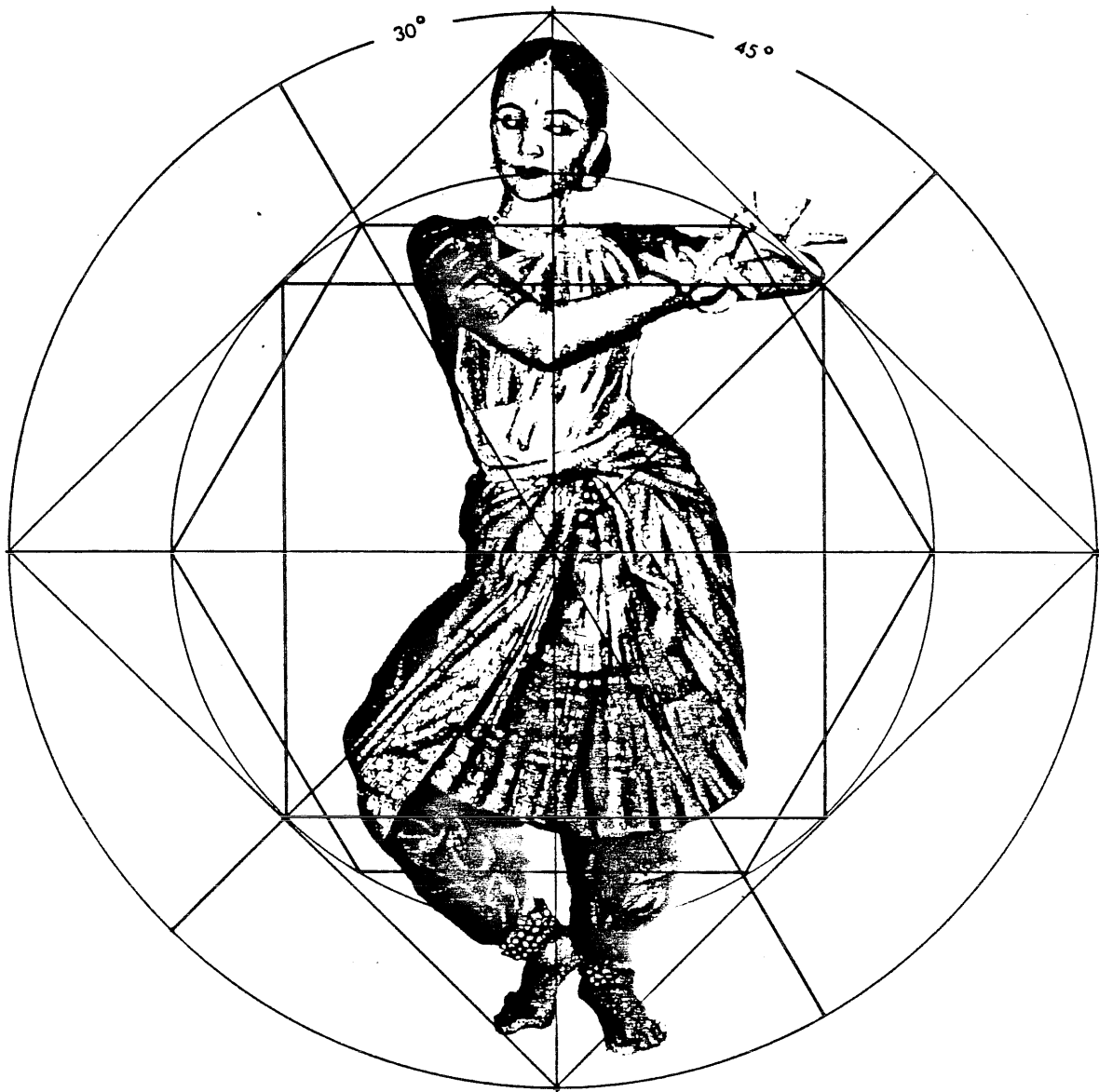
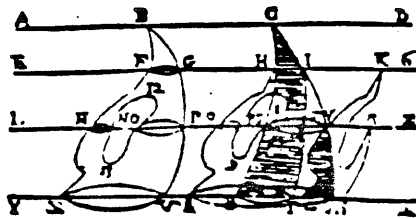


# BULLETIN CSHPM/SCHPM



POSITIONS OF CLASSICAL HINDU DANCE

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Canadian Society for History  
and Philosophy of Mathematics  
Société canadienne d'histoire et  
de philosophie des mathématiques

The Bulletin is an informal medium whose aim is to inform members of the CSHPM\SCHPM, and others interested in the history and philosophy of mathematics, of happenings, meetings, current research work, publications etc. and to provide a place where one can present titbits, historical problems, quotations etc. which do not find a place in more formal media.

All material for inclusion in the Bulletin should be sent to:

Craig Fraser  
 Institute for the History and Philosophy  
 of Science and Technology  
 Victoria College  
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 Toronto, Canada M5S 1K7  
 Bitnet address: IHPST at UTOREPAS

It would be appreciated if those submitting more than simple news items would send them in typed single-spaced form so that the text can be reproduced as is.

### CSHPM/SCHPM

The society is international in outlook and membership. Its purpose is to unite scholars who are interested in the history and philosophy of mathematics.

Annual dues are \$21 (\$US 17).

If subscription to *Historia Mathematica* (the official journal of the society) is desired the additional cost is \$31 (\$US 25) i.e. a total of \$52 (\$US 42). A subscription to *Historia Mathematica* via CSHPM represents a considerable saving over the usual cost.

Remittances should be sent to :

M.A. Malik  
 Department of Mathematics, Concordia University  
 7141 Sherbrooke Ouest, Montréal, Québec, H4B 1R6  
 tel. (514)848-3232  
 Electronic mail address: MAMALIK@CONU1.CA

Kindly include your electronic mail address if you have one.

## Annual Meeting

Queen's University  
Kingston, Ontario  
May 27-29 1991

The programme for the meeting is reproduced as a supplement to this edition of the Bulletin. Abstracts of the papers will be included in the programme distributed at the meeting.

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The special session of the annual meeting is devoted to the theme of women in mathematics. The cover illustration, which provides a rather literal representation of this theme, is from Robert Lawlor's Sacred geometry philosophy and practice (1982). The caption reads: "The positions of Hindu classical dance (Bharat Natyam) describe geometric angular relationships from the axis of the body's centre of gravity just below the navel. These positions, while defining principle angles, are also often attributed to various deities and are meant to convey their characteristic powers.

.....

The annual meeting in '92 will be held in scenic Charlottetown, Prince Edward Island. The position of programme chair for this meeting remains open.

## Encyclopedias and Dictionaries

The latest edition of the Encyclopaedia Britannica contains a new article on the history of mathematics (V. 23, pp.603-632, 633A-F) written jointly by several historians. Len Berggren is the editor-in-chief and the author of the section on medieval Islamic mathematics. Craig Fraser wrote the part on mathematics in the seventeenth and eighteenth centuries. Other contributors are Wilbur Knorr, Jeremy Gray and Menso Folkerts.

Supplement volumes 17 and 18 to the Dictionary of Scientific Biography have finally appeared (1990). Greg Moore contributed biographies of Bernays, Goedel, Mostowski and Tarski and Albert Lewis wrote the article on R. L. Moore.

## M.A.A. Award to Israel Kleiner

At the meeting of the MAA/AMS in Columbus, Ohio last summer Israel Kleiner was awarded the George Polya prize for an article he wrote in The College Mathematics Journal 20 (1989), 282-300,

titled "Evolution of the function concept. A brief survey".

### Special Issue of Interchange

A special issue of Interchange (V.21, 1990) titled "Creativity, Thought and Mathematical Proof" has appeared. CSHPM members who contributed to this issue are David Wheeler, Edward Barbeau, Israel Kleiner and J.L. Berggren. See the notice at the end of this Bulletin.

### Institute for Research in Classical Philosophy and Science

The Institute for Research in Classical Philosophy and Science is a non-profit educational corporation established in late 1983 by a group of educators and scholars at various academic institutions in Canada, Europe, and the United States. Its primary purpose is to enhance higher education and to promote research in both the sciences and the humanities, by supporting scholarly study concerning the history of the interaction between science and its humanistic interpretation in the various societies and language groups constituting western culture.

In general, the Institute supports scholarly research in classical philosophy and science up to the seventeenth century, which marks the beginning of the modern era. To meet this goal the Institute facilitates the dissemination of research and promotes cooperation between scholars in those disciplines that traditionally touch on these subjects. Thus, in addition to sponsoring international conferences and other forms of scholarly communication, the Institute has established a program of publication that includes bibliographies, translations, monographs, and thematic collections of essays.

Please direct requests of further information and queries about specific proposals to:

Dr. Alan C. Bowen, Director  
 Institute for Research in Classical Philosophy and Science  
 1314 Browning Road  
 Pittsburgh, PA 15206-1736, USA

### New Series on Classical Science

The Institute for Research in Classical Philosophy and Science and Garland Publishing Inc., are pleased to announce a new series, Sources and Studies in the History and Philosophy of Classical Science. This series (which is divided into Sources and Studies) focuses on the classical sciences (e.g., mathematics, astronomy, harmonics, optics, mechanics) in Western and Near Eastern culture from antiquity to the 1700s, the time of

Newton and the beginning of the modern era, Its aim is to make fundamental texts in the history of the classical sciences accessible to the modern reader, by means of translations and interpretations that satisfy the requirements of specialists but still address the needs of non-specialists and general readers.

Thus, the Sources will contain editions of scientific treatises informing, belonging to, or deriving from the classical tradition. There will also be translations of these texts into English with general introductions and philological/technical commentaries, as well as annotated bibliographies and lexica.

The studies will present the latest results of research and interpretation in analyzing these works, their place in their contemporary intellectual culture, and their impact on subsequent philosophical and scientific thinking. This new series is intended for readers who have a professional or a general interest in the history and philosophy of science in the Near Eastern and Greco-Roman worlds and their legacy until the modern era, as well as in intellectual history, and philology.

Series editors are Alan C. Bowen (IRCPS and University of Pittsburgh) and Francesca Rochberg-Halton (University of Notre Dame). The Advisory Board is made up of Andrew D. Parker (University of Warwick), Bruce S. Eastwood (University of Kentucky), Bernard R. Goldstein (University of Pittsburgh), David E. Hahm (Ohio State University), K. Peder Moesgaard (University of Aarhus, Denmark) and Noel M. Swerdlow (University of Chicago).

Scholars are invited to submit proposals and manuscripts to:

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## International Colloquium Mexico City

The Second International Colloquium on the History and Philosophy of Mathematics was held at the Mexican National University, December 10-13, 1990. The colloquium was organized by Alejandro R. Garciadiego, Departamento de Matematicas, Facultad de Ciencias, Ciudad Universtiaría, UNAM, 04510 Mexico D. F. Speakers and topics were Joseph Dauben (Gou-Gu (Pythagorean) theorem in Ancient China, Abraham Robinson), Wilbur Knorr (Greek curves, early Greek proportion), Ivor Grattan-Guinness (Boole and Jeffons, Pierce), Janis Langins (Bélicor and French engineering,

Navier and French engineering) and Craig Fraser (isoperimetric variational problems, Lagrange's theory of perturbations).

The editors of Mathesis will publish Spanish translations of all papers in forthcoming issues (most probably Vol VII (1991) nos 2 and 3).

### In Memoriam

All who knew Eric Aiton or were familiar with his extensive work in the history of science will note with sadness his recent death.

### End of History

"Mathematical thought combines the highest rationality with -in principle- a complete lack of historical sensibility".

O. Becker

ICME VII, Université Laval, Québec,  
Août 1992

Le prochain congrès international ICME VII (International Congress in Mathematics Education VII) se tiendra à Québec au mois d'août de l'an prochain. Ce congrès reunira des collègues du monde entier, Etant donné l'importance grandissante qu'occupe l'histoire des mathématiques dans les recherches en didactiques des mathématiques, je crois qu'il serait très à propos que les historiens canadiens des mathématiques soient présents à cette rencontre. C'est aussi l'opinion des organisateurs du congrès qui m'ont approché pour sonder quelle forme pourrait prendre une telle participation. Ce pourrait être simplement un kiosque présentant les travaux (publications, sujet de recherche) des collègues. Ce pourrait être aussi une ou des expositions de documents originaux provenant de fonds de manuscrits canadiens (par exemple le fond Russell de McMaster). Ou encore, ne pourrait-on pas penser à un montage sur l'histoire des mathématiques canadiennes?

Si vous avez quelques idées, suggestions, ou...quoi que ce soit, Ecrivez-moi. Si par ailleurs vous venez à congrès annuel à Kingston à la fin mai, alors les intéressés, j'en serai, pourrons en discuter. Ne serait-il pas judicieux que la Société canadienne d'histoire et de philosophie de mathématiques s'implique?

(English summary: The next international ICME (VII) will be held in Quebec City in August 1992. This occasion provides an opportunity for Canadian historians of mathematics to present something on their research interests, on the history of

mathematics in Canada, or on a project such as the Russell archives. Interested individuals should write to me or come to the Kingston meeting with their ideas.)

Louis Charbonneau  
 Département de mathématique et d'informatique  
 Université du Québec à Montréal  
 C.P. 8888, Succ. A  
 Montréal, Québec  
 H3C 3P8

## Publications

Fran Abeles 1990: "Lewis Carroll's method of trees: Its origins in Studies in logic", Modern Logic V.1, 25-35.

Fran Abeles 1990: "The matrix cipher of C.L. Dodgson" (with S.H. Lipson), Cryptologia V. 14, pp.28-36.

Fran Abeles 1990: "Some Victorian periodic polyalphabetic ciphers" (with S. H. Lipson), Cryptologia V. 14, pp.128-134.

Thomas Archibald 1989, "Energy and the mathematization of electrodynamics in Germany, 1845-1875", Archives Internationales d'Histoire des Sciences V. 39, pp.276-308.

Louis Charbonneau 1989: "Fourier et la mécanique: Une histoire méconnue. De la mécanique à la théorie de la chaleur", in Scientifiques et sociétés pendant la Révolution et l'Empire, Paris, pp. 97-115.

Louis Charbonneau 1990: " Lagrange et le jeune Fourier (1787-1798)", in La "Mécanique analytique" de Lagrange et son héritage, Acta Academiae Scientiarum Taurinensis, Turin, pp.107-114.

Craig Fraser 1990: "Lagrange's analytical mathematics, its Cartesian origins and reception in Comte's positive philosophy", Studies in History and Philosophy of Science 21, pp.243-256.

## Research note

Fran Abeles presented an invited address to the Annual Meeting of the American Mathematical Society, Louisville, KY, January 1990. The address, which was delivered by S.H. Lipson, was titled "Lewis Carroll's Encryption Algorithms". She also appeared with M.N. Cohen on "Heat", an hour-long program on the life and works of Lewis Carroll, National Public Radio, 18 October 1990. Finally she published "Profile: Fran Abeles", in

Knight Letter n.34 (1990), pp.1,3.

## UQUAM History-of-Mathematics Lectures

A series of lectures on the history of mathematics were given this spring at the Université du Québec à Montréal. Speakers were Craig Fraser (calculus of variations), Edward Belaga (Biblical Value of  $\pi$ ), Roger Herz-Fischler (golden ratio and the pyramids), Thomas Archibald (potential theory) and Louis Charbonneau and Jacques Lefebvre (Viète). The series was organized by Louis Charbonneau.

## Editor's Corner

There has been a tendency in much recent work in the history and sociology of mathematics to stress a form of relativism in understanding the mathematics of different periods and civilizations. The following quotations contend by way of contrast that mathematics and mathematical thought serve to transcend cross-cultural differences of understanding.

"...even though order and fashion of presenting details may vary from place to place, [the sciences and mathematics] are essentially international...The unique permanence and universality of mathematics, its independence of time and cultural setting, are direct consequences of its very nature....There is great excitement in discovering the patterns of thought of great minds of the distant past, and in the mathematical sciences one can recognize when resonance is achieved with a much higher degree of certainty than anywhere else."

Asger Aaboe, Episodes from the early history of mathematics (1964), pp. 1-4.

"Although mathematical thought differs in different ages, mathematics itself has a coherence that transcends time. Thus it provides a powerful tool with which to grasp modes of thought from former times. From an immersion in the details of mathematical arguments, one can gather enough precise understanding to be able to enter into the domain of the intuitive."

John T. Cannon and Sigalia Dostrovsky, The evolution of dynamics: Vibration theory from 1687 to 1742 (1981), p.v.

"...The independent discovery of the infinite series [ $\pi=1-1/3+1/5-1/7+\dots$ ] by different persons living in different environments and cultures gives us insight into the character of mathematics as a universal discipline."

Ranfán Roy, "The discovery of the series formula for  $\pi$  by Leibniz, Gregory and Nilakantha", Mathematics Magazine (1990),



291-306, p.306.

## Thought for the Day

The special subject of this year's annual meeting is women in mathematics. In this connection some remarks of Naomi Bliven in the March 25, 1991 New Yorker seem à propos. Reviewing an anthology of German women writers 1700-1830, she writes: "The editors warn, correctly, that not one of these women is Goethe. But, then, only Goethe was Goethe, and we don't have to renounce discrimination in order to enjoy work that may not be absolutely great but is still very good."

## Canadian National Committee of the IUHPS

Members of CSHPM participate in national and international scholarship through correspondence with colleagues, publications, and meetings within their disciplines, but also through the International Union of History and Philosophy of Science, or IUHPS. Our former president, Wesley M. Stevens (University of Winnipeg) is serving in his second term as a member of the Canadian National Committee of IUHPS.

The IUHPS is a charter member of the International Council of Scientific Unions, founded by UNESCO to encourage and enhance contact and communications among scholars of all countries. There are two divisions of IUHPS: the Division of History of Science; the Division of Logic, Methodology, and Philosophy of Science; and there is also an International Cooperation in History of Technology Committee. These divisions are called respectively DHS, DLMPs, and ICHOTEC. The National Research Council of Canada is the Canadian member of IUHPS and functions through its Bureau of International Relations to provide limited funds for meetings of the Canadian National Committee and for Canadian delegates to attend General Assemblies of the IUHPS divisions. The divisions meet every four years, alternating each two years. The most recent of these were the DLMPs General Assembly in Moscow during the Eighth International Congress of Logic, Methodology and Philosophy of Science, 17-22 August 1987, and the DHS General Assembly in both Hamburg and Munich during the Eighteenth International Congress of History of Science, 1-8 August 1989. The next meeting of DLMPs will be in Uppsala 1991 and of DHS in Zaragoza 1993.

There are also International Commissions of each division, such as the DHS Commission on Teaching the History of Science, of which Professor Margaret Osler (History, Calgary) is a member; the DHS Commission on Bibliography, of which Professor Wesley Stevens is a member; and Professor Robert Butts (Philosophy, Western Ontario) is archivist for DLMPs. The Joint International

Commission on History and Philosophy of Science is charged with creation of small conferences for special topics. These have occurred by invitation in Montreal 1980, Virginia Polytechnic Institute 1982, Budapest 1984, Konstanz 1986, Coimbra 1988, and Firenze 1990; others be in Italy 1991 and Switzerland 1992. The divisions offer financial grants for such conferences which bring together both historians and philosophers of science, and CSHPM members may wish to consider planning international meetings in those terms at their own universities.

Professor William R. Shea (Philosophy, McGill) was recently elected President of the IUHPS Division of History of Science for 1989-1993, having served two terms as secretary of the Division. The secretary of DLMP is R. Hilpinen (Finland). Division secretaries alternate as IUHPS Secretary General, and Shea also served in that role during 1981-83 and 1985-87. He is the author of **Galileo's intellectual revolution: the middle period, 1610-1632** (1972, 2ed 1977), **Basic Issues in the Philosophy of Science** (1976), **Nature mathematicized** (1983), and editor of **Otto Hahn and the rise of nuclear physics** (1983) and several other volumes.

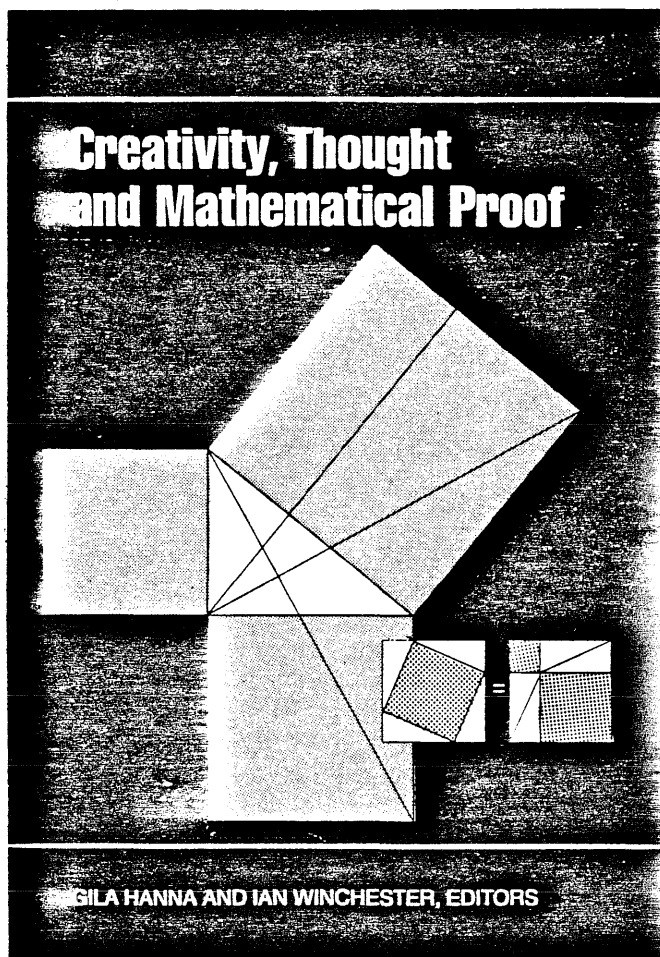
The NRC Bureau of International Affairs appoints members and the chairman of the Canadian National Committee of IUHPS usually to terms of four years. It receives two nominations from the Royal Society, two from the Canadian Society for History and Philosophy of Science, one from the Canadian Society of History of Medicine, one from the Canadian Society for History and Philosophy of Mathematics, and others from the CNC itself; its recommendations are forwarded to the NRC Bureau of International Relations which makes the appointments. As of May 1990 members of CNC/IUHPS are

Carl Berger (Royal Society), François Duchesneau, Andrew Lugg (CSHPS), Arnold Roos, Wesley M. Stevens (CSHPM), J.-P. Wallot (Royal Society), William R. Shea (IUHPS/DHS President), and Robert E. Butts (Chairman).

The CNC/IUHPS meets during the Canadian Learned Societies and other times at the call of the chair. Its major responsibilities are to report to NRC all major Canadian activities in history and philosophy of science, to recommend Canadian delegates to General Assemblies of the two divisions and instruct them on major items of General Assembly agendas, and to encourage international communications of Canadian scholars with their colleagues and peers in other countries. Advice and enquiries to members of the CNC/IUHPS would be welcome.

Wesley M. Stevens  
University of Winnipeg

# Creativity, Thought and Mathematical Proof



## A Special Issue of INTERCHANGE

Gila Hanna & Ian Winchester,  
Editors

This special issue of *Interchange* (Vol. 21, No. 1, 1990) has original contributions by mathematicians and mathematics educators who explore aspects of proof in mathematics and mathematics education in Western culture and thought.

Contributors: David Wheeler, Gila Hanna, Daniel Chazan, Edward Barbeau, Israel Kleiner and Nitsa Movshovitz-Hadar, J. L. Berggren, John Leslie, Michael Otte, and Ian Winchester.

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