History of the International Study Group on the Relations Between the History and Pedagogy of Mathematics:

the first twenty-five years, 1976-2000

There has been interest in the question of how history of mathematics can help mathematics teachers and learners since at least the time of David Eugene Smith and Florian Cajori, that is, from the 1890s onwards, but a widespread international movement began to take shape only three-quarters of a century later, in the 1970s. The intervening period is full of interest and deserves a historical study of its own, but the present account picks up the story at the point in 1972 when there occurred a confluence between growing interest within the mathematics education community (seen notably in the National Council of Teachers of Mathematics' (NCTM) celebrated *31st Yearbook* of 1969, *Historical topics for the mathematics classroom*) and an increased readiness of international bodies to take such interests and concerns on board.

1972

What is now called "HPM" sprang from a Working Group organized at the second International Congress on Mathematical Education (ICME), held in Exeter, UK, in 1972. This was only the second such international congress, the first one having been four years earlier, in Lyons, France. These congresses, which have been held every four years since, are organized by ICMI, the International Commission on Mathematical Instruction. This international body was the result of a suggestion in *L'enseignement mathématique* in 1905 by David Eugene Smith, and was originally established in 1908 at the International Congress of Mathematicians held in Rome, its first chair being Felix Klein. After some interruption of activity between and during the two world wars, it was reconstituted in 1952 as a commission of the International Mathematical Union (IMU). The IMU itself was formed at the 1920 International Congress of Mathematicians, held in Strasbourg. The history of these international bodies is thus closely linked with twentieth century internationalization of mathematical activity, in particular with the efforts of mathematicians to re-energize international co-operation after major wars, as part of the healing and reconciliation process and in a spirit of optimism about building a better future for everyone.

At the 1972 ICME, a Working Group (EWG 11) on 'History and pedagogy of mathematics' was organized by Phillip S. Jones (University of Michigan, US) and Leo Rogers (Roehampton Institute of Higher Education, UK)[1], both influential figures in the nascent movement over the next few years.

1976

The work of this group was continued at the next ICME (ICME-3), held in Karlsruhe, Germany, in 1976 (August 16-21), with three sessions, chaired by Phillip Jones and Roland Stowasser

[1] A. G. Howson, ed., (1973) *Developments in Mathematical Education* Proceedings of the Second International Congress on Mathematical Education, Cambridge: Cambridge University Press, p 39. This includes a footnote 'A longer account of the group's discussions is to appear in *Notae De Historia Mathematica* the Newsletter of the Commission on History of Mathematics obtainable from Professor I. O. May, *Historia*, Dept. of Mathematics, The University, Toronto 181, Canada.

(Bielefeld, Germany), under the title of 'History of mathematics as a critical tool for curriculum design.' Phillip Jones, Henk Bos, Roland Stowasser, Barnabus Hughes, Leo Rogers, Jean Nicolson and Graham Flegg gave talks at these sessions[2]. At this meeting, in the words of Leo Rogers' report, "It was clear that participants were anxious to bring to the notice of the Congress Organizing Committee the importance and the widespread interest in historical-pedagogical studies in mathematics," and a resolution was forwarded to the secretary of ICMI proposing the setting up of a system to ensure regular sessions at future ICMEs on the relations between history and pedagogy of mathematics.

The ICMI Executive Committee welcomed these proposals and at its subsequent meeting approved the affiliation of the new Study Group, under the title International Study Group on Relations between History and Pedagogy of Mathematics, cooperating with the International Commission on Mathematical Instruction. (This somewhat unwieldy title is now generally shortened to "HPM.") The "principal aims" of the Study Group were given in these words[3].

1. To promote international contacts and exchange information concerning:

a) Courses in History of Mathematics in Universities, Colleges and Schools.

b) The use and relevance of History of Mathematics in mathematics teaching.

c) Views on the relation between History of Mathematics and Mathematical Education at all levels.

2. To promote and stimulate interdisciplinary investigation by bringing together all those interested, particularly mathematicians, historians of mathematics, teachers, social scientists and other users of mathematics.

3. To further a deeper understanding of the way mathematics evolves, and the forces which contribute to this evolution.

4. To relate the teaching of mathematics and the history of mathematics teaching to the development of mathematics in ways which assist the improvement of instruction and the development of curricula.

5. To produce materials which can be used by teachers of mathematics to provide perspectives and to further the critical discussion of the teaching of mathematics.

6. To facilitate access to materials in the history of mathematics and related areas.

7. To promote awareness of the relevance of the history of mathematics for mathematics teaching in mathematicians and teachers.

8. To promote awareness of the history of mathematics as a significant part of the development of cultures.

[2] *Historia Mathematica* 4 (1977), 94-95. The first report about HPM appeared in the *ICMI Bulletin* No. 10 March 1978, 26-27.

[3] *Historia Mathematica* 5 (1978), 76

At the same Karlsruhe ICME, another permanent study group was set up, the International Group for the Psychology of Mathematics Education (PME). This group too has flourished in the years since, holding annual meetings in different countries and issuing a PME Newsletter twice a year as well as conference proceedings and other scientific publications.

To complete the picture of ICMI study groups, there are two further permanent groups which have come on stream more recently: In 1987, IOWME, the International Organization of Women and Mathematics Education, which is particularly concerned with issues relating gender and mathematics education; and in 1994, WFNMC, the World Federation of National Mathematics Competitions. The latter is a confederation of people interested in the creation of school mathematics competitions and using them to develop the talents of young people. All four of these ICMI Study Groups share certain features, such as being rather loosely structured as well as being very dependent on the commitment and enthusiasm of a few already busy individuals to keep the momentum going and ensuring the organization survives and develops. A fifth Study Group was added in 2003: The International Study Group for Mathematical Modeling and Applications (ICTMA). HPM has been very fortunate in that each generation of members has managed to inspire younger folk to pick up the baton and continue to work for the group's survival and growth, enthusing an ever-widening circle of teachers and others across the world.

1978

In the years after the Karlsruhe congress, the spirit of the HPM Group's activities began to percolate through other meetings. For instance, the International Congress of Mathematicians (ICM) in Helsinki held two years later (15-23 August 1978) had a session on relations between history and pedagogy of mathematics, chaired by Graham Flegg (Open University, UK). At this meeting two roles for the HPM Study Group were identified: disseminating information on publications and resources in the history of mathematics, and organizing lectures and seminars at international gatherings such as ICM and ICME.[4]

1980

ICME-4 was held at the University of California, Berkeley over August 10-16, 1980. The HPM contributions were planned and flagged well in advance[5]. At that meeting Bruce Meserve (University of Vermont, USA) was elected co-chair of HPM, alongside Roland Stowasser, in place of Phillip Jones. Two sessions were devoted to themes of interest to the group, *How can you use history of mathematics in teaching mathematics in primary and secondary schools?* and *The relevance of philosophy and history of science and mathematics for mathematical education.* Four lectures were given in each of these sessions; all published in the conference proceedings.[6]

[4] *Historia Mathematica* 6 (1979), 204

[5] *Historia Mathematica* 7 (1980), 80-81. In fact the sessions recorded in the proceedings (next footnote) do not seem to follow the plans announced in advance in *Historia Mathematica.*

[6] Marilyn Zweng, et al. eds. (1983) *Proceedings of the Fourth International Congress on Mathematical Education*, Boston: Birkhäuser. On pages 396-404 are the four papers given in the session on "How can you use history of mathematics in teaching mathematics in primary and secondary schools?": Casey Humphreys (Minneapolis, USA), 'Use of the history of mathematics as a pedagogical tool,' 398-400; Leo Rogers (London, UK), 'The mathematics curriculum and the history of mathematics,' 400-402; Maassouma Kazim (Cairo Egypt), 'The use of history of mathematics in the teaching of mathematics in secondary education,'402-403; Hans Niels Jahnke (Bielefeld, Germany), 'The relevance of philosophy and history of science and mathematics for mathematical education,' 444-447; Rolando Chuqui (Santiago, Chile), 'Restricted Platonism and the teaching of mathematics,' 449-450; David

Nor were insights into the area confined to these sessions. The plenary lecture given to the Congress by the distinguished Dutch mathematics educator Hans Freudenthal valuably included his succinct views on the "ontogeny recapitulates phylogeny" debate which has long been a concern to those in HPM circles:

> History of mathematics has been a learning process of progressive schematizing. Youngsters need not repeat the history of mankind but they should not be expected either to start at the very point where the preceding generation stopped. In a sense youngsters should repeat history though not the one that actually took place but the one that would have taken place if our ancestors had known what we are fortunate enough to know.
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> Hans Freudenthal, 'Major problems of mathematics education,' Proceedings of ICME-4, p.3.

HPM Newsletter, the early days

It was in 1980, too, that the UK mathematics educator Leo Rogers, who had acted as the Group's contact person from early in the 1970s, established a Newsletter, serving as its first editor. In the early years, a 'North American edition' of the Newsletter was created and edited by Bruce Meserve (University of Vermont), of which two numbers were issued with funding for duplication and distribution by the Mathematics Department (February 1982 and October 1982) before he passed the baton to Charles Jones. By 1984 the two newsletters had in effect amalgamated and henceforth (from what was called issue no. 7) there was one HPM Newsletter, edited until 1988 by Charles Jones, with occasional special supplements for the Americas Section[7]. It was at the 1983 Michigan NCTM meeting, mentioned below, that Charles Jones (University of Toronto, Canada, and Ball State University, USA) agreed to be the editor of the Newsletter. The intention was that the *Newsletter* would have a calendar of upcoming events, a guest editorial, a 'Have You Read?' column and short reviews and announcement of meetings and activities. The North American edition would be distributed around the world so that articles could be added in various countries by other editors. Jones wrote about the creation of the first 16 issues of the Newsletter in a valedictory at the time of his resignation in May 1988. He considered there to have been three issues before he took over (Rogers and Meserve) and thus he began numbering them with the October 1983 issue as 'No. 5.'

With issue No. 7 this Newsletter became the organ for the international group, not just North America. By 1988 there were 2500 on the mailing list with readers on every continent (except Antarctica) and in 62 countries. The publishing and distribution were paid for by the Department of Mathematical Sciences at Ball State University.[8] It was Jones who built up the Newsletter into an important document for communication and hence developing strongly and creatively the work laid out in the initial document of HPM, a tradition which was carried on by his successor Victor Katz (University of the District of Columbia) who was invited to be editor at the HPM meeting during ICME-6 in Budapest. The Newsletter has from the start relied on the goodwill of various college and university institutions for its printing facilities, and an informal distribution system to spread it as widely as possible.

Pimm (Warwick, UK), 'Why the history of mathematics should not be rated X – the need for appropriate epistemology of mathematics for mathematics education,' 450-452.

[7] *HPM Newsletter* 16 (1988), 2.

[8] Charles Jones, *HPM Newsletter* No. 16, May 1988, 2-3.

Relations with NCTM

The organization for North American mathematics teachers, NCTM, established in 1920, has long had an interest in the role of history for mathematical pedagogy. It was during Phillip Jones' presidency of the NCTM from 1960-1962 that the celebrated 31st Yearbook of the NCTM, *Historical topics for the mathematics classroom*, was proposed. Even before that there had long been a history section in the NCTM's journal *Mathematics Teacher*, edited successively by Vera Sanford (a student of David Eugene Smith), Phillip Jones and Howard Eves.

1982

With the founding of HPM, relations with NCTM continued to be positive and productive. Beginning in 1982, the Group has organized sessions at the major annual meetings of the NCTM; these sessions have generally been highly popular, often standing room only. That year the NCTM Meeting was held in Toronto, Canada, where the Institute for the History and Philosophy of Science and Technology hosted a reception and dinner, arranged by Charles Jones, for those who were interested in the work of the study group. The HPM session, on 15 April 1982, to an audience of 80, had presentations from Linda Kolnowski, Marie Vitale, Maryjo Nichols, Dorothy Goldberg, and Charles V Jones[9].

1983

The following year, 1983, an HPM workshop was held at the University of Michigan, Ann Arbor, organized by Phillip Jones, just prior to the annual meeting of the NCTM, held in Detroit. At the University of Michigan meeting, extensive use of the outstanding mathematical collection in the Rare Book Room at the university was organized by Jones and V. Frederick Rickey (Bowling Green State University, USA)[10]. Discussions followed of how such works could be used in the classroom. Participants brought copies of materials they had used in their classrooms to share, a vital part of the work of HPM[11].

This type of well-attended meeting continued until 1997 when the meetings were incorporated into the general program of NCTM and consequently compete – not unsuccessfully – with a huge number of other talks and sessions. These annual meetings held in collaboration with the NCTM have become, in effect, the annual meeting of the Americas Section of HPM, which is to this extent one of the 250 affiliated groups of NCTM as well as being a semi-autonomous section of HPM (and thus affiliated to ICMI).

The Canadian connection

Toronto at that time in the 1970s played an important role in the development of history of mathematics as an institutional and international endeavor, as the university from which Kenneth O. May promoted history of mathematics in a number of ways up until his sadly early death in 1977. May's successors at Toronto's Institute for History and Philosophy of Science and Technology (IHPST) have continued to support and promote history of mathematics and its

[9] *Historia Mathematica* **10** (1983), 92.
[10] V. Frederick Rickey, 'ISGHPM Meets in Ann Arbor and Detroit,' *HPM Newsletter*, North American Edition, May 1983, 3.

relations with pedagogy. In 1983, for example, a workshop from 25 July to 2 August, billed as a summer seminar on the history of mathematics for teachers, was held in Toronto and attracted a number of distinguished speakers. The proceedings, edited by Ivor Grattan-Guinness, were published as *History in mathematics education,* Paris: Berlin (1986), 208 pp.

In 1992 the same institution hosted the HPM satellite meeting, described in more detail below, whose proceedings were to be published as *Vita mathematica* (ed. R Calinger, MAA 1996, 359 pp.).

Americas Section

In 1984, a meeting was convened at University High School in San Francisco under the leadership of Jones and Meserve and hosted by Craig McGarvey (University High School). This meeting saw the presentation of papers and the plans for the establishment of an Americas Section of ISGHPM (North, South and Central America) as well as a 6.1 earthquake. The underlying reason for establishing this section was to have a more active presence in the mathematics education community than was forthcoming from the international organization. Florence Fasanelli (Sidwell Friends School, USA) was elected to chair the Americas section and to represent it at the ISGHPM in Adelaide, Australia in August 1984 at ICME-5. Subsequent chairs of the section have been V. Frederick Rickey, Charles Jones, Victor Katz, and Robert Stein.

With the work of Jones and Meserve to initiate the Americas section described above and to begin a local newsletter which was transformed into an international newsletter by its editor Charles Jones the development of activities in the USA began in earnest in 1984. The Section meetings continue to be held each year as an affiliated group (since 1993) of NCTM. In 1993, HPM Americas Section created a constitution, which is laid out in the HPM Newsletter[12].

International meetings

In 1983 three two-hour ISGHPM sessions were held at the ICM in Warsaw, Poland organized by Roland Stowasser[13] (with Waclaw Sawasowski of the Mathematical Institute as local organizer). The talk by Abraham Arcavi (Weizmann Institute of Science, Israel) presented materials dealing with the history of negative numbers which had been prepared for use in courses for teachers. They had adopted original documentation in the original languages (with some translation clues supplied) and the development of tasks for teachers to perform. Other speakers included: Hans Wussing, David Wheeler, and Christian Houzel,

1984

Up through this period the major activities of ISGHPM were at international congresses. In 1984, the first Satellite meeting to be held with an ICME took place at the Sturt Campus of the University of Adelaide under the leadership of George Booker[14]. This was a particularly

[12] *HPM Newsletter*, no. 30 (Nov. 1993), 11.
[13] David Wheeler, 'ISGHPM at Warsaw International Congress' in *ISGHPM Newsletter* No. 5 (Oct. 1983), 3.
[14] Florence Fasanelli, 'International Study Group on the Relations Between History and Pedagogy of Mathematics' in *American Perspectives on the Fifth International Congress on Mathematics Education (ICME 5)* (1985), Warren Page, ed. MAA Notes no. 5, Washington, DC: Mathematical Association of America, 256-260.

memorable event, for it was at this meeting that Ubiratan D'Ambrosio outlined his thoughts on the need to develop three separate histories of mathematics: history as taught in schools, history as developed through the creation of mathematics, and the history of that mathematics which is used in the street and the workplace. As a plenary speaker a few days later at ICME 5, he introduced the concept of 'ethno mathematics' as compared to 'learned mathematics' to deal with these differences[15].

ICME-5 itself was held at the University of Adelaide, and contained further activities of the study group. Notably, a series of four meetings was held with the intention of introducing mathematics educators to the group and its aims. During the business meeting of ISGHPM at that congress, Ubiratan D'Ambrosio (University of Campinas, Brazil) and Christian Houzel (Université Paris-Nord, France) were elected co-chairs for the next four years. Bruce Meserve suggested that the acronym for ISGHPM be shortened to HPM. He also suggested that affiliated groups of HPM be formed, specifically an Americas Section. This was approved at the meeting.

1985

The Americas' Section met April 15-16 during the week of the NCTM meeting in San Antonio, Texas. Because of the location, the organizer, Florence Fasanelli, invited Linda Dalrymple Henderson, Professor at the University of Texas, to speak about her research relating the history of art and the history of mathematics in the 20th century. Discussions followed during lunch served on a boat cruising the canals of San Antonio. HPM meeting attendees were asked to prepare modules on using history in their classrooms that could be shared.

On August 8, 1985 HPM held a symposium organized by Ubiratan D'Ambrosio on the occasion of the XVII International Congress of History of Science in Berkeley, California 'The Relation between History and Pedagogy of Mathematics.'

1986

D'Ambrosio arranged for an HPM meeting in conjunction with ICM in Berkeley in 1986 with a session of 'The time lag between innovation in mathematics and its incorporation into collegiate and university curricula.'

As was the custom, the Americas Section of HPM held its annual meeting during the same week at the NCTM meeting, this year held in Washington, DC. From March 31 through April 2, Uta Merzbach, Curator of the Division of Mathematics at the National Museum of American History, Smithsonian Institution, invited HPM members to use the conference space within the museum for its sessions and arranged a session to handle books in the great Dibner Library where a special display for the NCTM meeting showed 24 mathematics books. Arthur Wheelock, Curator of Dutch and Flemish Paintings at the National Gallery of Art, spoke about his own insights into Vermeer's paintings, demonstrated how they evolved through use of the

[15] George Booker, 'Topic Area: Relationship Between the History and Pedagogy of Mathematics' in Marjorie Carss, ed. *Proceedings of the Fifth International Congress on Mathematical Education* (1986), Boston, Birkhäuser, 256-260.

camera obscura, and walked members into the gallery to observe these phenomena. Brenda Corbin, the generous librarian at the Naval Observatory (where time is kept for the United States and made of use to its citizens) allowed the organizers, Florence Fasanelli and V. Frederick Rickey, to host a reception in the beautiful library. As drinks were lifted windows were avoided so members would not observe the Vice President of the United States (George Herbert Walker Bush) landing his helicopter on the pad outside. Later, Corbin opened the rare book vault where everyone found something of interest. Speakers included: Don Faust (Northern Michigan University, Michael Cardenas (Wichita State University), Abraham Arcavi and Charles Jones (Ball State University), Hans-George Steiner (Bielefeld – West Germany), and George Booker (Brisbane College of Advanced Education). Discussions were held about meeting within the framework of NCTM, but thoughts were heard that such a venue might hinder the close-knit interaction of the group.

1988

A meeting of the HPM Americas Section was held from June 30 to July 4 1988 in São Paulo, Brazil, in connection with the Second Latin-American Congress on the History of Science and Technology.

From July 20 to 22, 1988, the second HPM satellite meeting was held at Pallazo Medici-Riccardi in Florence, Italy, under the leadership of Florence Fasanelli (National Science Foundation, USA). This began the custom of holding the quadrennial HPM satellite meeting in a nearby but different country, shortly before or after the main ICME meeting, to encourage those who could not also attend ICME to be able to participate in HPM and to provide a fuller set of HPM activities than is possible during the very crowded ICME timetable. Holding the meeting in Florence made it possible to tour historical sites connected to mathematical history including a tour of the history of science museum, the Palazzo de Storia della Scienze. Speakers at the meeting included Catherine Perrineau (France), John Fossa (Brazil), Ubiratan D'Ambrosio (Brazil), David Wheeler (Canada), James Tattersall (USA), Michael Serfati, Jacques Borowczyk (France), Benedito Castrucci (Brazil), Israel Kleiner (Canada), Maryvonne Hallez (France), V Frederick Rickey (USA), and Robert Hayes (Australia), who shared his experiences of history of mathematics as a source of encouragement in learning mathematics for non-traditional students, in particular adults returning to learning.

ICME-6 was held in Budapest, Hungary, from July 27 to August 3 1988. The HPM sessions, arranged by Ubiratan D'Ambrosio, focused on two main themes, Non-euclidean geometries and their adoption in the school systems and The evolution of algorithms for use in schools, as well as having a panel on History of mathematics in the teaching of mathematics. The symposium on non-euclidean geometries had three speakers, Nikos Kastanis (Greece), Massouma Kazim (Qatar), and Tibor Wessely (Romania). That on algorithms had one main speaker, Lawrence Shirley (Nigeria), although a lengthy and well-received intervention by George Ghevarghese Joseph (UK) was the first opportunity many HPM members had to hear of the work which Joseph was to publish three years later as *The crest of the peacock*. The panel on history and teaching, chaired by Ubiratan D'Ambrosio, had four members: Evelyne Barbin (France), Helena Pycior (USA), Arpad Szabó (Hungary) and Hans Wüssing (DDR). In a fourth session, short papers were given by László Filep (Hungary), Ryusuke Nagaoka (Japan), Zofia Golab-Meyer (Poland), Rudolph Bkouche (France), Robert Hayes (Australia) and Circe Silva da Silva (Brazil). As the array of countries indicates, this was perhaps the most international of all HPM gatherings up to then.

At this meeting Florence Fasanelli was elected chair, for the next four years, and the previous system of co-chairs was dropped. As noted above, Victor Katz was invited to become editor of the Newsletter following its successful development under Charles Jones who had resigned after 12 excellent editions. It was determined that the Advisory Board members for HPM would continue to comprise previous chairs and a number of others who would be co-opted by the Chair to share in decisions and generally help to promote the concerns of the Study Group around the world.

After the Budapest ICME, several members of the HPM community went on to a meeting in Kristiansand, Norway, organised by Otto Bekken (Agder College, Norway) and Bengt Johansson (Göteborg University, Sweden). While not strictly an HPM meeting in its formal conception, this meeting of historians, mathematicians and mathematics educators from twelve countries spanning four continents was fine testimony to the growing international interest in relations between history and pedagogy of mathematics. A collection of twenty-three influential papers arising from this conference was subsequently published by the Mathematical Association of America, under the title *Learn from the masters!*, a tribute to the memory of Norway's greatest mathematician, Niels Henrik Abel, who lived near Kristiansand and whose spirit watched over the proceedings.

1990

From 26-28 June 1990 an HPM conference was held in Campinas, Brazil at the Center of Logic, Epistemology and History of Science at the State University of Campinas, Brazil, on 'Using History in the Teaching of Mathematics.'

HPM sponsored sessions at the 1990 ICM in Kyoto were arranged by Ubiratan D'Ambrosio.

By this time HPM was well enough known to merit a footnote in Marcia Ascher's classic *Ethnomathematics*, published in June 1991 (the final words of the book, indeed), saying "Their activities and newsletter are important resources."

The secretary of ICMI approached HPM to consider proposing an ICMI Study.

1992

1992, the year of the next ICME, saw the holding of the third HPM satellite meeting at the University of Toronto, Canada. This was organized by Florence Fasanelli and the local hosts were Craig Fraser (University of Toronto) and Israel Kleiner (York University). At this meeting John Fauvel (Open University, UK) was elected Chair for the forthcoming quadrennium, and Victor Katz was asked to continue as Editor of the Newsletter. Ronald Calinger (Catholic University, USA) was asked to attend the meeting already having been invited to prepare a refereed volume of the papers initially prepared for this meeting and for the subsequent ICME in Québec, to be published by the Mathematical Association of America in the MAA Notes series.[16]

[16] Ronald Calinger, ed. (1996) *Vita Mathematica; Historical Research and Integration with Teaching*. Washington, DC: Mathematical Association of America, MAA Notes no. 40. This referred volume contains papers developed from talks given in Toronto and Québec and an additional ten papers written to expand the usefulness of the volume. The volume is dedicated to Philip S. Jones, Scholar-teacher, Historian of Mathematics, Colleague.

At ICME 7 held in Québec, the four HPM sessions were organised by a team consisting of Florence Fasanelli (chair), Evelyne Barbin, Israel Kleiner and V. Frederick Rickey. The three themes were: the history of mathematics and pedagogical problems, the history of mathematics as a cultural approach to solving problems, and historical problems in the classroom. These themes were plucked out of the hot summer air while Barbin, Fasanelli, and Rickey relaxed between sessions where they spoke at a conference honoring Howard Eves (published as *In Eve's Circles*, (1994), MAA Notes No.34.) Talks were given in these sessions by Otto Bekken (Norway) and John Fauvel (UK), (discussant Evelyne Barbin (France)); Jan van Maanen (Netherlands) and Michèle Grégoire (France), (discussant Hans Niels Jahnke (Germany)); George Booker (Australia) and Man-Keung Siu (Hong Kong) (discussant Frank Swetz (USA)); V Frederick Rickey (USA) and Maggy Schneider (Belgium)[17].

The 1992 ICME, held in Francophone Canada, had of course a particularly French tone, intellectually and linguistically (and, not least, gastronomically); and the French Inter-IREM group (see below) led by Evelyne Barbin presented a valuable report entitled *Histoires de problèmes histoire des mathématiques.* This collection of fifteen histories of different problems (such as prime numbers, the parallel postulate, the brachistochrone problem, etc.) written by some 30 French teachers and designed for other teachers as a means of introducing a historical perspective into their teaching, was subsequently published in French and then in English translation.

At the meeting of the General Assembly of ICMI at the Québec meeting it was announced that the proposal for an 'ICMI Study' in the history and pedagogy of mathematics was under consideration and would probably be funded. The story of the development of this study is taken up later.

1994

A meeting of the Americas Section of HPM, arranged by Ubiratan D'Ambrosio, was held in Blumenau, Brazil, in 1994 as a satellite of the Second Iberoamerican Conference on Mathematics Education[18].

1995

A meeting of HPM arranged by George Booker was held in Cairns, Australia, in July 1995[19]. This conference focused on ethnomathematics and the Australasian region, the history and diversity of that subject, and fortunately included native people from New Zealand and Australia. All participants were enriched by aboriginal people from New Zealand and Australia who shared their work in ethnomathematics. Among the memorable talks of the conference was the report by Alan Bishop on the work of his late student, Glen Lean, on numeration structures in Papua, New Guinea. As is the tradition with all HPM satellite meetings, a day trip was made to a site of geographic or historic interest. It is during these trips that conversations begin that are often carried over for many years with discussants who live far away until they can meet again at

[17] V. Fredrick Rickey, 'An Historical Perspective on Learning, Teaching, and Using Mathematics,' in *Proceedings of the 7th International Congress on Mathematical Education*, (1994), Claude Gaulin et al. eds. Sainte Foy: Les Presses de l'Universitè Laval. 299-303. This is a fine and thorough report on all the papers given in Québec.
[18] Sergio Nobre, ed. *Proceedings of the Meeting of the International Study Group on Relations Between History and Pedagogy of Mathematics* HPM-Blumenau/Brazil 25-27 July. 2nd edition. UNESP.
[19] British Society for the History of Mathematics Newsletter, No. 30 20-21

another venue. HPM is a unique organization that has no hierarchy but invites all who are interested in its goals to be on the same level playing field. Participants who made it to Cairns also made it to swimming, snorkeling and underwater viewing at the Great Barrier Reef.

1996

HPM held its usual meetings at ICME-8 in Seville, Spain. Talks from these sessions, together with others from the subsequent HPM satellite meeting in Braga, (twenty-six papers in all), were published by the Mathematical Association of America in 2000, edited by Victor Katz[20]. At this meeting, too, Jan van Maanen of the University of Groningen, Netherlands, was elected as Chair of HPM (note the title was officially shortened in the acronym) for the next four years[21].

At the General Assembly of ICMI held at the Universidad de Sevilla, the Secretary announced that the Study hinted at in Québec four years earlier was to come about; namely, that ICMI would mount a study in 1997 on 'The Role of the History of Mathematics in the Teaching and Learning of Mathematics.' Shortly afterwards the HPM chair and his predecessor, Jan van Maanen and John Fauvel, were invited by ICMI to chair the Study (whose progress is described in more detail later).

For the first time the HPM satellite meeting was held after the congress and in conjunction with another conference, the 'European Summer University.' Organized by Eduardo Veloso through the Portuguese mathematics teachers association, the Associação de Professores de Matemática, the meeting was held on 24-30 July in Braga, Portugal. It had a very high attendance of more than 550, some half or so from Portugal itself as well as very many from Brazil, and many interesting papers were published in the two volume set of proceedings. The official languages were English, Portuguese, and Spanish (although in the event there were not many Spanish delegates)[22].

1997

Over the autumn of 1996 the co-chairs of the ICMI Study invited a number of distinguished scholars in the field (listed later) to form an International Programme Committee for the Study. The following year a planning meeting of the IPC was held in Nantes, France, taking advantage of an already-planned French conference on HPM issues, the 7th Université d'été interdisciplinaire sur l'histoire des mathématiques. As an outing at this meeting participants witnessed glorious fireworks over the Bay of Biscay in commemoration to celebrate Bastille Day. (This biennial series of meetings for French teachers should not be confused with the triennial European Summer University series, discussed later.) Following the IPC meeting a discussion document was widely circulated through publication in many venues and everyone was encouraged to respond to the issues already determined as important. From the responses 72 individuals were invited to a meeting the following April in southern France, to participate in the official study and make plans to complete a book for presentation in August 2000 at ICME 9.

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[20] Victor Katz, ed. (2000) *Using history to teach mathematics: An international perspective*, Washington, DC: Mathematical Association of America, MAA Notes.

[21] Mogens Niss, ed. *Bulletin of the International Commission on Mathematical Instruction*, no. 41, December 1996, 6-7.

[22] Eduardo Veloso et al, eds. (1996), *História e Educação Matemática. proceedings/actes/actas 24-30 Julho 1996, Braga, Portugal*, Braga/Lisbon

1998

The study conference for the ICMI Study held at the conference center of the *Matématiques de France* from April 20-25 1998 in Luminy, near Marseilles was a time to discuss papers that were submitted specifically for the conference (in addition to those submitted earlier). A great deal of writing took place and plans were laid to complete the book by January 2000. (This conference is described more fully below.)

A meeting of HPM was held in Caracas, Venezuela, in 1998.

In 1998, an entire day of talks at the time of the Joint Meetings was organized by Victor Katz and Karen Michalowicz (Langley School, USA) in honor of Ubiratan d'Ambrosio's 65th birthday. Speakers included Dirk Struik (Professor emeritus at MIT) who was then 104. This meeting was held jointly with the International Study Group on Ethnomathematics.

2000

HPM held its quadrennial meetings during ICME 9 in Makuhari (near Tokyo), Japan. At this meeting, Fulvia Furinghetti of the University of Genova, Italy, was elected Chair of HPM for the next four years, and Peter Ransom (UK) was invited to take on the role of Newsletter editor.

The HPM satellite meeting was held after the congress in Taipei, Taiwan, from August 9 to 14, at the National Taiwan Normal University, organized by Wann-Sheng Horng, under the title 'History in mathematics education: challenges for a new millennium.' While attendance was not so high as in Braga four years before, largely for reasons of the high travel costs anticipated by many otherwise-interested European and American members of HPM, the level of enthusiasm was just as high, with participation from nineteen countries and all continents, and there was a tremendously warm welcome for foreign delegates from Taiwanese students and teachers. The five plenary lectures, given by Marjolein Kool (The Netherlands), Park Seong-Rae (Korea), Christopher Cullen (UK), Karine Chemla (France) and Masami Isoda (Japan), provided a range of background studies against which various themes of the conference could be played out in symposia, workshops, round tables and panels. As in Braga, the two-volume proceedings was issued in advance, edited by Wann-Sheng Horng and Fou-Lai Lin, providing an invaluable aid for delegates to study – before, during or afterwards – papers whose verbal delivery might be in an unfamiliar language.

The contribution made by Taiwanese teachers and students to the conference marked an important consolidation of a trend already noticeable in Braga, in the strength of the home team. The Taiwanese school-teachers at the conference were already informed and enthusiastic about HPM issues, having been trained at the Normal University in Taipei, and the students were currently studying there, often for master's degrees, under the guidance of Wann-Sheng Horng and his colleagues. So there was already a strong base for fruitful interaction with the visiting teachers, historians and educators, and a sense that the activities and approaches stimulated by the HPM meeting could and would continue afterwards. Thus the efforts put in beforehand over several years, by the conference organizers, in their role as teachers at the Normal University, ensured that the HPM meeting was part of the ongoing development of HPM studies in Taiwan as well as benefiting HPM activities world-wide.

In developing HPM activities further in the region, the hope was expressed for holding a series of regular future conferences, somewhat after the fashion of the European Summer

University (see next section) which could bring together students and teachers from many East Asian countries, notably Japan, Taiwan and Hong Kong. On May 24-28, 2004, as a direct result of the 2000 meeting, the new Asian-Pacific HPM with sponsorship from the Department of Mathematics Education at National Science Council National Tai-Chung Teacher's College planned a conference in Taipei 'History, Culture and Mathematics Education in the New Technology Era.' Speakers included Fulvia Furinghetti (Italy), Robert Stein (USA), Masami Isoda (Japan), Letwin Chun Chor Cheng and Alexei Volkov (Canada).

European Summer University

In 1993, the first of what turned out to be an on-going series of 'European Summer University' was held. This first meeting was organized by the Institutes of Research in Mathematics Education (IREM – see below) and took place in Montpellier, France, from 19 to 23 July. The Summer University (or Université d'Été Européenne sur histoire et épistemologie dans l'education mathématique) is intended for teachers of mathematics from schools, colleges, and universities and those engaged in research into the history or didactics of mathematics, as well as teachers of philosophy, history and physical sciences[23].

The second ESU was held at Braga, Portugal, in July 1996, concurrently with (indeed indistinguishable from) the HPM satellite meeting after ICME-8, as noted above.

The third European Summer University was held in Belgium in July 1999, across the two sites of Louvain-la-Neuve and Leuven. The former is a new university town, south of Brussels, set up to house the French-speaking students who broke away from the ancient Dutch-speaking university of Leuven in the 1950s, hence there were political reasons, given the extraordinarily complex nature of Belgian educational politics, for a split-site meeting. But in any case both universities were excellent and most welcoming locations for a summer university. The meeting was organised by Patricia Radelet de Graves, Dirk Janssens and Michel Roelens, and the anticipated volume of proceedings has been published with P. Radelet as editor, *Third European summer university in history and epistemology in mathematics education.*

France: IREM

The most consistent enthusiasm and activity over many years for the educational benefits of history of mathematics is to be found in France. This high profile is due to a remarkable organization, or set of organizations, the IREM system, set up in the early 1970s. IREM stands for Institut de Recherche sur l'Enseignement des Mathématiques (Institute for research on mathematics education). There are twenty-five such institutes in France, each attached to a university, roughly one IREM for each Académie (the territorial administrative division of the French Ministry of Education). An important feature of an IREM is that it consists largely of practicing teachers, seconded from their school for a year or so to work on specific courses and projects. Thus there is less danger of losing touch with the chalk-face, such as can occur in mathematics education research in other countries.

IREMs soon developed a reputation for moving beyond the teacher re-training and in-service provision, as well as initial training, which was their original brief, and of moving into

[23] Dédé de Haan, European Summer University in Montpelier in *HPM Newsletter*, no. 30 (November 1993), 3-6.

making valuable contributions to pedagogical innovation, critical study of syllabuses and textbooks, classroom uses of new technology, and a vigorous questioning of conventional practices. Inter-IREM commissions on various topics of common concern were set up, one of the most successful of which is the Inter-IREM Commission on history and epistemology of mathematics. It is this Inter-IREM Commission, under the co-ordination and leadership of Evelyne Barbin (Le Mans IREM), which has generated some of the most exciting and consistently energetic ventures into bringing history and mathematical pedagogy together, in a series of conferences as well as books. The general pattern of the books is of a series of chapters, each written by a different IREM member, describing use of history of mathematics in the classroom, or providing original sources for classroom use, or more recently providing a coherent account of the historical development of some classroom topic in a way that is highly suitable for teachers to use to aid their students' learning. These books are generally in French, naturally, although their quality is such that several have been translated into English wherever a translator and publisher could be found.

UK: HIMED

In September 1988, Ivor Grattan-Guinness organised on behalf of the British Society for the History of Mathematics a three-day meeting in Leicester on 'The use of history in mathematics teaching and pedagogy.' This proved so successful and aroused such interest that it was decided to have more such meetings.

In 1990 the first such meeting was held, again at the University of Leicester, under the title of History in mathematics education. This and all subsequent meetings have had the overall label of "HIMED." The 1990 Leicester HIMED was organised by John Fauvel, Neil Bibby and Steve Russ on behalf of the British Society for the History of Mathematics, and annual meetings have subsequently been held in other British cities. The general pattern is that these meetings have been held in the spring, generally near Easter (during the school holidays so that school teachers are able to come), with one day and three-day residential meetings in alternate years (even-numbered years have been those in which a residential HIMED has been held). These meetings are designed to bring together researchers and teachers at all levels of education to explore issues around the educational use of history of mathematics[24], and the residential meetings are particularly fruitful as that makes it worth while for international visitors to attend.

Changes in the funding of the UK school system have, though, made it increasingly hard for teachers to find funding support from their employers for attendance at any conferences that have not an immediate utilitarian pay-off, in terms of the league tables which governments now use to quantify, order and reward the performance of teachers in UK schools. The idea of teachers coming to a meeting for intellectual refreshment, inspiration, sustenance and interest, to improve morale and sustain them in continuing to grow into better teachers, is already far in the distant past and no longer makes sense in the aftermath of a neo-Thatcherite political climate in the UK. This must put the long-term survival of the HIMED meetings in doubt.

USA: The Institute in the History of Mathematics and its use in Teaching (IHMT)

As a direct result of the activities of HPM, a number of senior US figures in the movement – Florence Fasanelli, Victor Katz, and Frederick Rickey, along with Ronald Calinger

[24] *HPM Newsletter*, no. 30, November 1993, 10.

and (from South America) Ubiratan D'Ambrosio – designed an Institute in the History of Mathematics and Its Use in Teaching which was funded by the National Science Foundation over six years. In the first tranche of activity, 75 mathematicians and mathematics educators from all across the US came to Washington DC to spend three weeks over two summers reading original texts, surveying the history of mathematics, ethnomathematics, and historiography, preparing presentations for peer review, and discussing concepts and context with renowned historians. They had the opportunity to visit museums and rare book collections with commentary by librarians and curators who took a special interest in this endeavor.

An especially important aspect of the Institute, unique among such ventures, was the opportunity provided by the Mathematical Association of America (MAA) for students of the Institute to attend the major MAA annual meeting (held in January, jointly with the American Mathematical Society) and section meetings and give presentations on how they have used history in their teaching. A large number of students availed themselves of this opportunity, giving often very impressive talks about how their teaching had changed, and in what respect, since attending the Institute the previous summer. In addition, it is remarkable to record that almost all participants have published refereed papers as a direct result of the work they have done subsequent to the Institute, along the principles in research, reading original texts, writing and speaking that they learned there. The effect on their teaching has been truly remarkable. Three of the participants have created ongoing meetings on the history and pedagogy of mathematics in their regions: California, New York (the Pohle Lectures organized by two IHMT alumni and the Euler Society organized by another), and in Ohio a program of reading original texts.

A further outcome is that under the leadership of Victor Katz and Karen Dee Michalowicz, teams of high-school teachers, totaling 22 individuals and participants who had completed the two-years of study have created modules for using history of mathematics in the classroom. These modules have been developmentally tested in classrooms across the US and are available through the MAA.

USA: Joint meetings

For several years now, the most prominent showcase of HPM-related activity in the USA has been at the annual gathering of mathematicians from the two main associations, the Mathematical Association of America and the American Mathematical Society. The MAA/AMS Joint Meeting takes place in January each year, generally in a large southern city whose weather can be relied upon at that time of year. In 1972 there was a day-long set of sessions on the history of mathematics. From several perspectives this was the beginning of a wellspring of interest in the history of mathematics. Just as interest in mathematics education has become a large part of the Joint Meetings, both the history of mathematics and the history of mathematics and its use in teaching have built larger and larger audiences. By 1980 the number of talks had increased to stretch over two days and by 2001 to four full days plus a fifth day before the Joint Meetings began. Each year from 1996-2000 there were at least 15-18 papers on the use of history in teaching mathematics. In 2004 these talks were given by speakers from at least ten countries. The international thrust and the ideas of HPM are clearly affecting the mathematics community.

Portugal and Brazil

The HPM Newsletter began to be distributed in Portugal in 1990 and the number of teachers receiving it grew steadily. In 1993 a working group on History and the Teaching of Mathematics (GTHEM) was launched by the Portuguese Association of Teachers with the aim of exchanging experiences on using history in the mathematics classroom and to help teachers to integrate the history of mathematics in their teaching. Other groups also formed: in both Lisbon and in northern Portugal teachers organized themselves for a two-year program studying the 17 units of the British Open University source book by John Fauvel and Jeremy Gray; while in Coimbra in 1993 the Primeiro Encontro Luso-Brasileiro de História da Matematica was organized. The series continued with the 2º EL-BHM in Áquas de São Paulo, SP, Brazil, in 1997, the 3º EL-BHM in 2004, again in Coimbra, and the 4º EL-BHM planned to take place in Natal, RN, Brazil, in October 2004.

The other major Portuguese-speaking country which has shown considerable interest in developing HPM themes and issues over the years is Brazil, largely due to the influence of Ubiratan D'Ambrosio of the University of São Paulo, who has inspired a generation of mathematics educators and historians in Brazil (and elsewhere). National and international conferences in various Brazilian centers (most recently a meeting in Lorena, Brazil on 26-27 July 1998, in connection with the 5th Latin-American Congress of History of Science and Technology) testify to the enthusiasm in Brazil for relating mathematical history to its teaching. The strong state of history of mathematics per se in Brazil is clearly an important factor behind the HPM activity there.

Africa: AMUCHMA

Another organization with keen interest in HPM matters is AMUCHMA, the African Mathematical Union's Commission on the History of Mathematics in Africa. This body was set up in 1986, at the second Pan-African Congress of Mathematicians, held in Jos, Nigeria; a Newsletter was produced the following year, and has appeared regularly since, in Arabic, English and French. The Chair of AMUCHMA from its inception has been the influential mathematics educator Paulus Gerdes (Mozambique), and the Secretary Ahmed Djebbar (Algeria) – thus, symbolically, encompassing all Africa in between. While, strictly, AMUCHMA is concerned with history of mathematics in Africa, many of those concerned have educational interests and the research results have proved of great interest to African mathematics teachers. Among the most fruitful and widely used research in this area has been that of Paulus Gerdes on the mathematics of sand drawings in sub-equatorial Africa.

A related interest group is the International Study Group on Ethnomathematics, whose board members are mostly from the USA. This group also has a newsletter (the ISGEm Newsletter) distributed in the same way as the HPM Newsletter, through a number of people in countries across the world who photocopy and distribute the Newsletter in their region.

The ICMI Study

Since the mid 1980s HPM's parent body, the International Commission on Mathematics Instruction, has engaged in promoting a series of studies on essential topics and key issues in mathematics education, to provide an up-to-date presentation and analysis of the state of the art in that area. By the early 1990s a consensus was growing that one of these studies should be

devoted to the relations between history and pedagogy of mathematics. Once ICMI Council agreed to this Study, which was announced at the Seville ICME in 1996, the current and immediate past Chair of HPM, Jan van Maanen and John Fauvel, were approached to chair the Study. ICMI's support for and promotion of this Study can thus be seen as recognition of how the HPM Study Group had encouraged and reflected a climate of greater international interest in the value of history of mathematics for mathematics educators, teachers and learners. Concerns throughout the international mathematics education community had begun to focus on such issues as the many different ways in which history of mathematics might be useful, on scientific studies of its effectiveness as a classroom resource, and on the political process of spreading awareness of these benefits through curriculum objectives and design. It was judged that an ICMI Study would be a good way of bringing discussions of these issues together and broadcasting the results, with benefits, it is to be hoped, to mathematics instruction world-wide.

ICMI Studies typically fall into three parts: a widely distributed Discussion Document to identify the key issues and themes of the study; a Study Conference where the issues are discussed in greater depth; and a Study Volume bringing together the work of the Study so as to make a permanent contribution to the field.

The Discussion Document was drawn up by the two people invited by ICMI to co-chair the Study, John Fauvel (Open University, UK; HPM chair 1992-1996) and Jan van Maanen (University of Groningen, Netherlands; HPM chair 1996-2000), with the assistance of the leading scholars who formed the International Programme Committee: Abraham Arcavi (Israel), Evelyne Barbin (France), Jean-Luc Dorier (France), Florence Fasanelli (US, HPM Chair 1998-1992), Alejandro Garciadiego (Mexico), Ewa Lakoma (Poland), Mogens Niss (Denmark) and Man-Keung Siu (Hong Kong). The Discussion Document was widely published, and was translated into several other languages including French, Greek and Italian. From the responses and from other contacts, some eighty scholars were invited to a Study Conference in the spring of 1998, an invitation which in the event between sixty and seventy participants were able to accept.

The Study Conference took place in the south of France, at the splendid country retreat of the French Mathematical Society, CIRM Luminy (near Marseille), from 20 to 25 April 1998. Local organization was in the hands of Jean-Luc Dorier (University of Grenoble). (Thus three Js handled the complex affair: Jan, Jean, John). The scholars attending were from a variety of backgrounds: mathematics educators, teachers, mathematicians, historians of mathematics, educational administrators and others. This rich mix of skills and experiences enabled many fruitful dialogues and contributions to the developing study.

The means by which the Study was advanced, through the mechanism of the Conference, is worth description and comment. A substantial effort was made to assure that individuals from all over the world were participants. Most participants in the Conference had submitted papers, either freshly written or recent position papers, for the others to read and discuss, and several studies were made available by scholars not able to attend the meeting. These, together with whatever personal qualities and experiences each participant was bringing to the Conference, formed the basis for the work. Apart from a number of plenary and special sessions, the bulk of the Conference's work was done through eleven working groups, corresponding, in the event, to the eleven chapters of the Study Volume. Each participant belonged to two groups, one meeting in the mornings and one in the afternoons. Each group was led by a convener, responsible for co-coordinating the group's activities and playing a major part in the editorial activity leading to the

eventual chapters of the book. Each group's work continued for several months after the Conference, with almost everyone participating fully in writing, critical reading, bibliographical and other editorial activities.

This way of group working for a sustained period towards the production of a book chapter was a fresh experience to many participants, since the pattern of individual responsibility for separate papers is a more common feature of such meetings and book productions. In this instance the participants proved remarkably adept at using the new structures to come up with valuable contributions to the development of the field, all the more valuable for their being the results of consensual discussions and hard-written contributions, which were then edited and designed into the Study Book.

In the end the Study Book was a 437 page volume, with some 62 contributors, working together in eleven teams as just described. It was launched at ICME-9, in Japan, with the title History in Mathematics Education: the ICMI Study.

2000-2004

How has HPM grown? Not as fast as the WorldWideWeb, a name invented in October 1990, but because of www we now have our own backbone, the HPM Newsletter, easily available. Fulvia Furinghetti launched a splendid program during her tenure as Chair of HPM creating a website, a logo, and with Peter Ransom a first class newsletter. The Italian Society of History of Mathematics has been formed and has its own website as does the Americas Section of HPM. Further, the goals and objectives of HPM have infiltrated many meetings as Coralie Daniel points out so well in her article describing her journeys in 2002[25]. Reviving the Newsletter so carefully nurtured by Victor Katz who had built up a "strong distribution network which serves a local focus for HPM activities and promotion"[26] was vital to the organization. The group works rather informally with the "main binding element"[27] being the Newsletter. Its role is crucial and when there was a vacancy it was sorely felt.

Chairs of HPM

1976-1980 Phillip S. Jones (University of Michigan, USA) (co-chair)

Roland Stowasser (Technische Universität Berlin) (co-chair)

1980-1984 Bruce Meserve (University of Vermont, USA) (co-chair)

Roland Stowasser (University of Bielefeld, FRG) (co-chair)

1984-1988 Ubiratan D'Ambrosio (University of Campinas, Brazil) (co-chair)

Christian Houzel (University of Paris-Nord, France) (co-chair)

1988-1992 Florence Fasanelli (NSF, USA)

[25] *HPM Newsletter*, No. 52, March 2003, 2-4.
[26] John Fauvel, Report on HPM Activities 1992-1996.
[27] ICMI Bulletin No. 47, December 1999.

1992-1996 John Fauvel (Open University, UK)

1996-2000 Jan van Maanen (University of Groningen, Netherlands)

2000-2004 Fulvia Furinghetti (University of Genova, Italy)

Editors of *HPM Newsletter*

1980 Leo Rogers, Roehampton Institute, UK (issue 1)

1982 Bruce Meserve, University of Vermont, USA (Americas Section Newsletter) (issues 2-3)

1983-1988 Charles Jones, Ball State University, USA (issues 4-16)

1988-1995 Victor Katz, University of the District of Columbia, USA (issues 17-38)

1996-1997 Gerard Buskes, University of Mississippi, USA (issues 39-44)

2000- Peter Ransom, The Mountbatten School and Language College, UK (issues 46[28]-56)

Chairs of HPM Americas Section

1983 Florence Fasanelli

1985 V. Frederick Rickey

1994 Charles Jones

1996 Victor Katz

2000 Robert Stein

HPM Advisory Boards

The Advisory Board for a quadrennium consists of the Chair, former chairs, the Newsletter Editor, the Americas Section Chair (all these are listed above) together with the following members:

1984-1988 Otto Bekken (Norway), George Booker (Australia), Sergei Demidov (USSR), Paulus Gerdes (Mozambique), Maassouma Kazim (Egypt), Bruce Meserve, David Pimm (UK), Roland Stowasser (West Germany), David Wheeler (Canada), Lee Peng Yee (Singapore)

1988-1992 Evelyne Barbin (France), Ahmed Djebbar (Algeria), John Fauvel (UK), Paulus Gerdes (Mozambique), Robert Hayes (Australia), Nikos Kastanis (Greece), Ryosuke Nagaoka (Japan), David Wheeler (Canada), Hans Wussing (GDR)

1992-1996 George Booker (Australia), Jacques Borowczyk (France), Lucia Grugnetti (Italy), Hans Niels Jahnke (Germany), Maasouma Kazim (Egypt), Israel Kleiner

[28] As noted in *HPM Newsletter* No.46 there is no *Newsletter* No 45.

(Canada), Osamu Kota (Japan), Jan van Maanen (Netherlands), Mohini Mohamed (Malaysia), Eduardo Veloso (Portugal)

1996-2000 George Booker (Australia), Jacques Borowczyk (France), Gail FitzSimons (Australia), Lucia Grugnetti (Italy), Abdulcarimo Israel (Mozambique), Hans Niels Jahnke (Germany), Maasouma Kazim (Egypt), Israel Kleiner (Canada), Osamu Kota (Japan), Mohini Mohamed (Malaysia), Eduardo Veloso (Portugal), Greisy Winicki-Landman (Israel)

2002-2004 Evelyne Barbin (France), Luis Radford, (Canada), Gert Schubring, (Germany), Masami Isoda (Japan)

HPM Satellite Meetings

Since 1984 HPM meetings have been held every four years, as satellites of that year's ICME. The tradition has grown up of trying to arrange the meeting in a different but nearby country to that in which ICME is held.

1984 Adelaide, Australia (ICME-5: Adelaide, Australia); chief organizer George Booker

1988 Firenze, Italy (ICME-6: Budapest, Hungary); chief organizer Florence Fasanelli

1992 Toronto, Canada (ICME-7: Québec, Canada); chief organizers Florence Fasanelli and Craig Fraser

1996 Braga, Portugal (ICME-8: Seville, Spain); chief organizers Eduardo Veloso and Maria Fernanda Estrada, Evelyne Barbin, John Fauvel

2000 Taipei, Taiwan (ICME-9: Tokyo, Japan); chief organizer Wann-Sheng Horng

2004 Uppsala, Sweden (ICME-10, Copenhagen, Denmark); chief organizers Sten Kaijser and Fulvia Furinghetti

Other international HPM meetings

As part of the agenda for HPM from 1988-1992 members were urged to plan yearly international meetings more often. Several countries, notably France and England as noted earlier have had meetings directly connected to the goals and objectives of HPM.

1993 Montpellier, France, 19-23 July, organized by Evelyne Barbin, Francoise Lalande, Yves Nouaze on behalf of IREM

1994 Blumenau, Brazil, organized by Ubiratan D'Ambrosio

1995 Cairns, Australia, organized by George Booker

1998 Caracas, Venezuela

International congresses to which HPM has made a contribution

The relations of the study group with ICME-2 (1972, Exeter) and ICME-3 (1976, Karlsruhe) have been described in the text.

1976 ICM Helsinki

1980 ICME-4, Berkeley, California

1983 ICM Warsaw, Poland

1984 ICME-5, Adelaide, Australia

1986 ICM Berkeley, California

1988 ICME-6, Budapest, Hungary

1990 ICM Kyoto, Japan

1992 ICME-7, Québec, Canada

1994 ICM Zurich, Switzerland

1996 ICME-8, Seville, Spain

1998 ICM Berlin, Germany

2000 ICME-9, Tokyo/Makuhari, Japan

2004 ICME-10 Copenhagen, Denmark

Books arising from HPM meetings

(or from meetings with a high proportion of HPM contributors).

Swetz, F. ,J. Fauvel, O. Bekken, B. Johansson, & V. Katz, (eds) (1995) *Learn from the masters!* Washington: Mathematical Association of America.

In 1988, Otto Bekken and Bengt Johansson organized a meeting at Agder College, Kristiansand, Norway following ICME. Papers were presented on how participants used history of mathematics in their teaching. This volume collects many of these useful papers.

Calinger, R. (ed): (1996), *Vita mathematica; historical research and integration with teaching*. MAA Notes No. 40 Washington, DC: Mathematical Association of America.

This valuable book contains articles developed by the authors based on their talks given at the HPM Meeting in Toronto, Canada in 1992 and ICME in Québec, interspersed with solicited papers by well known historians of mathematics. Many often quoted articles. . The volume is dedicated to Phillip Jones (26 February 1912 – 27 June 2002) remembering the fruitful work he did in creating the America's Section of HPM.

Lagarto, M.J., A. Viera & E. Veloso (eds): (1996) *Proceedings of Second European summer university and satellite meeting of ICME-8*

This volume also contains papers presented at the quadrennial meeting of HPM which was held jointly with the summer university in Braga, Portugal.

Katz, V. (ed): (2000), *Using history to teach mathematics: an international perspective*, Washington, DC: Mathematical Association of America.

This book contains articles developed from talks at ICME-8 (1996) in Seville as well as the HPM meeting which followed.

Fauvel, J. & J. van Maanen (eds): (2000*), History in mathematics education: the ICMI study*, Dordrecht: Kluwer.

This study, six years in the making is a powerful resource for making the argument that history of mathematics in vital for many students and their teachers to gain a fuller understanding of what they learn and teach.

Horng, W.-S. & F.-L. Lin (eds): (2000) *Proceedings of the HPM 2000 Conference History in mathematics education. Challenges for a new millennium. A satellite meeting of ICME-9.* Taipei: National Taiwan University.

Acknowledgement: John Fauvel (21 July 1947 – 12 May 2001) worked on this 25-year history with me as I prepared it as a gift for the HPM meeting in Taiwan. His spirit is present in every sentence. When he joined HPM in 1988, he lifted it to a benchmark never expected, and he brought color and joy to every meeting he attended.

Florence Fasanelli