International History, Philosophy and Science Teaching Group

NEWSLETTER

March 2006

www.ihpst.org

Contents

0. IHPST Group Formalisation and Membership Fee: From IHPST President, William F. McComas

Dear IHPST Colleague,

You have no doubt become aware of the conversations that have taken place to formalize the structure of our organization. We have accomplished much since the group was founded and should be proud collectively of our conferences, journal and most importantly the intellectual conversation that has steadily grown stronger as a result of our various interactions.

Currently the group has an informal structure and no membership fee and is run by consensus decision making offered by an interim advisory council of the current and former IHPST presidents, the executive secretary, and several other interested members representing varying constituencies (See Appendix A). We agreed at the Leeds Conference (Summer 2005) that the Group has achieved

a great deal with the current structure and minimal resources, but that more could be achieved, and the Group's long term viability insured, with both structure (including officers and a constitution) and income.

During the conference Business Meeting there was a strong call to "move to the next level" in our evolution as an organization by producing a constitution, develop a more transparent leadership structure, and establish ties between our organization and others in the service of science education.

As a first step the advisory council approved the notion of establishing who are the IHPST members (www.ihpst.org) through the introduction of membership fees. During the past few weeks the council has discussed this issue via an email exchange resulting both in this document and the establishment of the fee levels.

Until we meet at the 2007 Calgary Conference we will begin the process of formally constituting the Group by introducing a membership fee of USD60 per calendar year (USD100 for two-yearly membership) with half rate for students, retired faculty and for scholars from developing economies.

Membership will be effective beginning calendar year 2006.

When we meet in 2007, we will consider making some adjustments as needed both in the level of the dues and categories of membership.

It was recognised that the Group needs a secured income stream in order to:

- Subsidise conference participation and journal subscription for students, and for scholars and teachers from developing economies
- Pay minimal secretarial assistance, web-site maintenance costs, administrative and publicity costs associated with the Group.
- Provide 'seed and/or set up' monies for future conference organisers
- Meet other Group costs that periodically arise including, but not limited to, settling any past IHPST obligations to any person or group who has incurred expenses on behalf of IHPST
- Establish a small reserve fund to meet unexpected contingencies.

Through the payment of dues, individuals will become IHPST members. With the establishment of this membership base, the group can then conduct elections resulting in more formal office holders. Among the first positions to be filled will be a Treasurer who will oversee and administer group funds. Dr Jim MacKenzie (School of Education, University of Sydney, mackenzj@edfac.usyd.edu.au) has agreed to be our treasurer on an interim basis until the group moves to a more formal structure.

All those who have been associated with the IHPST group – journal subscribers, journal editorial committee members, conference participants – and all those who support its research and pedagogical aims, are invited and urged to become official members of the group through the payment of dues.

Financial membership has the following benefits:

- The satisfaction of knowing that you are supporting a group that promotes the utilisation of historical and philosophical research in addressing the theoretical, curricular, and pedagogical problems of science and mathematics teaching.

- Access to the journal *Science & Education* at a personal subscription rate that is considerably less than the commercial rate. The considerably reduced personal subscription rate is only available to IHPST members.
- A discounted registration rate (to be determined) for the IHPST biennial conferences.
- Being able to vote for IHPST office holders and policy initiatives.

Until such time as the Group is formally constituted, with a Constitution and Treasurer, membership fees will be ear-marked for three purposes:

- Subsidising the 2007 conference participation of students and scholars from developing economies
- Subsidising journal subscriptions for students and scholars from developing economies.
- Provide an on-going fund to assist subsequent conferences.

Membership can be enacted at the Group's web site: www.ihpst.org

To put this Formalisation and Membership initiative into context, the following Newsletter item on the history and workings of the IHPST Group might be useful.

William F. McComas
President IHPST
Email: mccomas@usc.edu

1. "Science & Education", Vol.15, No.1

Volume 15 No.1 of the journal *Science & Education* has recently been published.

The contents are:

Journal subscriptions - USD85 (1 year), USD160 (2 years), USD235 (3 years) with half rate for students and third-world scholars - can be effected at the IHPST web site www.ihpst.org.

2. 2007 Calgary IHPST Conference

The International History, Philosophy and Science Teaching Group will hold its *Ninth* Conference, at the University of Calgary, June 24 (evening) – 28 (noon), 2007

Conference Chair: Professor Ian Winchester
Conference Secretary: Linda Lentz
Programme Chair: HsingChi Wang (ihpst07@ucalgary.ca)

The Conference Theme is: *Contextual Approaches to Science and Mathematics Teaching*

It is expected that about 200-250 educators, historians, philosophers, teachers, scientists and cognitive scientists from about 30 countries will engage with theoretical, curricular and pedagogical issues in contemporary science education.

Proposals (max.1,000 words) and Abstract (max. 150 words) need to be submitted as attachments to programme chair by 15th April 2007. The files should be named: SURNAME_proposal.doc and SURNAME_abstract.doc.

There will be an opportunity for pre-conference publication of reviewed submissions if they are received by 15th December 2006.

More details, including registration, travel and accommodation, will be available at the conference web site: WWW.UCALGARY.CA/IHPST07

3. *First Symposium on Philosophy, History, and Methodology of* E.R.R.O.R*

***E**xperimental **R**easoning, **R**eliability, **O**bjectivity & **R**ationality: **I**nduction, **S**tatistics, **& M**odeling

Virginia Tech, Blacksburg, Virginia June 1-5, 2006

We learn from our mistakes. *But are we learning enough?* Contributions to this conference, whether philosophical, historical, statistical, and/or methodological will all in some way reflect an aspect of "learning from error," conceiving "error" very broadly, (e.g., mistakes of inference, flawed methods, statistical errors, misspecified models, anomalous results, erroneous verdicts, deceptions in nature, biases and fallacies).

What kinds of errors seem to matter most in improving method, advancing reliability, avoiding threats (natural and man-made). How do/can we make progress in building a "repertoire of errors" and techniques to circumvent, or capitalize upon them?

Special Invited Speakers: Peter Achinstein (Johns Hopkins), Alan Chalmers (Adelaide), Sir David Cox (Oxford), Clark Glymour (Carnegie Mellon), Henry Kyburg (Rochester), Larry Laudan (UNAM), Deborah Mayo (VT), Alan Musgrave (Otago), Aris Spanos (VT), John Worrall (LSE).

Executive Committee: G. Chatfield, D.R. Cox, A. Spanos, D. Mayo, C. Glymour, A. Chalmers

Program/Planning/Publicity Committee: E. Aktunc, C. Glymour, D. Mayo, J. Miller, C. Pinnick, D. Rudge, K. Staley

Inquiries: error@vt.edu or jemille6@vt.edu

4. HPS Summer Graduate Program for Secondary Teachers University of Notre Dame
June 26-30, 2006

Teachers are invited to South Bend to participate in a new program at the University of Notre Dame. The Graduate Program in the History and Philosophy of Science (HPS) is offering graduate courses for secondary science and mathematics teachers. Two intensive one-week courses are being offered June 26-30.

The first course, **HPS 63721 The Darwinian Revolution**, will focus on the history of evolutionary biology from the beginning of the nineteenth century through the birth of modern genetics. In addition to studying carefully the work of Charles Darwin himself, we will explore the contributions of other scientists, such as Lamarck, Lyell, Huxley, Mendel, and Morgan, and the broader scientific and social context relevant to an understanding of the development of evolutionary theory and the shaping of Darwin's legacy.

The second course, **HPS 63772 Curie, Carson, and Franklin: Women and the Nature of Science**, will address the often underappreciated role that women like Marie Curie, Rachel Carson, and Rosalind Franklin have played in the history of science. We will use biography and other avenues of exploration to discuss issues in the nature of science, such as the historical development of scientific theories, the complex personal lives of scientists (including political and cultural issues), and the ways in which science works as a social enterprise/institution.

We will also study various philosophies regarding women's education in order explore the unique obstacles that women scientists had to overcome in order to make the contributions they did to science.

These courses are designed to elicit discussion of philosophical and ethical questions related to science and mathematics, the relationship of science to other intellectual domains, and how scientists and mathematicians produce knowledge. However, substantial time will also be dedicated to pedagogical concerns. It is our expectation that every teacher will finish the course with an appropriate, concrete set of techniques, plans, and materials to use in the classroom.

This program is intended to provide teachers with exposure to historical and philosophical issues that can be used in the classroom to help enrich and deepen discussions about science in both historical and modern contexts, as well as to help teachers meet the standards mandated by most states as well as national organizations regarding the inclusion of historical and philosophical topics in science education. These courses would also provide graduate credit from Notre Dame, which could be used for license renewal, and perhaps, for the more ambitious student, a master’s degree. The courses will be taught by faculty and graduate students who are nationally recognized in secondary and higher education, as well as in the professional HPS community.

For more information, visit our website at:

http://www.nd.edu/~ndhpssum

or email us at ndhpssum@nd.edu if you have any questions that are not answered there.
Further contact information for the HPS program and Notre Dame's summer session is listed below.

For information on the Notre Dame Summer Session, including registration and on-campus housing:

http://www.nd.edu/~sumsess

Graduate Program in History and Philosophy of Science
John J. Reilly Center for Science, Technology, and Values
309 O'Shaughnessy Hall
University of Notre Dame
Notre Dame, IN 46556
(574) 631-5015
(800) 813-2304
Fax: (574) 631-4268
http://www.nd.edu/~hps

5. Newton's Chymistry and Science Education

The History and Philosophy of Science Department at Indiana University has produced a unit for high-school science classes to teach chemistry and its history at the same time.
The teacher's notes and videos of the reactions can be found at:

http://webapp1.dlib.indiana.edu/newton/reference/chemLab.do

It was originally intended for 'middle school' but extension sections have been added that should make it suitable for later high school years.

For further information contact Nicholas Best (email: nwbest@indiana.edu)

6. "Science & Education", Vol.13, 2004, Copies Available

Complete 8-number sets of Volume 13 of the journal 'Science & Education' are available for purchase at the cost of USD25 air mail included. Orders can be placed at the www.ihpst.org web page under 'Publications for Sale'.

The Contents of the numbers are as follows.

Volume 13 Nos. 1-2 January 2004

POSITIVISM AND SCIENCE EDUCATION: A RE-EVALUATION

MICHAEL R. MATTHEWS / Reappraising Positivism and Education: The Arguments of Philipp Frank and Herbert Feigl
THOMAS E. UEBEL / Education, Enlightenment and Positivism: The Vienna Circle's Scientific World-Conception Revisited
DENIS PHILLIPS / Two Decades After : "After The Wake: Postpositivistic Educational Thought"
G. KRISHNA VEMULAPALLI & HENRY C. BYERLY / Karl Hempel's Philosophy of Science: How to Avoid Epistemic Discontinuity and Pedagogical Pitfalls
PHILIPP FRANK / The Place of Philosophy of Science in the Curriculum of the Physics Student (orig. 1947)
HERBERT FEIGL / Aims of Education for Our Age of Science: Reflections of a Logical Empiricist (orig.1955)

Volume 13 No. 7-8 November 2004

THE PENDULUM: Scientific, Historical, Philosophical & Educational Perspectives Part II

7. Book Review: *Retrying Galileo, 1633–1992**

Maurice A. Finocchiaro *Retrying Galileo, 1633–1992.* University of California Press, 2005, 485 pp.

By Peter Slezak, Program in Cognitive Science, School of History & Philosophy of Science, University of New South Wales, Sydney NSW 2052, Australia

This book is testimony to the extraordinary persistence of the controversy over Galileo's famous conflict with the Roman Catholic Church, not only in the world of academic scholarship but also in the wider fields of intellectual and cultural life. The book covers both the original affair, culminating in the trial and condemnation of Galileo by the Church in 1633, and the subsequent affairs of the affair—the ongoing attempts to understand the original events. Finocchiaro explores the interaction between the historical facts and the cultural myths that constitute the retrials of

Galileo — the repeated examinations of "whether, how, and why his condemnation was right or wrong."

The book is an invaluable resource and a landmark — a uniquely comprehensive survey of the twists and turns of the Galileo story. Finocchiaro's rich historical narrative illuminates such perennial questions as the conflict between science and religion and the conflict between individual freedom and institutional authority. The Enlightenment *philosophe* Jean d'Alembert, for example, saw Galileo's trial as epitomizing an inherent conflict between science and religion. However Voltaire, who was perhaps the first to compare Galileo's condemnation to that of Socrates, saw the affair as illustrating the struggle between authority and free thought or dissidence — a view presented in the 20th century in Bertolt Brecht's play *Galileo.*

A key issue is whether the condemnation of Galileo was right or wrong in several distinct senses — the theological, scientific, philosophical, legal, moral, pastoral, practical and political. Another intriguing, and still not fully answered, question is whether the trial and subsequent centuries of controversy, might have been avoided. Thus Finocchiaro asks, "When and how did the Galileo affair start, and who started it?" He suggests that the original controversy was precipitated by the conservative Dominican clerics Niccolò Lorini and Tommaso Caccini, who denounced Galileo for his sympathy with the Copernican idea that Earth circled the Sun, provoking the Inquisition to move against him. Also relevant is Galileo's notable effort to give advice on matters of scriptural interpretation — a practice contrary to Church principles that were of primary concern to Cardinal Robert Bellarmine.

The followers of Ludovico delle Colombe — disgruntled Aristotelian philosophers derisively known as the "Pigeon League" — deserve some blame as well. Galileo's *Dialogue on the Two Chief World Systems,* published in 1632, shows how little regard he had for these men, whom he publicly ridiculed. It is true, as legend has it, that some contemporaries refused to look into Galileo's telescope, but these were not Church scholars, as is commonly supposed; on the contrary, the Jesuit mathematicians and astronomers, such as Christopher Clavius, had their own telescopes and confirmed Galileo's startling observations for themselves. Rather, the skeptics were the adherents to Aristotle's doctrines, according to which imperfections in the heavens were impossible. No doubt contributing to his fate, Galileo provoked these philosophers, scoffing at their uncritical reliance on Aristotle's text. When one of them died, Galileo quipped that although the man had ignored the moons of Jupiter during his time on Earth, he might discover them on his way to heaven.

Galileo's *Dialogue* precipitated a crisis by appearing to go against both an injunction issued in 1616, which prohibited Galileo from discussing the motion of the Earth, and an explicit warning by Cardinal Bellarmine that Galileo should only speak hypothetically about the Copernican system. Although in his *Dialogue* Galileo did, for cosmetic purposes, present the Ptolemaic/Aristotelian Earth-centered view of the universe as well as the Copernican, he gave preferential treatment to the latter while the former is represented by the character Simplicio, or Simpleton, an Aristotelian. To make matters worse, Galileo appeared to caricature the Pope's own favorite argument against Copernicus by putting it into the mouth of Simplicio. Whether Pope Urban VIII (Maffeo Barberini) was, in fact, angered by this feature of the *Dialogue* and whether Simplicio's position is, in fact, ridiculed, are among the ongoing disputes in the retrials of Galileo.

Finocchiaro notes that the Galileo affair and its reverberations cannot be properly understood unless the philosophical, instrumentalist notion of an hypothesis is distinguished from the ordinary probabilist conception. In the former view, an hypothesis is taken only to "preserve appearances" and to be merely an instrument for convenient mathematical calculation, not a description of physical reality that might be either true or false. In the latter sense an hypothesis it is a tentative claim whose truth is known only with some probability. Galileo's Copernicanism may have been hypothetical in the second sense, but Bellarmine and the 1616 injunction required that it be so in the first, instrumentalist sense. Although Galileo was forced to abjure, there is little doubt that he believed the Copernican system to be literally true; he did not regard it as just a convenient mathematical fiction, as Bellarmine insisted. Nonetheless, as Finocchiaro points out, Bellarmine's

instrumentalist position has been regarded by subsequent scholars as justifiable, and indeed, it remains a respectable philosophical stance intensely debated today.

Nevertheless, the injunction that Galileo should speak of Copernicanism only figuratively, *ex suppositione*, seems gratuitous today. But the position of the Church at the time was not as unreasonable as it may seem in retrospect, because the evidence for Copernicanism was still equivocal. A central, and still disputed, question is the exact sense in which Copernicanism would have needed to be "demonstrated" in order to force a reinterpretation of the Bible, as Bellarmine himself conceded might be necessary. Galileo proposed the tides as clinching evidence for the geokinetic theory, and although mistaken, the logical structure of his argument conforms with modern conceptions of "inference to the best explanation". Of course, this kind of explanation was a novelty at the time, but one that an ordinary person not blinkered by Aristotelian orthodoxy could appreciate. It was for this reason that Galileo appealed over the heads of the scholars to the literate public by writing his *Dialogue* in the vernacular Italian, "the idiom of fishwives" as Brecht puts it, instead of Latin.

The retrials of Galileo began immediately after he was convicted in 1633 of "vehement suspicion of heresy," which was not the most serious charge that could have been brought. Finocchiaro recounts fascinating events, including the removal of a special Vatican file of the trial proceedings from Rome to Paris by Napoleon, the file's disappearance in 1814, and its retrieval and return to Rome in 1843. Among the intriguing episodes is a description of the decision of the Inquisition to finally allow publication in 1820 of an astronomy textbook treating the Earth's motion as a fact. Finocchiaro recounts that although the general prohibition against Copernicanism had been removed in 1758, not until 1822 were Catholics in general permitted to accept the motion of the Earth, and not until 1835 were the specific books of Copernicus and Galileo removed from the notorious Index Librorum Prohibitorum.

Contributing to the wider cultural mythology of the Galileo affair has been Arthur Koestler's bestselling 1959 history of early astronomy, *The Sleepwalkers.* Finocchiaro lambasts Koestler's book as sophisticated sophistry, calling it "the most serious indictment of Galileo since the original trial, going so far as to debunk science itself.

Finocchiaro regards Koestler's charges against Galileo as comparable to those of Brecht, who wrote the first version of *Galileo* in 1938, later revising the play to suggest that Galileo was to blame for the atomic bomb as well as the Industrial Revolution. Finocchiaro notes that more people have been led to reflect on Galileo's trial by Brecht's dramatization than by any other single cause. In addition to containing minor historical solecisms, the play contributes to a widespread myth that Galileo's ideas met opposition because they undermined an anthropocentrism that was felt to be essential for human dignity and the meaningfulness of life. Brecht does not mention the question of the scientific authority of the Bible, which was, in fact, the central issue.

Of perhaps even greater relevance today was Brecht's widely shared conception of his play as depicting, not the struggle between science and religion, but rather the conflict between authority and independent reason. Finocchiaro quotes Brecht, who had this to say in 1939:

> It would be highly dangerous, particularly nowadays, to treat a matter like Galileo's fight for freedom of research as a religious one; for thereby attention would be most unhappily deflected from present-day reactionary authorities of a totally unecclesiastical kind.

Brecht's warning is echoed by foremost Galileo scholar Stillman Drake who says "if Galileo's case symbolizes anything, it symbolizes the inherent conflict between authority and freedom rather than any ineradicable hostility of religion toward science." (Preface to J.J. Langford, *Galileo, Science and the Church*, University of Michigan Press, Ann Arbor.1966). That is, Galileo's crime was dissent.

Nowadays, as leading intellectual Noam Chomsky has pointed out, "It is understood that science survives by constant challenge to established thinking." Therefore "successful education in the sciences seeks to encourage students to initiate such challenges and pursue them." That is, instead of indoctrinating and imposing obedience, education should be subversive. I share

Chomsky's view that these "liberatory ideals" should permeate our educational system and extend beyond it, to the benefit of individuals and society.

* Republished from *American Scientist*, the magazine of Sigma Xi, The Scientific Research Society.

8. Book Notes

Ben-Ari, M.: 2005, *Just a Theory: Exploring the Nature of Science*, Prometheus Books, Amherst NY. ISBN 1-59102-285-1; 238 pps; USD21

This is an excellent and timely book for science teachers and for science education students. Its aim is to 'provide a modern overview of the nature of science' (p.ix) – a topic that is increasingly written into school science curricula. Ben-Ari recognises that 'research on the nature of science [is] traditionally divided into the philosophy, history, and sociology of science' (p.ix) and he very successfully provides a contemporary introduction to each of these fields, providing numerous examples that science students can identify with to illustrate the points being made.

The book has 13 chapters. Additionally there are biographical vignettes of famous scientists interspersed between the chapters. Apart from the philosophical, historical and sociological chapters, there are chapters on 'Postmodernist Critiques of Science', 'Science and Religion', 'Statistics', 'Logic and Mathematics', and 'The Future of Science'. These are all clearly written, well referenced, and illustrated with historical and contemporary episodes – including, for instance, the text of the Alabama State Board of Education sticker that had to be pasted into school physics textbooks. This illustrative material will be welcomed by teachers.

9. Books of Interest

Dupré, L.: 2004, *The Enlightenment and the Intellectual Foundations of Modern Science*, Yale University Press, New Haven.

Flick, L.B. & Lederman, N.G. (eds.): 2004, *Scientific Inquiry and Nature of Science: Implications for Teaching, Learning and Teacher Education*, Kluwer, Dordrecht.

Butterfield, J. & Halvorson, H. (eds.): 2004, *Quantum Entanglements: Selected Papers of Rob Clifton*, Oxford University Press, Oxford. (ISBN0-19-927015-5, 462pp)

Zemplén, G.A.: 2005, *The History of Vision, Colour, & Light Theories*, Bern Studies in the History and Philosophy of Science, Universität Bern,

Williamson, J.: 2005, *Bayesian Nets and Causality: Philosophical and Computational Foundations*, Oxford University Press, Oxford. (ISBN 0-19-853079-X, 240pp)

Malcolm, N. & Stedall, J.: 2005, *John Pell (1611-1685) and His Correspondence with Sir Charles Cavendish: The Mental World of an Early Modern Mathematician*, Oxford University Press, Oxford. (ISBN 0-19-856484-8, 658pp)

Russ, S.: 2004, *The Mathematical Works of Bernard Bolzano*, Oxford University Press, Oxford. (ISBN 0-19-853930-4, 696pp)

Gratzer, W.B.: 2005, *The Undergrowth of Science: Delusion, Self-deception and Human Frailty*, Oxford University Press, Oxford.

Lacey, H.: 2005, *Values and Objectivity in Science: The Current Controversy about Transgenic Crops*, Rowman & Littlefield Publishers, Lanham, MD.

Mellor, D.H.: 2005, *Probability: A Philosophical Introduction*, Routledge, London.

Hodgkin, L.: 2005, *A History of Mathematics from Mesopotamia to Modernity*, Oxford University Press, Oxford.

Outram, D.: 2005, *The Enlightenment*, Second Edition, Cambridge University Press, New York.
Bunge, M.: 2005, *Chasing Reality: Strife over Realism*, University of Toronto Press, Toronto.

10. 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

Mamlok-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.

11. Coming Conferences

March 26-30, 2006. Symposium on "Science History and Its Applications to Chemical Education", as part of American Chemical Society meeting in Atlanta, GA. Details from: Seth C. Rasmussen, seth.rasmussen@ndsu.edu.

April 3-6, 2006, NARST conference, San Francisco. Details at: http://www.educ.sfu.ca/narstsite/

April 8-12, 2006 AERA conference

April 21-24, 2006 PES conference, Puerto Vallarta, Mexico. Details at: http://cuip.net/pes/

November 2-5, PSA conference, Vancouver. Details at: http://philsci.org/

October 2007, 4th Hellenic Conference on 'HPS&ST', Patras. Information from Dr Dimitris Koliopoulos (koliop@upatras.gr)

June 24-28, 2009, *10th IHPST Conference*, University of Notre Dame. Information from: Professor Don Howard (dhoward1@nd.edu).

12. *Science & Education* Special Issues: Prospective Theme Topics

The journal *Science & Education* has over the years published a number of thematic issues.

Special Issues are planned for 2006, and contributions are invited. Manuscripts are reviewed in the normal manner (usually three reviewers). Authors can contact the guest editors listed below, or the journal editor, for further details.

'The Nature of Science: Identifying, Teaching and Assessing NOS' (Joanne Olson & Michael Clough emails: jkolson@iastate.edu, mclough@iastate.edu) 1st May 2006

'Thought Experiments in Science and in Science Education',
(Miriam Reiner email: miriamr@stanford.edu 1st May 2006

'Social and Ethical Issues in Science Education' 1st June 2006
(Dana L. Zeidler email: zeidler@coedu.usf.edu & Troy D. Sadler, email: tsadler@coe.ufl.edu)

13. Publications for Sale

The following publications are available from the IHPST Group:

#1 *CD Proceedings of the 6th IHPST Conference, Denver, 2001*, 100+ papers, W. McComas (ed.), USD10 (postage included).
#2 *CD Proceedings of the 7th IHPST Conference, Winnipeg, 2003*, 100+ papers, D. Metz (ed.), USD10 (postage included).
#3 *Time for Science Education*, M.R. Matthews, Kluwer, 2000, 440pp, USD20 (postage included).
#4 *Science Education and Culture*, F. Bevilacqua, E. Giannetto & M.R. Matthews (eds.), Kluwer, 2001, 362pp, USD20 (postage included).
#5 *Challenging New Zealand Science Education*, M.R. Matthews, Dunmore Press, 1995, 256pp, USD10 (postage included).
#6 *Science & Education* journal Volume 2, 1993, 382pp, USD10 (postage included).
#7 *Science & Education* journal Volume 12, 2003, 808 pps, USD25 (postage included).
#8 *Science & Education* journal Volume 13, 2004, 820 pps, USD25 (postage included).
#9 *The Pendulum*: *Scientific, Historical, Philosophical & Educational Perspectives* **(**Michael R. Matthews, Colin Gauld & Arthur Stinner eds., USD30

To purchase any of the above, send letter or email, with complete mailing address and indication of what publications are required, to address below. Cheques payable to 'IHPST', or send full credit card details (visa, or mastercard). Alternatively order from IHPST web site: www.ihpst.org

14. Future Newsletter Items

Items for inclusion in the IHPST *Newsletter* are appreciated. These can be items for the 'Recent Research', 'Recent Books', 'Books' or 'Conferences' sections.

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

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

15. IHPST Email List

This list is newly created. It is anticipated that it will be used sparingly, perhaps once a month, to send group information such as contained in this Newsletter. It is a closed list, not a 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'.