



International History, Philosophy and Science Teaching Group

NEWSLETTER

September 2007

www.ihpst.org

CONTENTS

- 1. Calgary Conference Report**
- 2. President's Message re. IHPST Group Formalisation**
- 3. IHPST First Election**
- 4. *Science & Education* Report (Vol.16 Nos.9-10)**
- 5. Fourth Hellenic Conference on History, Philosophy and Science Teaching (October 4-7)**
- 6. Athens Workshop on History, Philosophy and Science Didactics (Sept. 28-30)**
- 7. Book Notes**
 - (i) Portuguese HPS & Science Teaching Anthology
 - (ii) Argumentation
 - (iii) Birth of Classical Mechanics
- 8. Current Research**
- 9. Publications for Sale**
- 10. Coming Conferences**
- 11. Future Newsletter Items**
- 12. IHPST Email List**

1. Calgary Conference Report

The International History, Philosophy and Science Teaching Group held its *Ninth* Conference, at the University of Calgary, June 24 – 28. It was a most successful meeting with about 180 folk attending from 32 countries.

There were Plenary Sessions on:

- # HPS & Biology Teaching
- # Cognitive Perspectives on Epistemology in Science Education
- # Image Style Analysis: Employing Digital Imaging Technology to Map Changes in Pictorial Styles over Time
- # The Periodic Table-Its Story and Its Significance

Science Stories: A Spectrum of Considerations for Learning In and About Science
Teaching and Assessing the Nature of Science: Issues and Complexities

About 130 presentations were made in concurrent sessions.

Conference Proceedings will shortly be available on the web at: www.ucalgary.ca/ihpst07

The Business Meeting resolved that the next conference of the IHPST Group, its tenth, will be held June 24-28, 2009 at Notre Dame University, South Bend, Indiana. The Conference Chair is Professor Don Howard, Philosophy Department, Notre Dame. The email address for the conference secretary, Greg Macklem, is: ihpst09@nd.edu. A web site will shortly be established, and progressively information about the conference will be available there.

2. President's Message re. IHPST Group Formalisation

The IHPST Group had a very productive meeting at the University of Calgary in June this year. It was wonderful to see many familiar faces along with some wonderful new colleagues. We owe a huge debt of thanks to the conference organizers Ian Winchester and HsingChi von Bergman for their work in producing a stimulating program at a wonderful venue attracting colleagues from 32 countries!

I am also pleased to report that we made a number of decisions at the business meeting that have moved our group closer to becoming a formal society by building on our nearly 20 successful and productive years as an informal group. Details of the Group's Aims, History, Conferences and Publications can be found at its web site: www.ihpst.org

At Calgary we approved the by-laws, available at the web site under "About Us", and elected a nominating committee to produce our first slate of candidates. During the meeting, David Rudge kindly took minutes; these are also available on the web site for your review.

To begin the election process we have decided to establish an interim membership list of those entitled to hold office and/or vote in our first election. The voting list already includes all of those who attended the Calgary conference and the *Science & Education* editorial board members along with those who joined IHPST last year as financial members. This gives us a membership base of about 200 people.

This is a good start but we would like to invite as many interested individuals as possible to become initial members of the organization. To encourage membership we have instituted an "open enrollment" period starting now and ending on September 30, 2007. Anyone who would like to vote in this first election, or stand for office, should complete the 'Interim Membership Form' at the IHPST web site (or below in this newsletter), and return it as an attachment to: William McComas mccomas@uark.edu before the deadline.

There is no cost for this interim membership, the intention is to have as wide a voting pool as possible, and consequently a large and comprehensive group of possible candidates for office bearers.

Art Stinner (stinner@cc.manitoba.ca) as past president will chair the nominating committee along with members Ian Winchester, Augustin Adúriz-Bravo, Calvin Kalman and Michael Matthews all of whom were elected at the business meeting. Please consider providing your name to Art for consideration. The final list of candidates and their biographies will be posted at the end of

September and all members will be notified that the election is in process. By mid October of 2007 we will conduct our first vote with those elected serving a two year term ending with the 2009 conference.

IHPST has had a proud history and by taking this step toward formalization will continue to grow and thrive. Our members have made a significant impact on science teaching and scholarship through publications, presentations, interest and action. As we become a formal organization, we will both honor the past and prepare for the future.

It has been a privilege to have been president of these past two years during such an important time in our history and I look forward to continuing my service to and participation in IHPST as your past-president!

Sincerely,

William F. McComas
IHPST President 2005-2007

Parks Family Professor of Science Education
University of Arkansas
mccomas@uark.edu

3. IHPST First Election

If you are interested in being considered a member for purposes of the initial vote for officers of IHPST, please complete the form below and send it as an attachment to William McComas (President of IHPST) mccomas@uark.edu.

The information provided here will be not shared with anyone outside IHPST although your name only may appear on a list of those with initial voting rights perhaps to be posted on the IHPST website.

There is no cost for this interim membership, the intention is to have as wide a voting pool as possible, and consequently a large and comprehensive group of possible candidates for office bearers.

Important note: If you 1) are already a financial member of IHPST and/or 2) attended the 2007 Calgary Conference and/or 3) are on the *Science & Education* journal review board you DO NOT have to complete this form and are already a voting member of the organization.

Once you are registered as a voting member for this initial election, you are also entitled to stand for office. The new by-laws stipulate that we will elect the following:

1. President
2. President-Elect
3. Program Officer
4. Secretary
5. Treasurer
6. Student Member of the Council
7. Two (2) Council Members at large

If you would like to nominate someone, or if you would like to stand for one of these offices yourself, please email Art Stinner (Past President and Chair of the Elections Committee) stinner@cc.umanitoba.ca. Nominations should include a statement that will be distributed with the ballot form.

The statement should take the form: current position, education, some major publications and or research interests, past or current connections with the IHPST group, and a brief account of what you would like to achieve if elected.

Please note that nominations for office are sent to Art Stinner (Past President IHPST), whilst interim membership registrations are sent, as attachments, to William McComas, (President IHPST).

IHPST INTERIM MEMBERSHIP REGISTRATION

Name: _____

Address: _____

Telephone _____

Email _____

Are you a student? ____ (Students may vote for (and run for) all offices, but only students may vote for the Student Member of the Council.)

Return to: Professor William McComas mccomas@uark.edu

4. *Science & Education Report*

(a) Volume 16 Numbers 9-10

Volume 16 Numbers 9-10 of *Science & Education* will shortly be printed and will be mailed to subscribers by Springer Publishing.

Contents are:

NAHUM KIPNIS / Discovery in Science and in Teaching Science

STUART ROWLANDS & ROBERT CARSON / Teaching the Conceptual Revolutions in
Geometry

RICARDO LOPES COELHO / The Law of Inertia: How Understanding its History and Meaning
can Improve Physics Teaching

SIBEL ERDURAN, AGUSTIN ADURIZ BRAVO & RACHEL MAMLOK NAAMAN /
Developing Epistemologically Empowered Teachers: Examining The Role Of Philosophy of
Chemistry In Teacher Education

MARIE-PIERRE QUESSADA & PIERRE CLEMENT / An epistemological approach to French
syllabi on human origins during the 19th & 20th centuries

LENA HANSSON & ANDREAS REDFORS / Upper secondary students in group discussions about physics and our presuppositions of the world
EMILY J. BORDA / Applying Gadamer's Concept of a Hermeneutic Disposition to Science and Science Education

The above articles, and all published articles since Volume One, 1992, and all articles that are currently accepted and 'in print', are available on the web via Springer's journal site: www.springer.com/journal/11191 .

(b) Journal on the Web

The journal *Science & Education* is now available on the web at: <http://www.springerlink.com/> (then PUBLICATIONS, then S, then 'Science & Education'), or more directly at: www.springer.com/journal/11191 . Or the articles can be accessed directly at: <http://springerlink.metapress.com/content/1573-1901/>

All articles can be downloaded as pdf files for free if the individual's institution subscribes to the relevant Springer journal package; otherwise they can be downloaded for a fee.

Alternatively subscription renewals for printed journals and new subscriptions (USD95 pa, with discount for students, retired faculty and scholars from depressed economies), can be effected at the IHPST web site: www.ihpst.org

The Springer site is now linked to Google, and articles can be searched in Google by typing in author name and first words of title. This goes direct to the Springer site and the pdf file of the article.

Approximately 3,000 institutions around the world have subscribed to the on-line version of the journal, while many institutions have subscriptions to both print and on-line versions.

The on-line version is heavily used. In 2006 there were 23,584 article-downloads, an increase of one thousand over 2005 downloads. These figures make *Science & Education* one of the most down-loaded of all Springer education journals.

The journal web site provides many services to researchers:

- # The 'On Line First' section allows access to all accepted, forthcoming articles in the journal. As soon as an article is accepted for publication, a typeset pdf version of it is posted on the web and can be accessed by individual journal subscribers or by individuals whose institutions subscribe to a Springer package that includes '*Science & Education*'.
- # The Contents of each issue of the journal, back to Volume 1 Number 1 in 1992, are available. These can be downloaded by subscribers and individuals whose institutions subscribe to the journal. They are also available, at a cost, to non-subscribers.
- # Full details of the Editorial Board and Submission process are posted.

(c) Manuscript Submissions

Scholars can submit manuscripts in file form direct to the journal at:

www.editorialmanager.com/sced/

Thereafter they can check on its progress through the review process. Most submissions are reviewed by three senior scholars, usually involving a spread of educator, historian, philosopher or cognitive scientist. The submission site also has a guide to the journal's format and style conventions.

5. 4th Hellenic Conference on History, Philosophy and Science Teaching

The 4th Hellenic conference on History, Philosophy and Science Teaching "The Cultural Component of Science in Education" will be held at the University of Patras (Department of Educational Sciences and Early Childhood Education) from October 4 to October 7, 2007.

The purpose of the conference is to promote research, and to improve teaching, about the historical and contemporary interactions of science, society and culture. Conference presentations will be on aspects of the History, Philosophy and Sociology of Science related to the conference theme.

Invited speakers include:

- # Prof. Agustin Aduriz-Bravo, Science Education, Universidad de Buenos Aires
- # Dr Danielle Fauques, Science Education, Groupe d'Histoire et de Diffusion des Sciences d'Orsay
- # Prof. Constantin Skordoulis, History and Philosophy of Science, University of Athens
- # Prof. Constantin Kambas, Physics, Aristotle University of Thessaloniki
- # Prof. Miltiades Papanicolaou, History of Art, Aristotle University of Thessaloniki
- # Dr Efthymios Nikolaides, History and Philosophy of Science, National Hellenic Research Foundation
- # Prof. Michael Matthews, School of Education, University of New South Wales, Sydney

About 50 papers will be presented, and about 200 participants will attend.

The conference website is: <http://www.ecedu.upatras.gr/hpt/> (an English version of the page is available).

For further information please contact:

Dr Dimitris Koliopoulos
Dept. of Preschool and Elementary Education
Patras University
Patras
GREECE
dkoliop@upatras.gr

6. Athens Workshop on History, Philosophy and Didactics of Science (September 28-30)

A Workshop on *Questions in Science: History, Philosophy and Didactics* will be held in the Education Department of the University of Athens, September 28-30. There will be about 40 presentations and five round-table discussions.

The workshop web site is <http://asel.primedu.uoa.gr>. (in Greek only)

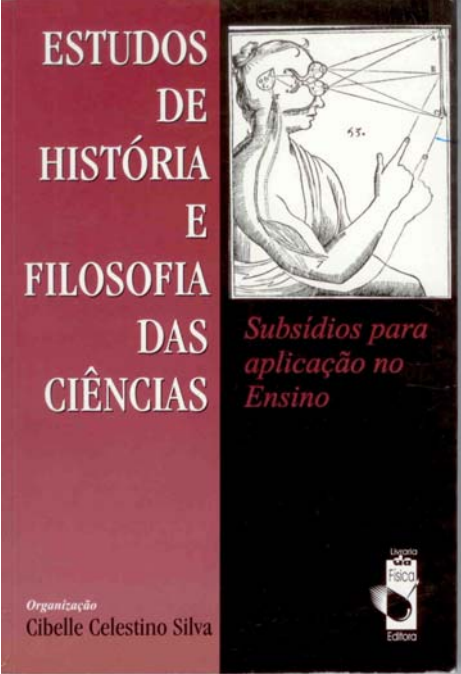
Details can be obtained from:

Professor Constantine D. Skordoulis
Department of Education, University of Athens
kostas4skordoulis@gmail.com

7. Book Notes

(i) Portuguese HPS & Science Teaching Anthology

Cibelle Celestino Silva (editor). *Estudos de história e filosofia das ciências: subsídios para aplicação no ensino*. São Paulo: Editora Livraria da Física, 2006. [Studies on History and Philosophy of Science: Resources for Science Teaching] ISBN 85-88325-57-8; 380pps

 <p>ESTUDOS DE HISTÓRIA E FILOSOFIA DAS CIÊNCIAS</p> <p><i>Subsídios para aplicação no Ensino</i></p> <p>Organização Cibelle Celestino Silva</p> <p>Livraria da Física Editora</p>	<p>This collection of 18 papers, in Portuguese, provides a substantial resource for scholars and teachers interested in the application of historical and philosophical studies to theoretical and pedagogical problems in science education.</p> <p>One of the challenges for the utilization of history and philosophy of science in Brazilian science education has been the lack of accessible quality didactic material for students, teachers and university professors. This anthology is put together to meet this need.</p> <p>The book has eighteen chapters written by researchers in the field concerning specific topics on history, philosophy and others of interest to scientific education.</p>
--	--

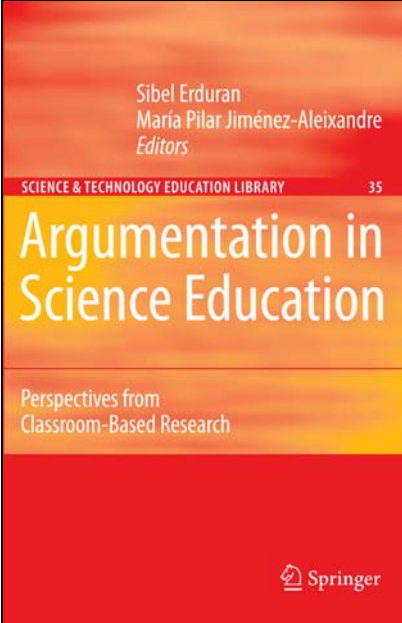
The chapters discuss historical and philosophical aspects of subjects related to general science and also related to physics, astronomy, chemistry, biology and mathematics.

The authors address topics such as the nature of science and its method, the relation between science and its social context, historical errors present in textbooks, history of some topics taught in school, demystification of famous scientists, examples and stories of history and philosophy of science in the classroom.

Copies of the book can be purchased in the book's publisher site <http://www.livifusp.com.br> that delivers books to many countries all over the world.

(ii) Argumentation

Sibel Erduran & María Pilar Jiménez-Aleixandre (editors), **Argumentation in Science Education: Perspectives from Classroom-Based Research**, Springer Publishers, Dordrecht, 2007.

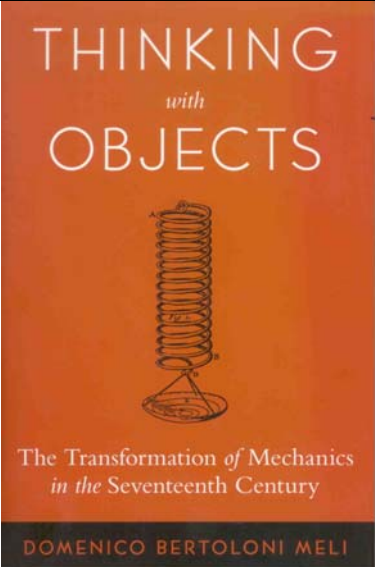
	<p>This book brings together the work of scholars in the field of argumentation in science education. It presents research combining theoretical and empirical perspectives relevant for secondary science classrooms.</p> <p>Since the 1990s, argumentation studies have increased at a rapid pace, from stray papers to a wealth of research exploring ever more sophisticated issues.</p> <p>This volume covers fundamental issues in argumentation such as cognitive, methodological and epistemological aspects; classroom-based research in teaching and learning of argumentation in science classrooms. It also deals with argumentation in context such as in socio-scientific and moral contexts.</p>
---	---

The book's underlying premise is that argumentation is a significant aspect of scientific inquiry and plays an important role in teaching and learning of science. Argumentation also contributes to the agenda of informed citizenship where students are encouraged and supported in evidence-based reasoning in their everyday lives.

Contributors include Sibel Erduran, María Pilar Jiménez-Aleixandre, Gregory Kelly, William Sandoval, Richard Duschl, Anat Zohar, Dana Zeidler, Troy Sadler, Merce Garcia-Mila, Douglas Clark, Stein Kolsto, Mary Ratcliffe, Laurence Simonneaux and Andree Tiberghien.

(iii) The Birth of Classical Mechanics

Domenico Bertoloni Meli, *Thinking with Objects: The Transformation of Mechanics in the Seventeenth Century*, John Hopkins University Press, Baltimore, 2007. ISBN: 0-8018-8427-6; 390pps

	<p>This is an excellent book that offers a fresh view of the transformation that took place in mechanics during the seventeenth century. By giving center stage to objects – levers, inclined planes, beams, pendulums, springs, and falling and projected bodies – Meli provides a unique and comprehensive portrayal of mechanics as practitioners understood it at the time.</p> <p>Interestingly Meli sees the tension between Galileo and his patron Guidobaldo del Monte as a springboard for exploring the nature of seventeenth-century mechanics. This position was advanced in a much less sophisticated manner in this reviewer's [MRM] <i>Time for Science Education</i>, chapter 5, (Kluwer 2000) where the del Monte and Galileo exchange, specifically Galileo's 1602 letter to his patron, was described as a 'window on to the Scientific Revolution'.</p>
---	---

In contrast Meli's book is immensely scholarly citing 150 primary sources from Archimedes to Wren, and 400 secondary sources.

His work challenges the oft-made assertion that there was a clear separation of mathematical and experimental traditions in the sixteenth and seventeenth centuries. If this distinction is dissolved for participants in the Scientific Revolution, so too is the distinction between theory and practice for the period. This distinction might or might not be useful for analysis of contemporary science and technology, but Meli's argument is that its application to the seventeenth century is anachronistic.

Meli also shares this reviewer's high estimation of the role of the pendulum in the birth of modern science. Meli discusses the analysis of the pendulum in the work of Galileo, Huygens, Mersenne and Newton; this discussion ranges over fifty pages of the book. His point is, in part, that neither mathematics alone nor practice alone unveils the science of the pendulum, but the admixture of both mathematics and engineering technology is required.

The book has intrinsic interest for school teachers who are increasingly obliged to teach something about the nature of modern science to students; and of course the book's thesis that modern scientific thinking had its genesis in thinking about practical activity and the manipulation of real world objects resonates with a long tradition of informed science teaching.

8. Current Research

Apart from contributions to *Science & Education* the following are some papers published in recent years that bear upon the research concerns of the IHPST Group.

Suggestions for up-dating this list should be sent to the Editor at m.matthews@unsw.edu.au

Niaz, M.: 2006, 'Facilitating Chemistry Teachers' Understanding of Alternative Interpretations of Conceptual Change', *Interchange* **37**, 129-150.

Niaz, M.: 2006, 'Can the Study of Thermochemistry Facilitate Students' Differentiation between Heat Energy and Temperature', *Journal of Science Education and Technology* **15**, 269-276.

Mamluk-Naaman, R., Ben-Zvi, R. & Hofstein, A., Menis, J., & Erduran, S.: 2005, 'Influencing Students' Attitudes towards Science by exposing them to a Historical Approach', *International Journal of Science and Mathematics Education* **3**(3)

Niaz, M.: 2005, 'The Quantitative Imperative vs the Imperative of Presuppositions', *Theory & Psychology* **15** (2), 247-256.

Niaz, M.: 2005, 'Do General Chemistry Textbooks Facilitate Conceptual Understanding?', *Química Nova* **28**(2), 335-336.

Niaz, M.: 2005, 'An appraisal of the controversial nature of the oil drop experiment: Is closure possible?', *British Journal for the Philosophy of Science*, **56**(4), 681-702.

Brito, A., Rodríguez, M.A. & Niaz, M.: 2005, 'A Reconstruction of Development of the Periodic Table Based on History and Philosophy of Science and its Implications for General Chemistry Textbooks', *Journal of Research in Science Teaching* **42**(1), 84-111.

Abd-El-Khalick, F. 2005, 'Developing Deeper Understanding of Nature of Science: The Impact of a Philosophy of Science Course on Preservice Science Teachers' Views and Instructional Planning', *International Journal of Science Education* **27**(1), 15-42.

Lawson, A.E.: 2005, 'William Harvey, Predicting Capillaries, and the Nature of Science: One More Time', *The American Biology Teacher* **67**(4), 202-203.

Lawson, A.E.: 2005, 'Conducting High Quality Research', *International Journal of Science and Mathematics Education*, **3**(1), 1-5.

- Lawson, A.E.: 2005, 'What is the Role of Induction and Deduction in Reasoning and Scientific Inquiry?' *Journal of Research in Science Teaching* **42**(6), 716-740.
- Dagher, Z., & BouJaoude, S.: 2005, 'Students' Perceptions of the Nature of Evolutionary Theory', *Science Education* **89**(3), 378-391.
- Nola, R. & Irzik, G.: 2005, *Philosophy, Science, Education and Culture*, Springer, Dordrecht.
- Ben-Ari, M.: 2006, 'Whose Final Hour? The Problem of Naive Egocentric Catastrophism in Doomsayers and Catastrophists', *Skeptic* **12**(3), 2006, 40-49.
- Waters-Adams, S.: 2006, 'The Relationship between Understanding the Nature of Science and Practice: The Influence of Teachers' Beliefs about Education, Teaching and Learning', *International Journal of Science Education* **28**(8), 919-944.
- Smith, C.L. & Wenk, L.: 2006, 'Relations among Three Aspects of First-Year College Students' Epistemologies of Science', *Journal of Research in Science Teaching* **43**(8), 747-785.

9. Publications for Sale

The following publications can be ordered from the IHPST Group at www.ihpst.org :

- #1 *CD Proceedings of the 6th IHPST Conference, Denver, 2001*, 100 papers, W. McComas (ed.), USD10.
- #2 *CD Proceedings of the 7th IHPST Conference, Winnipeg, 2003*, 100+ papers, D. Metz (ed.), USD10.
- #3 *Science Education and Culture*, F. Bevilacqua, E. Giannetto & M.R. Matthews (eds.), Kluwer, 2001, 362pp, USD20.
- #4 *Science & Education* journal Volume 2, 1993, 382pp, USD10.
- #6 *Science & Education* journal Volume 12, 2003, 808 pps, USD20.
- #7 *Science & Education* journal Volume 13, 2004, 820 pps, USD20.
- #8 *The Pendulum: Scientific, Historical, Philosophical & Educational Perspectives* (Michael R. Matthews, Colin Gauld & Arthur Stinner (eds.), Springer, 2005, USD20

10. Coming Conferences

October 5-7, 2007. 4th Hellenic HPS&ST conference, Patras.

Details from: Dr Dimitris Koliopoulos, dkoliop@upatras.gr

December 6-9, 2007. Philosophy of Education Society of Australasia, annual conference. Wellington, New Zealand.

Details at: <http://www.pesa.org.au/>

March 29 – April 3, 2008. National Association for Research in Science Teaching (NARST, USA), Baltimore

Details at: www.narst.org

April 11-14, 2008. Philosophy of Education Society (USA), Annual Conference, Boston.

Details at: <http://philosophyofeducation.org>

June 24-28, 2009. IHPST 10th Conference. University of Notre Dame

Details from: Greg Macklem ihpst09@nd.edu

11. Future Newsletter Items

This IHPST Electronic *Newsletter* goes to 1,400 email addresses on the IHPST list, and it is also posted to various science education, philosophy of education and HPS lists. Items for inclusion in

the *Newsletter* are appreciated. These can be items for the 'Recent Research', 'Recent Books', 'Books' or 'Conferences' sections. Brief Book Notes are especially welcomed.

Please email newsletter material as an attachment (or journal subscriptions or publication orders) to:

A/Professor M.R. Matthews, School of Education, UNSW, Sydney 2052, Australia
Email: m.matthews@unsw.edu.au

12. IHPST Email List

The email list is used sparingly, perhaps once a month, to send group information such as contained in this Newsletter. It is a closed list, not an open discussion list.

If you receive this email message and wish to remove yourself from the IHPST list, send a message to: majordomo@explode.unsw.edu.au . In the body of the message, not the subject line, simply write: 'unsubscribe ihpst-group'.

Alternatively, if you have friends or colleagues who would like to subscribe to the list, tell them to send a message to: majordomo@explode.unsw.edu.au . In the body of the message, not the subject line, simply write: 'subscribe ihpst-group'.