussion given the fact that IOWME only meets at ICME and performs an important function as a support group for those working on gender and mathematics.

There were also discussions at ICME about the ways that IOWME members communicate with each other. Given that we only meet once every four years at ICME and that most people cannot get to these conferences, other forms of communication are really vital.

Communication is also important because there is a challenge for IOWME to stay together across all the differences between countries, North and South, rich and poor. In terms of gender and mathematics, some countries are just beginning feminist research and interventions while others are caught in the throws of a backlash against feminism.

The conference sessions ended with the AGM at which Hilary Povey was elected to the role of convenor and Heather Mendick to the role of newsletter editor.

## IOWME activities 2004 -2008

By Hilary Povey

Written August 2007

Although I had been a member of IOWME for many years and had contributed to the newsletter, Copenhagen was my first ICME conference. Being elected as convenor came as something of a surprise and I have brought relatively little experience of IOWME to the role. My main responsibilities have turned out to be liaising with the Secretary-General of ICMI, making plans for ICME 11 in Monterrey in Mexico and supporting Heather's work on the newsletter.

I have found ICMI quite a difficult institution to understand. From reading the ICMI Bulletin (Number 58, June 2006), I picked up the impression that one of the other ICMI Affiliated Study Groups (HPM) runs its associated Topic Study Group (TSG): The History of Learning and Teaching Mathematics. This seemed a much more natural and sensible relationship than IOWME's current one with the Topic Study Group on Gender and Mathematics. At ICME 10, a number of IOWME members had commented on the odd fact that IOWME sessions were timetabled at the same time as the Discussion Groups - and the difference between the IOWME sessions and the Topic Study Groups, in terms of submitting and presenting papers, was far from clear. Our idea, sent out for consultation in the newsletter, was that at ICME 10 the TSG would run the academic papers concerned with gender issues and there would also be, in addition, two other IOWME sessions. The first would be early in the Congress and would be partly social, welcoming new members and having some mathematical fun together. The second would be towards the end of the Congress and would be a business and policy meeting. However, when I wrote to the International Programme Committee for ICME 11 about this, I was told that this was not the case: I had misunderstood the relationship between Affiliated Study Groups and TSGs. Instead, it was suggested that IOWME recommend an IOWME member to be part of the TSG planning team. This we have done and Anna Chronaki is fulfilling this role for us. We had other ideas for how we might work more closely with the TSG - for example, making all papers available on the IOWME website before the conference to cut down the need for oral presentations and thus to allow time for more discussion - but the TSG Chairs have not yet shown any enthusiasm for such an arrangement. All this will need to be reviewed in the IOWME sessions at ICME 11.

I have been asked to be one of the co-ordinators of Working Group 3 on the subject of *Mathematics Education and Society* at the ICMI Centennial celebrations in Rome in 2008. Some of our members are participating in the Working Group and one of the key questions circulated for debate relates to current issues with respect to gender

for mathematics education researchers. Work from members (Mary Barnes, Joanne Rossi-Becker, Leone Burton, Elizabeth Fennema, Helen Forgasz, Barbro Grevholm, Gila Hanna, Gilah Leder and Heather Mendick) informed the Working Group's background paper which spoke of gender as a key area of structural disadvantage. During the two decades of IOWME activity, the attainment profile for girls in mathematics has changed significantly in a number of countries but issues remain: young women opting out of mathematics, who identifies with mathematics and how, the ways that mathematics classrooms permit and perpetuate unhelpful stereotypes and many more.

\* \* \* \* \*

### **Communication: the newsletter and the website**

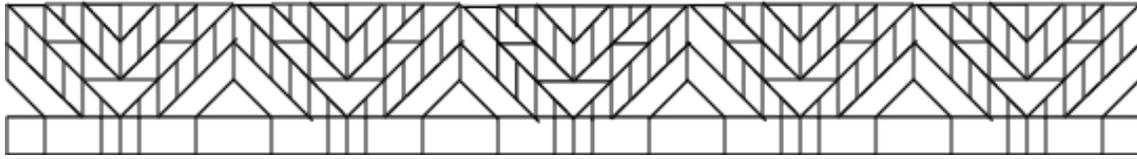
**By Heather Mendick**

**Written July 2007**

I find myself as the editor of this narrative and of the newsletter during these years. In 2004 when I took over, the same impression was given to me as had been given to Anna - material would come in, it was just a matter of keeping it in a folder and then compiling it together and sending it out twice a year. I was sent the list of national coordinators - painfully out of date as I was to discover, a copy of one previous newsletter and all the money in the bank account. As with Anna I too was quickly disillusioned when no material came in. I am shocked that I have managed to produce three newsletters each year during my time at IOWME - a grand total of 9 so far. In all but one case I doubted whether there would be a newsletter and only a spate of desperate emailing in the weeks preceding publication secured sufficient material. I have been able to come up with newsletters that I am not ashamed of and several that I am proud of for a variety of reasons: notably, Hilary Povey and I have used our creativity and our contacts to coerce and co-opt material (our positioning in related networks of research and practice have been vital to this) and there has been a small group of regular and reliable contributors: Sally Lipsey, Leigh Wood and Char Morrow deserve especial mention but also Colin Jackson, Barbro Grevholm, Mary Barnes, Susan Picker and Anna Chronaki among others. The newsletters contain a lively mix of the serious and the not-so-serious with full length academic articles, book reviews, news items from around the world, reports of past and future study group activities, items from ICMI, information about the work of study group members, ideas for teaching, commentary on gender issues in the news, quotations, jokes and cartoons. I, like my editors before me, am struck by the possibilities of the newsletter to being together perspectives from across the world and am disappointed by the continually enacted loss of these possibilities.

After Hilary Povey was elected as convenor she moved the website to Sheffield Hallam University (you can find it at <http://extra.shu.ac.uk/iowme/>). All the newsletters are now uploaded and circulated via the url to avoid blocking up people's inboxes. I also developed with the help of Leone Burton, Mary Barnes and Jo Boaler a list of material relating to issues of women and mathematics which is available via the website. Because the newsletters are now available on the web they are mainly distributed centrally by the editor with emails to members being supplemented by those to relevant email lists. This has significantly widened the distribution of the newsletter and has led to more people becoming involved in IOWME. It has also led to a change in the role of National Coordinators. As a result of this, some have become active in generating material for the newsletter while others have become inactive.

Hilary Povey writes: Setting up the new website was far from easy to achieve and took more than a year to become operational. However, it seems a vital way to communicate and to keep in touch with members between conferences. The advantage of having the website managed by the convenor's university is that she then doesn't need web skills; but the disadvantage is that the site will have to be moved every four years.



## Endings

This narrative has been a complex but fascinating one to put together - so many names and so many stories, crossing over each other, sometimes agreeing and sometimes disagreeing. It was not always easy to determine the boundaries for the work and there are whole new stories to be told about the local groups that grew up in various parts of the world around gender and mathematics and that had links, sometimes strong and sometimes weak, with IOWME. Some of these such as GAMMA the Gender and Mathematics Association in the UK no longer exist, and some like the Women and Mathematics network in Sweden are still going strong and have featured in several recent IOWME newsletters.

There are places where the story is full of detail and seems to buzz with energy and places where it goes quiet. While these shifts are part of the story, beware of reading too much into them. The level of detail depends on who I was able to get in touch with, how busy they were at the time and how much they could remember. Mary Barnes was the most prolific contributor of material and so inevitably this narrative contains less about the years when she was less involved in IOWME.

Mary's enthusiasm for the project as communicated in her regular emails to me was vital since my own often flagged. Towards the end of the process she sent me a long email full of reflections:

I've been looking through the Proceedings of ICME 5, ICME 6, and ICME 7, and have dug out some data, which you may or may not feel to be of interest or relevance. It should be compared with the report by Dora Skyppek (quoted in Nancy Shelley's piece on the history of IOWME) that at ICME 4 in Berkeley in 1980, "of the 430 speakers or panel members in the programme, 88 were women and 12 or so women have been asked to serve as presidors". So 20% of speakers were women. We can't say what percentage of presidors, as the total figure is not given.

In ICME 5, there were four plenary sessions, all presented by males - Ubiratan D'Ambrosio, Jeremy Kilpatrick, Renfrey Potts, and Jean-Pierre Kahane (presidential address). There were also a forum on school curriculum with 3 male speakers and 1 female and a debate on the effects of technology on the mathematics curriculum with 3 male speakers. And there were "Invited Presentations". I counted 30 male presenters, 4 females, and one I can't be sure of from the information given. There were also presentations about projects, and here the balance was better, but still not good - after making a few guesses about gender, I counted 16 males and 8 females. There were also 7 Action Groups, 7 Theme Groups and 10 Topic Areas. Counting the chief organisers of these (many had several chief organisers) we find: Action

Groups - 15 male, 4 female; Theme Groups - 19 male, 5 female; Topic Areas - 14 male, 4 female (including the 2 organisers of the Women and Mathematics topic). So altogether, there were 104 males and 26 females among the invited presenters and chief organisers. Thus women were 20% of the major participants, but may well have been a greater percentage if we had been able to count all speakers.

After the discussion at ICME 5 about the lack of visibility of women in the congress, we hoped for greater representation in ICME 6. However, the five plenary presentations were still all by males - Bienvenido Nebres, Gerard Vergnaud, Andrei Ershov, Laslo Lovasz, and Jean-Pierre Kahane (presidential address again). There were also seven Action Groups, seven Theme Groups and sixteen Topic Areas (including the ICMI Study Groups such as IOWME). ... In total, I make this 35 males and 7 females among the plenary presenters and chief organisers (so only 17% were females). But there is no breakdown of the sub-plenary invited lectures which might have brought this figure up a bit.

By the time ICME 7 came around, the picture looked much rosier. Of the four plenary lectures, 2 were presented by women (Maria Klawe and Colette Laborde) and 2 by men (Geoffrey Howson and Benoit Mandelbrot). The Conference Proceedings also list the membership of the various Committees. For the first time (to my knowledge), there is a woman on the Executive Committee of ICMI (Anna Sierpiska) - 1 out of 11 (7 members and 4 ex-officio members). The 16 members of the International Program Committee include at least 3 women (Rosemary Fraser, Roberta Mura and Anna Sierpiska). ... The twenty members of the National Organising Committee also include three women (Gila Hanna, Carolyn Kieran, and Patricia Rogers). There were also 22 Working Groups and 17 Topic Groups, plus 3 ICMI Study Groups. The gender breakdown of the Chief Organisers of these was: Working Groups - 14 male, 10 female; Topic Groups - 17 male, 2 female. For the ICMI Affiliated Study Groups the picture was better: HPM - 2 male, 2 female; PME - 7 male, 5 female; IOWME - 2 female. ... And, as mentioned above, 32 males and 7 females presented invited lectures. In total, among the plenary speakers, chief organisers, and invited lecturers there were 78 males and 31 females, giving a female participation rate of 28%. So I think we can safely say that by 1992 there had been a significant increase in the representation of women in major roles in the congress.

In response to this Hilary Povey did some head counting of ICMI roles not directly related to the ICME conferences, using the ICMI Bulletin, Number 58, June 2006 as her source of information. First, she considered the Executive Committee 2003-

2006: here there are 8 men and 4 women. Second, she counted the national ICMI Representatives: 36 men, 6 women and 33 where she was uncertain. She comments:

Although there are some indications of gender equity progress, ICMI still appears to be a rather male dominated institution. Nevertheless, the much greater visibility of women at the most recent congress, ICME 10 in Copenhagen was noted and welcomed by IOWME.

It will be interesting to see what happens in Mexico in 2008. Looking at the chairs of the Topic Study Groups, Hilary and I counted 38 men, 30 women and 11 who we were unsure about. Many of the Topic Study Groups have one man and one woman chairing so it feels like gender balance was part of the planning, which is promising.

It will also be interesting to see what happens to IOWME in the future. One thing which is clear to me from my research into IOWME is that the organisation depends very much on the work of the two elected (or, more often, co-opted) officers, of a small group of people around them and, in particular, of the few national coordinators who manage to make things happen where they are. A few weeks ago Hilary was approached by Hanan Ayoub Innabi who wanted to be the national coordinator for the United Arab Emirates, a country which, as far as we know, has never had an official IOWME presence. This is both encouraging and a reminder of the need for an organisation like IOWME that provides a space for those working for gender equity in mathematics, wherever they are and however they do it.

Perhaps I should end with some kind of drawing together of points or even an agenda for the future. As a headline in the San Francisco Chronicle in 2005 has it "Endings are a catharsis. They give meaning to what comes before, and change us from the way we were". However, in the article, Steven Wynn notes Tony Taccone's comment that "catharsis is hard" and that endings are often disappointing and resisted by the 'readers' who are participants in the story, so I leave you to make up your own.

Longing is a big part of endings. We all want to be carried away, touched and changed, even as we doubt that's how things may actually turn out. ... In a lovely poem about failing to record the end of a movie on her VCR, Mona Van Duyn laments:

'I can't bear it! I have to see how it comes out!'

For what is story if not relief from pain

of the inconclusive, from dread of the meaningless?

The poem ends with a wishful vow to follow "past vacancies of darkness" and in doing so, "to find the end of the story."

## News

### **ICME 11: Mexico: Topic Study Group 32: Gender and mathematics education**

#### **Team chairs:**

**María Trigueros** (Mexico) [trigue@itam.mx](mailto:trigue@itam.mx)

**Helen Forgasz** (Australia) [Helen.Forgasz@Education.monash.edu.au](mailto:Helen.Forgasz@Education.monash.edu.au)

#### **Team members:**

**Anna Chronaki** (Greece) [chronaki@uth.gr](mailto:chronaki@uth.gr)

**Olof Steinhorsdottir** (USA) [steintho@email.unc.edu](mailto:steintho@email.unc.edu)

**Liv Sissel Gronmo** (Norway) [l.s.gronmo@ils.uio.no](mailto:l.s.gronmo@ils.uio.no)

#### **Call for papers**

Participants in Topic Study Group 32 will focus on issues of gender with respect to the teaching and learning of mathematics for all students, at all levels of education, and in all contexts. Various theoretical and philosophical perspectives will also be examined.

It is recognised that gender differences in mathematics learning outcomes - participation, achievement, and affect - are not uniform across all countries, in all areas of mathematics learning, or for all groups of learners of mathematics. Research examining gender differences and interventions to address them are at different stages, take different forms, and are in receipt of different levels of funding and support around the globe.

#### **Aims and organisation**

There will be four TSG 32 sessions. In the first session an invited speaker will open the deliberations of the TSG and will promote discussion.

In the remaining three TSG32 sessions, papers will be presented. Prospective participants are invited to submit proposals for papers to be included in these sessions. Empirical and non-empirical research studies in which a range of methodological approaches have been adopted are encouraged. Topics might include:

- The situation with respect to gender differences in mathematics learning outcomes - participation, performance, and/or attitudes/beliefs/values - within particular contexts
- Factors contributing to gender issues with respect to mathematics learning outcomes in particular contexts
- Societal, systemic, organisational, and/or cultural dimensions related to gender issues and mathematics teaching and learning

- The role of technology, resources, learning settings, and/or pedagogical approaches in addressing or re-inforcing gender differences in mathematics learning outcomes
- Theoretical and/or philosophical perspectives on gender issues and mathematics education

A diverse range of proposals from researchers representing developed and late developing nations is wanted.

### **Call for papers**

#### ***The Proposal***

If you are interested in presenting a paper that fit the aims and focus of TSG 32, your proposal is due on January 1, 2008. The following information must be provided:

title

name(s) of the author(s) and email contacts

institution (and location and country)

abstract of 300-500 words (excluding references)

The language used for the abstract must be English, the official language of ICME 11.

Please email your proposal to: Helen Forgasz whose email is [Helen.Forgasz@education.monash.edu.au](mailto:Helen.Forgasz@education.monash.edu.au) or to Maria Trigueros whose email is [trigue@itam.mx](mailto:trigue@itam.mx)

You will receive acknowledgment of receipt of your proposal.

#### ***Reviewing and outcomes***

Submitted proposals will be reviewed by the organising team of the Topic Study Group (TSG 32).

The outcome of your proposal submission will be provided not later than January 26, 2008. All the accepted contributions will be published on the ICME-10 website before the congress. Depending on the number of submissions, the range of topics and the quality of the proposals, some authors will also be invited to present orally the papers at the congress; the other accepted contributions will be referred to during discussions at the sessions of the Topic Group.

In summary, due to the limited number of sessions for TSG 32 and the time available, papers will be accepted in two ways:

You may be invited to give an oral presentation at the conference and your paper will be uploaded to the TSG 32 website for all to read, OR

Your paper will be uploaded to the TSG 32 website without an oral presentation, and will be referred to in group discussions.

In both cases the organising team for TSG 32 must find the paper to be of high quality.

***Accepted proposals***

If your proposal is accepted for TSG 32, the deadline for submitting a full paper will be March 1, 2008. Full papers, in English, should be about 5000 words in length (excluding references), and should be emailed to: Liv Sissel Gronmo  
l.s.gronmo@ils.uio.no

Please circulate this Call for Papers to individuals who may be interested. If you have any questions about TSG 32, please send an email to: Olof Steinhorsdottir: steintho@email.unc.edu , or to Anna Chronaki: chronaki@uth.gr.

PLEASE NOTE: It is an ICME-11 policy that each individual is restricted to one major speaking appearance at the conference, which includes plenary lectures and panels, and organization of TSGs or DGs.

**Infinite Possibilities Conference, November 2-3, 2007, Raleigh, North Carolina**

The Infinite Possibilities Conference (IPC) is a national conference designed to promote, educate, encourage and support minority women interested in mathematics and statistics. This unique and special event will assemble women mathematicians from underrepresented minority groups from all over the country for a 2- day mathematics conference on November 2-3, 2007. The conference promises inspiring keynote speakers, as well as activities including research talks, student poster presentations, roundtable discussions, and panels on graduate studies and professional development. Those in the mathematical sciences at every career stage, from undergraduates to teachers and professionals, are encouraged to attend. In addition, there will be special workshops for high school students. The Etta Z. Falconer Award for Mentoring and Commitment to Diversity will be presented at the closing banquet. Questions about the conference should be directed to [info@ipcmath.org](mailto:info@ipcmath.org), or visit the conference website at <http://www.ipcmath.org> for more information and to register.

**The 5th International Conference on mathematics Education and Society, Albufeira (Algarve), Portugal, 16 - 21 February 2008**

Following previous conferences that took place in Nottingham (UK, 1998), Montechoro (Portugal, 2000), Helsingør (Denmark, 2002) and Gold Coast (Australia, 2004), we are now pleased to announce the 5th Mathematics Education and Society Conference (MES5). MES5 will be held at Albufeira (Portugal) from the 16 to 21 February 2008. The conference is organized collaboratively by colleagues at the Centre for Research in Education of the University of Lisbon <<http://cie.fc.ul.pt>> (Portugal), University of Algarve <<http://www.ualg.pt>> (Portugal), Department of

Education, Learning and Philosophy <<http://www.learning.aau.dk>> at Aalborg University (Denmark) and the Faculty of Education <<http://www.education.uts.edu.au>> at University of Technology Sydney (Australia).

MES5 Conference aims at bringing together mathematics educators from around the world to provide such a forum, as well as to offer a platform on which to build future collaborative activity. It is expected that topics discussed will be wide-ranging. It is also expected that all issues will have clear and underpinning social/political/cultural/ethical themes.

The updated announcements of the MES5 conference can be found at <http://www.mes5.learning.aau.dk/> <<http://www.mes5.learning.aau.dk/>> Symposia, papers and project presentations are invited for submission. All submissions will be peer reviewed. A critical evaluation suggesting possible revisions and recommending its acceptance will be provided to authors. Papers should meet the aims of the conference. The deadline for submission is November 1, 2007. The registration deadline is the 31st of December 2007.

**Mathematics, Science and Technology in the Body of Education: International Conference: 18-19 December, 2007, University of Thessaly, Volos, Greece**

Sciences and in particular technology and mathematics embody the modernist dream of power, progress and development through either educational and/or everyday practices that aim to tame the human body and to cultivate the mind towards the capacity of logical thinking. There is growing evidence that people have limited participation in studying mathematics and technology due to gender, ethnicity and class. In particular, sciences and education -as human science- are seen as two distinct and dichotomized worlds. Whilst scientific practices are being viewed as 'hard' and masculine, education is approached as 'soft' and feminine. What is, then, happening when mathematics and technology, two traditionally masculine fields of knowledge, enter the 'body' of education? Do they remain 'masculine' areas or do they become feminized or even hybrid subject areas? What might be the effects of a 'masculine', 'feminine' or 'hybrid' approach on science teaching and learning, as well as on human minds and bodies? How dominant scientific discourses are being re-contextualised in educational practices and how a gendered analysis can assist efforts in realizing hybridity and diversity as alternative voices in school science?

The conference is part of a research project that addresses the issue of school mathematics and technology and aims to address the current thinking and research on gender, mathematics and technology as they interact within the body of education. The scope of the conference includes -but is not limited- the topics detailed below:

Embodied Approaches on Gender and/or Science  
Masculinities, Femininities, Hybridity and Scientific Knowledge  
Social Perspectives on Gender and/or Science  
Science and Technology Studies  
Gendered Bodies, Identities and Scientific Discourse  
Gender, Mathematics, Technology and the School Curriculum  
Gender, Communication, Language, Discourse and the School Curriculum  
Gender, Race, Class and Scientific Discourse(s) in Education  
Self-image, Self-regulation, Self-efficacy, Gender, and Sciences in Education

There is more information at: <http://gmt.ece.uth.gr/call.php>

Keynote speeches:

- Sal Restivo: *Minds, Morals, and Mathematics: The Death of God, the End of Platonism, and the Meaning of Social Constructionism*
- Barbara Allen: *Environmental Justice, Environmental Health: Women Scientist's Voices from Cancer Alley, U.S.A.*
- Heather Mendick *Undoing mathematics? Troubling fantasies of gender and mathematics*

### **Some websites**

1. Journal of Mathematics and Culture: A Peer - Reviewed Journal Sponsored by the North American Study Group on Ethnomathematics:

<http://www.ccd.rpi.edu/Eglash/nasgem/jmc/jmc.htm>

2. President Maria Klawe was a guest on National Public Radio's (NPR) *Talk of the Nation: Science Friday* program, where she discussed women and mathematics with host Ira Flatow. They were joined by actress and mathematician Danica McKellar (a.k.a. Winnie on the *Wonder Years*), who authored the book *Math Doesn't Suck: How to Survive Middle-School Math Without Losing Your Mind or Breaking a Nail*.

More about the program can be found here:

[http://www.sciencefriday.com/pages/2007/Sep/hour2\\_092107.html](http://www.sciencefriday.com/pages/2007/Sep/hour2_092107.html)

<http://www.scpr.org/>

A podcast of the program is available on the Science Friday website:

<http://www.sciencefriday.com/feed/>

3. Fairer Science: Contains many ideas and resources including a review of Danica's book: <http://www.fairerscience.org/>

4. All new mathematical relationships website:

<http://www.lancs.ac.uk/fass/events/mathematicalrelationships/index.htm>

5. New special issues of the Philosophy of Mathematics Education journal on the theme of social justice can be found at:

<http://www.people.ex.ac.uk/PErnest/>

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