Canadian Society for History
and Philosophy of Mathematics

Société canadienne d'histoire et
de philosophie des mathématiques

NEWSLETTER

85.8 ANNUAL MEETING - CONGRES ANNUEL
B.A. Miller, Mount Allison University, Programme Chairman

Université de Montréal, Montréal
June 2-3-4 juin
1985

PROGRAMME

Sunday June 2 juin dimanche:

11:00	Erwin KREYSZIG	On the History of Functional Analysis
12:00		☐☐ LUNCH – REPAS ☐☐
13:30	Craig FRASER	J.L. Lagrange and the Equations of the Calculus of Variations
14:00	Wiliam ASPRAY, Invited speaker	Princeton Oral History Project
15:00	Roger COOKE	Joseph Perott, Sonya Kovalevskaya, and Clark University
16:00	Frederick V. RICKEY	W.E. Story of Hopkins and Clark

Monday June 3 juin lundi:

9:30	Len BERGGREN	Ancient Optics in Light of a New Arabic Manuscript
10:30	Israel KLEINER	Evolution of the Function Concept
11:30	Marshall WALKER	History of the CSHPM/SCHPM

12:00		●●● Lunch – Business Meeting ●●● ●●● Repas – Assemblée générale●●●
14:00	Albert LEWIS, Invited speaker	Bertrand Russell as a Mathematician
15:00	David WHEELER	Aspects of the Relations Between Philosophy and Pedagogy of Mathematics
16:00	Giovanna CIFOLETTI	Kepler's Philosophy of Mathematics: "De Quantatibus"
19:00	Louis CHARBONNEAU	Workshop: Pictural Material in the Classroom

Tuesday June 4 juin mardi

9:30	Francine VINETTE	In a Search of Mesoamerican Geometry
10:30	Victor KATZ	Precalculus and Calculus: A Historical Approach to Teaching
11:30	Liliane BEAULIEU	Bourbaki and Bourbakis in Twenty Years of AMS Publications (1935–1954). A Citations Analysis.
12:30		☐☐ Lunch – Repas ☐☐

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ABSTRACTS - RESUMES

.1 On the History of Functional Analysis
Erwin KREYSZIG, Carleton University.

This talk is based on joint work with Garrett Birkhoff (Harvard U.). Beginning with a short survey of some influential factors from the prehistory, we shall concentrate on the evolution of functional analysis from its rather heterogeneous beginnings around 1887 (Volterra's notes on functionals) to its establishment as a unified field of its own around 1932, the year of the appearance of the three classical books by Banach, von Neumann, and M. H. Stone. We shall characterize the early impacts from classical analysis (particularly from the calculus of variations and integral equations) and describe the accomplishments of the main contributors (Volterra, Fréchet, Hilbert and his school, F. Riesz, Hahn, Banach and von Neumann). The emphasis will be on the development of general ideas, including their motivations by classical and quantum physics.

.2 J.L. Lagrange and the Equations of the Calculus of Variations
Craig FRASER, University of Toronto.

J.L. Lagrange provided several different derivations fo the fundamental relations of the calculus of variations. These derivations illustrate late 18th century notions of mathematical rigor and help us to understand the formal basis of Lagrange's analysis. Works to be disscussed include Lagrange's 1760 memoir on the calculus of variations and his 1797 treatise on the theory of functions.

.3 Princeton Oral History Project
William ASPRAY, The Charles Babbage Institute, University of Minnesota.

William Aspray looks at the role of institutions in mathematical research, taking as his example the development of Princeton's mathematical program in the 1920s and 1930s. He shows how a constellation of factors external to mathematics -- the generosity of alumni, the vision of administrators, national concerns, the bright ideas of architects, and the political situation in Europe

--- contributed to the bright ideas of architects, and the political situation in Europe -- contributed to the bringing together of a talented group of mathematicians into a productive environment at Princeton.

.4 Joseph Perott, Sonya Kovalevskaya, and Clark University
Roger COOKE, University of Vermont.

In the transfer of European mathematics westward across the Atlantic during the last half of the nineteenth century, a small but signifiant role was played by a few Europeans who had studied with the great masters in Paris and Berlin and then, usually for personal rather than professional reasons, chose to emigrate. While these people were not the best of the European mathemaitcians some of them were very talented people who for non-academic reasons did not have bright prospects of a career in Europe. One of these was Joseph Perott, whose life can be traced in considerable detail thanks to his relationship with Sonya Kovalevskaya. In 1891 Perott came to Clark University in Worcester, Massachusetts and played an important role in making Clark one of the world's most stimulating centers of mathematical activity during the early 1890's. This talk will present Perott's biography and discuss his relationship to the mathematical community of his time.

.5 W.E. Story of Hopkins and Clark
V. Frederick RICKEY, University of Vermont (visiting) and Bolwing Green State University.

After his undergraduate training at Harvard, William Edward Story earned his Ph.D. at Leipzig before joining J.J. Sylverter on the faculty at Johns Hopkins when the university opened in 1876. He moved to Clark University when it opened in 1889 and remained there until his retirement in 1921. This paper will trace the details of his career, concentrating on his influence in the transfer of mathematical culture to America and his role in the development of graduate mathematics education in North America.

.6 Ancient Optics in Light of a New Arabic Manuscript
J.L. BERGGREN, Simon Fraser University

A recently-discovered Arabic manuscript shows that the full history of burning mirrors in the ancient or medieval worlds is richer than we thought it to be. It is our aim in this talk to survey that history in the light of information contained in the manuscript.

The manuscript in question, BM ADD 7473, 164^b–172^b, begins with a six-page summary of material from Book I of Apollonios' Conics and then contains the words, "We need nothing else from the first (book of Apollonios), and the remainder is from the book of Datrumus on burning". There follow the statements and proofs of five propositions about reflection of light rays by concave paraboloidal and spherical mirrors, and the treatise concludes with a discussion of burning glasses.

Although the themes of the writing are familiar from the treatises, of Diokles and Ibn al-Haytham, the propositions are proved differently and the construction of the parabola that is given is not found elsewhere in the ancient or medieval literature. It is based on a lemme found in Archimedes' work. The concluding section, on burning by objects of solid glass or by objects filled with water, contains references to the practices of ancient artisans.

.7 Evolution of the Function Concept
Israel KLEINER, York University.

I.   Anticipations of the function concept (ca.2000 B.C. – end of 17th century)

II.   Euler's Introductio in Analysin Infinitorum (1748)

III.   The vibrating string controversy (D'Alembert, Euler, D. Bernoulli, Langrange; ca. 1750–1760)

IV.   Fourier and Fourier Series (1807, 1822)

V.   Cauchy's contributions (1820's, 1830's)

VI.   Dirichlet's definition of function (1820's, 1830's)

VII.   "Pathological" functions (Riemann, Wierstrass, et al; ca. 1850's –

1890's)

VIII. Baire's classification scheme (Baire, 1899; Lebesgue, 1905)

IX. Debates concerning the Axiom of Choice (Baire, Borel, Hadamard, Lebesgue, 1905)

X. Recent developments (L2 Functions, ca. 1910; Generalized functions, 1930's – 1940's; Category theory, 1950's – 1960's)

.8 Bertrand Russell As a Mathematician
Albert C. LEWIS, Bertrand Russell Editorial Project, McMaster University.

Russell's training for the Cambridge Mathematical Tripos in 1893 did not inspire him to do further work in mathematics and did not prepare him for accepting the modern mathematics being done on the Continent. In his later philosophical work, this was one factor explaining his initial negative reception to Cantor's transfinite numbers. The evidence we have in the Russell Archives seems to point to a lack of interest in mathematics for its own sake. This seems similar to Russell's well-documented distaste for doing experimental physics.

.9 Some Aspects of the Relations Between the Philosophy and Pedagogy of Mathematics
David WHEELER, Concordia University.

In the talk I want to go further than merely to assert that the way mathematics is taught implies (some sort of) a philosophy of mathematics. Philosophy and pedagogy both scrutinize mathematics; both attempt to be fair to it, to "take it as it is". Do their different viewpoints come together anywhere? Among other examples, I will consider some messages from the work of Lakatos and Gattegno.

.10 Kepler's Philosophy of Mathematics: "De Quantatibus"
    Giovanna CIFOLETTI, Princeton University.

.11 Workshop: Pictorial material in the classroom
    Louis CHARBONNEAU, Université du Québec à Montréal.

        A work session on pictorial material useful as support in a course of
history of mathematics. Please bring with any material, slides or pictures,
you use in your courses. It will perhaps be possible to compile a "kit" that
would be made available to our membership at minimal cost.

.12 In Search of Mesoamerican Geometry
    Francine VINETTE, University of Waterloo.

        Since Pre-Colombian and early Spanish written materials provide little
specific information on mesoamerican knowledge of geometry, this knowledge
will have to be extracted from physical evidence of the application of
geometrical concepts, rather than reported from written primary sources.
Manifestations of geometrical concepts in Mesoamerican artifacts and site
plans will thus be presented along with arguments from different studies in
archaeastronomy, geomagnetism, symbolism etc. as justification for the
intentional nature of the geometrical concepts displayed.

.13 Precalculus and Calculus: A Historical Approach to Teaching
    Victor J. KATZ, University of the District of Columbia.

        Precalculus and calculus can be taught using a historical approach; in
fact, these subjects can be better taught that way. The historical connections
between the topics provide motivation and show the students the reasons the
mathematics was developed. Surprisingly, a historical approach to these
courses is also very up-to-date in that it provides the discrete mathematics
and the algorithmic approach which many mathematicians and computer
scientists insist should be taught to freshman mathematics students.

.14 Bourbaki and Bourbakis in Twenty Years of American Mathematical
Publications (1935-1954). A Citation Analysis
Liliane BEAULIEU, Université de Montréal.

Bourbaki is the pseudonym of a group of (mostly) French mathematicans
who collaborated to write an overarching treatise, Eléments de mathématique
(1939-), which was intended to provide the working mathematician with
unified perception of the tools to his trade by emphasizing the basic
structures of "mathematics".

It is widely held that Bourbaki's treatise has a powerful impact on
subsequent mathematical development, the peak of its influence being felt in
the years 1955-1965.

By looking at citations received by Bourbaki and by the members of the
group across twenty years of two American mathematical publications I offer
a first approximation to an evaluation of the extent and versatility of
Bourbaki's presence in North America.

In this talk, I will present some of the conclusions arising from a
comprehensive citations analysis of the Transactions of the American
Mathematical Society and the Annals of Mathematics (1935-1954). Further
observations are provided by a look at the citations of Bourbaki for 1955-1969
on the basis of the Science Citation Index.

(This study is part of a more extensive research in progress on the Bourbaki
phenomenon, focussing on the French and the American mathematical scenes.)

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85.9 NEW EXECUTIVE AND NEW COUNCIL MEMBERS
NOUVEL EXECUTIF ET NOUVEAUX MEMBRES DU CONSEIL
D'ADMINISTRATION

Following the last June ballot the new Executive Council for 1986-1987 is :

Suite aux élections de juin dernier, voici la composition du nouveau Conseil d'administration:

Président/President	M. Walker (York Univ.)
Vice-président/Vice-president	J.L. Berggren (Simon Fraser U.)
Secrétaire-trésorier/Secretary-Treasurer	L. Charbonneau (U.Q.A.M.)

Membres du Conseil/Councils Members

T. Archibald (1985-1987) (Acadia Univ.)
C. Fraser (1985-1987) (Univ. Toronto)
H.N. Gupta (1985-1987) (Univ. Regina)
R. Herz-Fishler (1984-1986) (Carleton Univ.)

85.10 ANNUAL MEETING - CONGRES ANNUEL 1986
Our next annual meeting will be held in Winnipeg at the beginning of June or at the end of May 1986. The Programme Chairman is Ross Willard. DO YOU INTEND TO READ A PAPER ? CONTACT HIM AS SOON AS POSSIBLE:

Ross WILLARD
Dept. of Pure Mathematics
University of Waterloo
Waterloo, Ont.
N2L 3G1

85.11 HISTORIA MATHEMATICA

At the International Congress for the History of Science in Berkeley this past August, The International Commission for the History of Mathematics

appointed a new Editor of Historia Mathematica, Eberhard Knobloch of the Technische Universitat, Berlin, and Managing Editor, Helena Pycior of the University of Wisconsin, Milwaukee, who will officially begin their work as editors of the journal on January 1, commencing with the first issue of Volume 13 in February of 1986.

85.12 THE FORMATION OF THE CANADIAN SOCIETY FOR HISTORY AND
      PHILOSOPHY OF MATHEMATICS/SOCIETE CANADIENNE D'HISTOIRE ET
      DE PHILOSOPHIE DES MATHEMATIQUES
      Charles Jones, Ball State University.

   [[I am please to join to this Newsletter a very interesting note by Charles
   in which he recalls the formation of our Society (L.C.)]]

The Formation of the Canadian Society for History and Philosophy
of Mathematics/Société canadienne d'histoire et de philosophie de mathématiques

Charles V. Jones
Ball State University
Muncie, Indiana 47306

Introduction   The Canadian Society for History and Philosophy of Mathematics/Société canadienne d'histoire et de philosophie des mathématiques came into being the evening of June 3rd, 1974. Kenneth O. May suggested that the organization be formed and set in motion the organizing process. Although May was generally interested in promoting the study of the history of mathematics, his particular motives in forming this society were very specific and clear, although not widely known. He in fact was only superficially involved with the actual organizing and operating of the Society, in part because at the time he was deeply involved in trying to obtain funds from The Canada Council for the journal, *Historia Mathematica*. This Society, he hoped, would enable *Historia* to qualify for funding. So, a record of this society's history is important because of its link to the unsuccessful effort to establish a Canadian home for *Historia*. Moreover, the founding of CSHPM is a minor footnote in the study of how institutions arise and disciplines are promoted. It also gives an insight into how The Canada Council viewed its rôle in promoting Canadian national interests in academic affairs during the 1970's, although what is related here is inconclusive.

My association with May was both professional and personal and obviated any need for formal communications on many matters — as a rule, he did not operate with formal communications. But in the course of events, I produced a few documents some of which remain in my possession, and I have consulted them in preparing this history.[1] There is only one document that I have which was written by May relating to the founding of the Society, and I will show how it is related.

CSHPM's link to Historia   The late Kenneth O. May—known to many of us as Ken, a habit I shall indulge herein—was the founding editor of *Historia Mathematica* which first appeared in 1974. The support for organizing and launching *Historia* was provided by The Canada Council — which at that time had a much broader mandate than at present. One of the troubling conditions in The Canada Council's support for *Historia*, as well as for any other publication, was that the publication be Canadian. This was interpreted to mean serving principally a Canadian constituency. Unfortunately, *Historia* had little visible Canadian support.

This was a flawed policy, in Ken's view. How could a first-class research journal, especially in the history of mathematics, help but be international in readership and scope? Moreover, the benefits that accrue to Canada are far greater with a journal that serves international interests, he argued in conversations, than one that serves only national interests.

It was impossible for *Historia* to satisfy these conditions because it was conceived to be an international journal. It was to be published by the

International Commission on the History of Mathematics, of which Ken was the chairman, specifically as "an international journal of the history of mathematics".[2] So he hit upon a plan to try to satisfy the demands of The Canada Council.

His strategy was to create an organization in Canada which would then adopt *Historia* as its official journal. With this base — as the official journal of a bona fide Canadian organization — he hoped thereby to meet the Canada Council's nationalist criteria by claiming that *Historia* was a Canadian publication albeit with an international readership. This, it was hoped, would garner the financial support of The Canada Council and permit *Historia* to remain in Canada at the University of Toronto.[3] As we all know, the strategem ultimately failed! But let's see how this plan resulted in the formation of our Society.

Ken sent a letter, dated 23 February 1973, to colleagues in Canada who he knew were interested in the history of mathematics. He suggested that an organization be formed called "the Canadian Society for the History and Philosophy of Mathematics/Société Canadienne d'Histoire et de Philosophie des Mathématiques". In his letter he stated his ideas as follows.

> The organization should be informal, should not compete with existing organizations, and should not involve significant additional expense for the members. It should take advantage of the new journal *Historia Mathematica* and of its newsletter *Notae de Historia Mathematica.*

> To implement the points in the previous paragraph, dues should be nil for paid-up members of the Canadian Society for the Study [sic] of the History and Philosophy of Science/ Société Canadienne d'Histoire et de Philosophie des Sciences, and for subscribers to *Historia Mathematica.* For others, the dues should be the same as for the CSSHPS/SCHPS [sic] —$5 at present. Members would receive the newsletter whether or not they subscribed to *Historia Mathematica.*

> The organization might hold meetings in conjunction with those of related organizations rather than organizing its own separate meetings.

This last paragraph has its roots in both Ken's approach to the history of mathematics and to his motives for organizing historians of mathematics into a group easily distinguishable from the Canadian Society for the History and Philosophy of Science (which he has misnamed earlier in the letter). Ken believed that the history of mathematics was by and large being carried on by mathematicians, not by historians, and that it would and probably should remain this way. (I hasten to point out that this was not a view subscribed to by all who were working in the history of mathematics.) He saw historians of mathematics as primarily mathematicians and this made it imperative that they not be separated from the mathematics community. For this proposed group in particular, that meant not being separated from the Canadian Mathematical Congress (as it was then called). Of course this

made sense to him because the majority he knew in Canada who were interested in the history of mathematics were in mathematics departments.[*] And his motives in establishing a Canadian organization for the history of mathematics required a strong Canadian presence. In my view, the effect of this proposed structure would be to give the new organization the appearance of a separate society while in fact not separating historians from mathematicians by setting up a full-fledged, autonomous entity. This would make it as easy as possible for mathematicians in Canada to be members of the new organization.

At the same time another balancing act was needed in order to recruit the numerical support of the members of the Canadian Society for the History and Philosophy of Science. Many persons interested in the history of mathematics were not members of the Canadian Mathematical Congress but of the Canadian Society for the History and Philosophy of Science. So the same advantage of easy dual membership needed to apply to the historians and philosophers of science. Moreover, this group was probably perceived by Ken as providing the most active support since it attracted some of the history of mathematics graduate students at the University of Toronto, as well as a few academic colleagues of some stature and influence and this would not be a disadvantage in dealing with the Canadian hierarchy of government granting agencies.

The second paragraph quoted from Ken's letter makes it clear how important was the support of the Canadian Society for the History and Philosophy of Science: no additional dues would be charged members of CSHPS and the newsletter, *Notae de Historia Mathematica,* would be sent to them regardless of whether or not they indicated a desire to support the new organization. CSHP-Science was to be an umbrella group for CSHP-Mathematics thereby permitting the latter to organize with a minimum of effort. This would make CSHP-Mathematics an informal organization that would not compete with existing organizations. And becoming a member of the mathematics group would require even less effort than expressing an interest — it would require not expressing disinterest.

The total result would be wide support for the history of mathematics group, in part because it was easy to become a member and in part because it would not be a threat to any existing organization. A mathematician who was not a member of CSHPS could become a member for a relatively small fee. A historian, who by the way was not as likely to have a research grant to pay such fees, would become a member for no fee at all.

I think additional factors entered into Ken's thinking on this matter. CSHPS was a much smaller and less organized society than the Congress, so organizing a special interest group would probably be more easily accomplished. Moreover, I think it was important that the history of science group had no journal; the Congress had a well

established publication program and very likely would have exercised some claim on the new journal if it were published under its aegis.

The Kingston Meeting In his February 23rd letter, Ken had called the society's organizational meeting for June 9th, at Kingston.

An appropriate occasion for founding the organization appears to be the June 8-10, 1973, meeting of the CSSHPS/ SCHPS, which is part of the Learned Societies sessions, at Queen's University, Kingston, Ontario. An organization meeting is scheduled for June 9, 1 – 2 p.m. (room to be announced).

. . .

If you would like to become a charter member of the new organization, please send the form below to the undersigned, who is acting as a temporary center of communications.

At the meeting in Kingston, I hope that we will be able to draw up a constitution and found the organization. If you have any proposals or suggestions which you wish to make, and if you are going to be unable to present them in person, please send them to me.

During the last days of May 1973 following the distribution of the above letter, I accompanied Ken to the "Men and Institutions in American Mathematics" conference at Texas Tech University, where he presented a talk. On the second day of the conference, after making several phone calls, he told me that he had decided not to return directly to Toronto but to proceed to Berkeley, California, to visit with his step-mother who was ill. He asked me to return to Toronto, consult with Mr. Stephen Regoczei, who like myself was one of Ken's graduate students, and for the two of us to see that the meeting at Kingston was conducted and the objectives achieved.

It was decided that I would conduct the meeting at Kingston, because I had previously written a constitution and organized another group. I consulted *Robert's Rules of ꞈ ᵀer* on procedures and determined that the group could not properly organize itself at this meeting, as Ken had suggested. Instead, the agenda must include a declaration of intent to organize, the election of a temporary organizational chairman, and the election or appointment of a constitution writing committee. This was basically the agenda that was followed.

As a matter of record, it should be noted that when the meeting time came, the following people (with their then academic affiliations) were in attendance: Randall Long-core (natural science, York); Jill Humphries (philosophy, Waterloo); Charles Jones (Atkinson College, York, and graduate student, IHPST, Toronto); E.S. Keeping (mathematics; Alberta); D.L.S. MacLachlan (philosophy, Queen's); Steve Regoczei (graduate student in mathematics; Toronto); Tom Settle (philosophy, Guelph); and F. Ustina (mathematics; Alberta). (My notes are not complete on the attendance, so a name may be missing.)

There was a discussion of the interdisciplinary nature of the planned organization, of the desirability of its bylaws containing a specific reference to logic being within the interest of the organization, and of the pros and cons of meeting with the Canadian Mathematical Congress where much interest had been expressed in the organization. This last point brought an objection stating that such an arrangement would effectively preclude the philosophers and historians from attending. It was proposed that the organizational chairman canvass those interested to determine their preference.

A motion to organize was made and carried, as was one to establish as charter members all persons who responded to Ken's February 23rd letter. A motion to establish the dues structure suggested by Ken was defeated on the grounds that a more positive expression of interest should be made than just simply belonging to another society, and that a set fee should be adopted and be the same for everybody. A subsequent motion to establish the membership fee as two dollars was adopted. I was elected temporary organizational chairman and asked to appoint a constitution writing committee which was to incorporate the opinions of the meeting into a constitution to be presented at the next meeting. The meeting adjourned at 2:15 p.m., lasting exactly one hour.

The Year of Organizing   Upon my return to Toronto, I requested funds from the Dean of Atkinson College to defray the costs of organizing. These were estimated at $150 to cover primarily seven mailings. It took some time to get an answer, but financial support was finally forthcoming. In the years to follow this support was available without asking.

If I might be permitted an aside, I would again call attention to this aspect of the Society's beginnings. I have always felt very grateful to Atkinson College for their support at this early stage. It should be prominently noted in the annals of our Society that Atkinson College and its Department of Computer Science and Mathematics made it possible for the Society to organize and operate for its first several years. I think this support was crucial to our early success. The tendency to identify the beginnings of our Society with the University of Toronto is unfair; York University is more deserving of this distinction.

Initially, I saw my rôle as essentially facilitating events for people and purposes other than my own. The challenge of organizing appealed to me, but I did not feel that I had an entirely free hand in how I should go about it. This perception of mine turned out to be wrong, and it did not last long. However, I felt the need to make up a plan for the next year and send it to Ken for his information and approval. It was essentially a timetable of events which I would follow to ensure that the constitution was written and ratified by mail, the preference for a joint meeting was determined, and programs and facilities were properly arranged. In addition, if the constitution were ratified by mail, I would have to appoint a nominating committee and a program committee.

The only comment I received from Ken, other than general approval, was on an item relating to *Historia*. I had suggested a survey be made to determine the "desire to affiliate with Historia." Ken, in a telephone conversation, asked that I cross-out 'affiliate with' and replace it with 'adopt', and add the phrase, "—if favourable, place in Constitution as By-Law". There was no question of the importance of this organization to the continued funding of *Historia*.

The minutes of June 9th meeting were circulated to those responding to Ken's February 23rd letter or attending the Kingston meeting, with a cover memorandum entitled "Organizational Communication #1" dated October 1973. An explanation and questionnaire about where to hold the next meeting was included, the choices being the Learned Societies meeting in Toronto June 3rd to 5th, or the mathematics Congress in Quebec City June 1st and 2nd. It was announced that CSHP-Science was scheduling a session entitled "The Role of Mathematics in the History of Science" at its meeting and this could be coordinated with our activities. I also included information about *Historia* indicating the subscription for members of our Society would probably be $6 instead of the normal $8.

The responses to the questionnaire on the meeting location were few and evenly divided (I do not have a record of the exact numbers), so Ken and I decided to hold a meeting at Toronto and one at Laval. Both would have contributed papers but the Learned Societies meeting at Toronto would be the principal meeting with a 'showpiece' session and the business meeting. Ken organized the Laval meeting and I organized the Toronto program. Our showpiece session was the joint session with the Canadian Society for the History and Philosophy of Science, for which their program chairman gave me the responsibility of organizing. Three talks were arranged by H.S.M. Coxeter, Stillman Drake, and J.L. Berggren, followed by a discussion period conducted by Ken, and it proved to be an outstanding program.

The greatest difficulty in getting organized proved to be the constitution. A constitution committee was appointed consisting of Tom Settle of Guelph, E.S. Keeping of Alberta, and J.L. (Len) Berggren of Simon Fraser. This was reported in "Organizational Communication #2", dated February 1974, but for several reasons this committee failed to function. As the time drew near for our meeting, I wrote a draft of a set of bylaws and arranged to meet Tom Settle, who was chairman of the committee, at his home in Guelph to hammer out a document.

It seems important to give some background to the writing of the bylaws. At this time, the Canadian Society for the History and Philosophy of Science was having often acrimonious debates about the criteria for membership. With the burgeoning program in the history of science at Toronto and another at Montreal, there were many requests for membership from graduate students. CSHPS had taken a stance that to permit all these new members into their organization would jeopardize their status as a "learned" society and presumably cause them to loose their right to

meet with the Conference of Learned Societies. Those in opposition frequently expressed the opinion that the restrictions were intended to preserve an 'old boys' club which enjoyed certain perquisites, especially expense-paid travel to international conferences. Whatever the motives, CSHPS maintained a procedure for becoming a member which smacked of arbitrariness and privilege. (For example, at this time I was a member of CSHPS as a graduate student although some of my fellow graduate students had been denied membership.) I felt very strongly that no such limitation should be placed on membership in this new organization and was quite willing to let anyone join who could pay the dues. Tom Settle felt that there should be a stronger criterion and we compromised on "any person with competence and interest in the history of mathematics" along with the recommendation of two members.

The history of science group was also fraught with unending parliamentary agruments caused, in my view, by a defective constitution. It was vague and relied on Bourinot as the parliamentary authority. I remember one of their business meetings lasting until well into the early morning hours, the time being taken up by wrangling about procedural rules. I was determined to have nothing like this happen to our new organization, so the first thing I did was buy a copy of Bourinot's *Rules of Order* and read it. It was clearly inadequate as a parliamentary authority.[5] So I turned to *Robert's Rules of Order* and followed it in writing a draft set of bylaws.[6]

When I met with Tom Settle, we wrote a compromise set of bylaws which took much of what I had written and some of the articles from the CSHP-Science constitution. One point that Tom insisted on was that the name not have the article 'the' in front of 'History', as in the case of the Canadian Society for *the* History and Philosophy of Science; 'history' and 'philosophy' he said were deserving of parallel treatment. Moreover, we agreed that we should avoid implying that there is a unique history of mathematics. (The CSHP-Science later made a similar change in their name.)

When the bylaws were later presented and discussed, they were adopted in substantially the form drafted by Tom and me with one significant change: the reference to competency in the history of mathematics was removed from the criteria for membership.

The Formal Organizing of the Society With the completion of the draft bylaws, matters were falling into place for the first meeting of our Society. A 'Call for Papers' had been mailed throughout Canada and the responses made it possible to schedule contributed papers at both the Toronto and Laval meetings. There was no registration fee for this first meeting—in part because there was no society at that time—but those attending paid the Learned Societies fee of ten dollars.

The General Organizational Meeting was held in room 158 of the Lash Miller building at the University of Toronto, beginning at 7:45 on June 3rd. The agenda

progressed through electing an organizational secretary for the meeting, Maurene Flower (graduate student in mathematics, Toronto), and then approving of the minutes of the Queen's University meeting. The bylaws were considered section by section from printed versions distributed before the meeting, modified where it was felt necessary, and adopted in order. In the draft circulated, there was no reference to *Historia* because I felt it prejudged the matter and made the motives too transparent. But after approving the draft, as a subsequent motion, *Historia* was named as the official journal of the Society. A motion to have an amendment presented at the next annual meeting permitting election of officers by mail ballot was passed. Adopting the Bylaws had taken two hours, so the chair called a recess for the signing of the charter by all those present. This document, as I recall, was a piece of lined paper with about twenty names on it, and it should be in our Society's archives.

After the recess the first set of officers were elected: Charles V. Jones, president; Tom Settle, vice president; J.L. Berggren, Secretary/ Treasurer; and three Council Members, William Crawford of Mt. Allison, Norman Gridgeman of the Science Research Council, and Fred Ustina of The University of Alberta. *Robert's Rules of Order, Newly Revised* was adopted as the Society's parliamentary authority. Dues were established at $4 per year and a motion was adopted asking the new Executive Council to investigate affiliating with the Conference of Learned Societies. After statements and motions of gratitude, the

meeting adjourned at 10:46 pm.

Now that the Society was formed and had adopted *Historia* as its official journal, I suggested to Ken that it would be appropriate to have a representative of the Society on the Editorial Board. He agreed and we settled on Len Berggren as that representative and he was subsequently appointed.

Conclusion Although the Canadian Society for History and Philosophy of Mathematics/Société Canadienne d'Histoire et de Philosophie des Mathématiques was conceived in part to serve another purpose, that has not materially influenced its form. In fact, Ken May never took an active rôle in organizing or running the Society. I kept him informed of what I was doing during the first formative year, and he agreed after many refusals to stand for election as a Council Member one subsequent year. However, the form in which the Society came into existence was somewhat different from that which Ken had proposed: it charged dues, it competed on a very small scale with other organizations, and it had no restrictions on its meeting separately from either the Canadian Society for the History and Philosophy of Science or the Canadian Mathematical Congress. It did adopt *Historia* as its official journal, and while Ken was editor of *Historia*, there was always space available for reporting on the activities of the Society. But The Canada Council ultimately denied a publication grant-in-aid to support the publication of *Historia* by the University of Toronto Press. As a consequence, another publisher

willing to support the journal had to be found and it was later moved to Academic Press in New York. With the move and the change of editors (the latter, by the way, although coincident with Ken's death in 1977 was in the process earlier), the Society's link to *Historia* became very tenuous.

In my view, as a historian of mathematics, I think that the Society led the way in serving the many disciplinary interests that are brought together by the history of mathematics. Its founding was a significant event in establishing the history of mathematics as a discipline. Regardless of what forces might have spawned the idea, the continuing support and success of the Society now in its second decade show that it serves a need.

Notes

1. The documents in my possession deal with the year 1973-1974, between the initial organizational meeting in June 1973 and the meeting at which CSHPM/SCHPM was formally founded in June 1974. They are: letter from K.O. May to 'Colleagues', 73.02.23; minutes of June 1973 meeting at Queen's University, with rough notes; letter from C.V. Jones to Dean of Atkinson College, 73.06.12; memo from C.V. Jones to K.O. May, 73.06.26; Organizational Communication #1 (Oct 73), #2 (with 'Call for Papers', Feb 74), and #3 (May 74) [from C.V. Jones]; hand-written (by C.V. Jones) draft of "Proposed Bylaws for CSHPM", 74.05.26; Program/Programme for CSHPM/SCHPM, 74.06.3-4; minutes of Ogranizational Meeting of CSHPM, 74.06.03. The documents dealing with the years 1974 to 1979 while I was President and later Secretary/Treasurer are in the Society's archives, which consisted of a transfer box of files. These were passed on to my successor as Secretary, Philip Enros, and I recall his telling me that he in turn gave them to his successor, Louis Charbonneau.

2. See inside the front cover of the first issue.

3. If this scenario seems surprising, if not devious, I assure you that Ken stated this strategy quite explicitly to me several times.

4. I do not know for a fact that the majority receiving the February 23rd letter were in mathematics departments, and I doubt if this can be established. There may be a mailing list in Ken's materials which are at the University of Toronto, although I do not recall it. Even if there were, this letter was sent to anyone Ken heard about who might be interested, and I'm sure some who came to his attention late were sent letters long after February 23rd.

5. It has since been revised and expanded. The constitution of CSHP-Science has also since been revised.

6. This discussion about the parliamentary authority is an apology of sorts from me. Our Society was conceived and organized by Americans as a Canadian organization. I was acutely aware of this incongruous circumstance and was making every effort to suppress the American influences. This issue seemed sensitive to me: Bourinot's *Rules* and *Robert's* are modeled on the rules of the federal legislative houses of Canada and the United States, respectively, and this argued strongly for adopting Bourinot. Where the two spoke to the same point, though, they were not substantially different. The determining difference was that *Robert's* spoke to so many more points, in addition to giving advice on how to organize and conduct meetings, so I took *Robert's* as the rules of the Society. This was discussed at the bylaws adoption meeting and *Robert's* was adopted unanimously.