



**International History,
Philosophy and Science
Teaching Group**

NEWSLETTER

August 2009

www.ihpst.org

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1. President's Column

It was a pleasure to meet many colleagues at the 2009 IHPST conference held at Notre Dame, this past June. Our group owes a great debt of thanks to Don Howard, Greg Macklem and Harriet Baldwin for the tremendous amount of work they took on in organizing the conference. It was wonderful to make new friends and renew acquaintances from past meetings. Those who were unable to attend this time around were certainly missed.

History

IHPST was founded in 1987 by Michael Matthews and several other founding members as an informal group dedicated to exploring the interface between history and philosophy of science and science teaching. The group began as a sort of an 'Invisible College' marked by the publication of special issues of six different journals, all of which were devoted to 'History, Philosophy and Science Teaching'. The group became public and staged its first, and very successful, international conference in Tallahassee, Florida in 1989. Since that time, the group has hosted nine additional conferences (Kingston, Ontario (1992); Minneapolis, Minnesota (1995); Calgary, Alberta (1997); Pavia, Italy (1999), Denver, Colorado (2001), Winnipeg, Manitoba (2003), Leeds, England (2005), Calgary, Alberta (2007) and Notre Dame, Indiana (2009)). The eleventh conference will take place in Thessaloniki, Greece in July of 2011. Our conferences have typically included about 200+ participants, representing around 25-35 countries.

Since 1992 the IHPST group has also been informally associated with the journal *Science & Education: Contributions from History, Philosophy and Sociology of Science and Education*. The journal was initially published by Kluwer and is now published and owned by Springer. The journal is in its eighteenth year of publication and has developed a deservedly high reputation for the quality and diversity of its articles. It is published ten times per year by Springer Publishers; Volume 18 is appearing during 2009. With 48,650 article-downloads in 2008, it is now among the most down-loaded of all Springer education journals. The journal's editor since its inception has been Michael R. Matthews (m.matthews@unsw.edu.au).

It is amazing to reflect upon just how much Michael Matthews and the other founding members were able to accomplish during our first twenty years of existence in the absence of any formal structure, beyond the election of presidents and program chairs. At the 2007 conference in Calgary, Alberta, we adopted a set of by-laws; and shortly afterward elected our first slate of IHPST Council positions in order to develop a more formal organizational structure.

The future

The transition into a more formal organization has been a slow one so far, in part because of some unfortunate wording in the by-laws that were initially adopted at the 2007 meeting. The adoption of a by-law change by participants at the 2009 conference now allows us to vote on by-law changes electronically outside of business meetings at the biennial conference. So we anticipate we will now be able to move full speed ahead on several pressing issues.

In the near future we will ask members to discuss and vote on a single set of by-law changes recommended by the Executive Council. Pierre Boulos (our secretary) is setting up a web forum to provide a venue for member discussion. The by-law changes correct some unfortunate wording and ambiguities throughout the text, clarify some of the procedures governing elections, and increase the number of Council Members to include a Teacher representative. (Please note that the point of

the forum will be that of facilitating discussion about whether to approve or vote down suggested changes. It is not intended as a place for suggesting new by-laws or alternative wording.)

This preliminary step will help the Executive Council move forward on other pressing matters, such as how best to incorporate our organization and collect membership fees. This will also facilitate our negotiations with Springer regarding *Science & Education*. The Executive Council will also be working on a set of general guidelines for conferences. This will include identification of realistic deadlines for the posting of the conference program, clarification of how financial support is provided to attend the conference, and also an exploration of whether and how to introduce peer review into the submission process.

Elections

According to our by-laws, elections must take place prior to the biennial meeting. You may also recall that our first elections were actually held shortly after the 2007 conference at Calgary in order to fill a large number of vacancies on the Council. This led us to mistakenly conclude that the next election would take place shortly after the 2009 meeting. As a general rule, we think there are several good reasons for holding elections before the biennial meeting, not the least of which is that it would be an opportunity for the new team to meet in person and strategize for the future. The Council considered, but collectively rejected the idea of postponing elections until prior to our next biennial meeting. We will instead hold a special election in early-mid October 2009 to fill several elected positions on the council. (Note that this will not supersede our next election cycle, which will take *place* prior to the 2011 conference.)

The special election will take place shortly after a vote by the membership on the revised by-laws, as some of the by-laws changes (such as the creation of a Teacher Member of the Council) will affect the election. Assuming the revised by-laws are ratified, we anticipate electing members to the following positions: President-Elect, Secretary, Treasurer, Student Member of the Council, Teacher Member of the Council, 2 Directors, and 4 members of the Nominating Committee. Those seeking office should contact our Past President, Michael Matthews, who together with the Nominating Committee is developing a slate of candidates (m.matthews@unsw.edu.au).

Ad hoc committees

Teachers and IHPST. Several individuals have shared some concerns about the extent to which our organization and conferences represent inviting forums for the participation of science teachers at all levels. We clearly need a Director on the executive council who can give us expert advice on how to approach these issues. In the meantime, however, I am pleased to announce the formation of an ad hoc group of teachers who will develop a set of recommendations. Please contact Ami Friedman (AmiFriedman@wlcsd.org) or Lory Hundt (lory.hundt@bereanacademy.org) or Peter Heering (peter.heering@uni-oldenburg.de) by 31 August 2009 if you would like to participate on the committee or have ideas you would like them to consider.

Graduate students and IHPST. Several individuals have also shared some concerns about the extent to which our organization and its conferences meet the needs of graduate students. I have asked our Graduate Student Representative on the Executive Council, Roland Schulz, to form an ad hoc group of graduate students who will similarly develop a set of recommendations for how we can best meet their needs. Please contact Roland (rmschulz@sfu.ca) by 31 Aug 2009 if you would like to participate on the committee or have ideas you would like them to consider.

Conferences The next IHPST conference will be held in Thessaloniki July 1-5, 2011. The first Latin American regional conference of the group will be held August 19-21, 2010. Details of both conferences can be found further down in this newsletter.

The Executive Committee is soliciting proposals for the location of the 2013 conference. We have historically held conferences in a three year rotation (once in Europe, twice in North America), so at present we anticipate the 2013 conference will take place in North America.

Please feel free to send me a message regarding your suggestions for a location for the next conference, or if you have any concerns or comments about our organization.

David W. Rudge

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2. Notre Dame Conference Report

The University of Notre Dame's HPS Graduate Program and Reilly Center for Science, Technology, and Values hosted the 2009 Tenth biennial IHPST meeting June 24-28, 2009. The conference was most successful and continued the IHPST tradition of sustained and serious research being discussed in a collegial and convivial atmosphere.

There were 140 registrations, with historians, philosophers, educators, science teachers and graduate students attending from twenty-three countries: Canada, United States, Mexico, Venezuela, Brazil, Argentina, England, Portugal, Spain, Germany, Slovenia, Greece, Norway, Sweden, Finland, Turkey, Israel, India, Bangladesh, Korea, China, Australia and New Zealand.

The conference programme can be found on the web site below; the Conference Proceedings will be posted there during September (presenters have until the end of August to send files to Gregory Macklem at gmacklem@nd.edu).

3. *Science & Education* Latest Number, Volume 18 No. 8

Volume 18 number 8 of the journal has been published. Its contents are:

RICARDO LOPES COELHO / On the Concept of Energy: How Understanding its History can Improve Physics Teaching

JEFF DODICK, SHLOMO ARGAMON & PAUL CHASE / Understanding Scientific Methodology in the Historical and Experimental Sciences via Linguistic Analysis

MORDECHAI BEN-ARI & MICHAL ARMONI / The Concept of Non-determinism: Its Development and Implications for Teaching

MICHAEL P. MUELLER / Educational Reflections on the "Ecological Crisis": EcoJustice, Environmentalism, and Sustainability

GEOFF V. A. GOSS / The history of the Planar Elastica: Insights into Mechanics and Scientific Method

MEHMET YALCIN, SEMA ALTUN, UMIT TURGUT & FATMA AGGÜL / First Year Turkish Science Undergraduates' Understandings and Misconceptions of Light

ALBERT ZEYER / Public Reason and Teaching Science in a Multicultural World A Comment on Cobern and Loving: "An essay for educators... " in the light of John Rawls' Political Philosophy

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

Journal subscription (print version) can be effected at www.ihpst.org

4. Science & Education Journal Report

(a) 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 the journal's home page: www.springer.com/journal/11191. The home page has provision for signing up for 'Table of Contents Alert', which means each time an issue of the journal is published, the Contents are conveyed by email.

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 (USD100 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 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.

(b) 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.

(c) Copyediting Assistance for Manuscripts from Non-English Authors

The journal publishes many works by scholars whose native language is not English. Copyediting of these papers is very time-consuming and assistance would be greatly appreciated. The papers would all be ones that have passed review and are in reasonable linguistic shape, but they do need refinement. Volunteers would be asked to copyedit no more than one paper per year.

If any folk are able to assist in this important task, please just send an email to the editor.

(d) Article Downloads

The number of article-downloads from the journal's Springer site are continuing to rise year by year.

Year	2004	2005	2006	2007	2008	2009 (Jan. to May)
Downloads	21,373	22,500	23,584	37,593	48,634	28,853

The projected downloads for 2009 are 60-70,000. For a 'niche' journal in science education, these figures are most gratifying. They indicate the amount of worldwide interest in the utilization of historical and philosophical studies in addressing theoretical and pedagogical problems in the teaching of science and mathematics. The usage reflects the quality of manuscripts submitted to the journal, and the rigor and competence of the journal's reviewers (normally three per manuscript).

(e) ISI Listing

The journal is listed in a number of Indexing services, most recently by ISI which has a commanding presence in the field of citation counting and article-impact measures.

(f) Thematic Issues

Since its inception in 1992 the journal has regularly published thematic issues that bring together historical, philosophical and educational scholarship on particular theoretical or pedagogical themes related to History, Philosophy and Science Teaching.

These thematic issues have included:

1994, 'Science and Culture', **3**(1).

1995, 'Hermeneutics and Science Education', **4**(2).

1996, 'Religion and Science Education', **5**(2).

- 1997, 'Philosophy and Constructivism in Science Education', **6**(1-2).
 1997 'The Nature of Science and Science Education', **6**(4).
 1999, 'Values in Science and in Science Education', **8**(1).
 1999, 'Galileo and Science Education', **8**(2).
 1999, 'What is This Thing Called Science?', **8**(4)
 1999, 'Children's Theories and Scientific Theories', **8**(5).
 2000, 'Thomas Kuhn and Science Education', **9**(1-2).
 2000, 'Constructivism and Science Education', **9**(6).
 2003, 'History, Philosophy and the Teaching of Quantum Theory', **12**(2-3)
 2004, 'Science Education and Positivism: A Reevaluation', **13**(1-2)
 2004, 'Pendulum Motion: Historical, Methodological and Pedagogical Aspects', **13**(1-2, 7-8)
 2006, 'Textbooks in the Scientific Periphery', **15**(7-8)
 2005, 'Science Education in Early Modern Europe', **14**(3-4)
 2007, 'Models in Science and in Science Education', **16**(7-8)
 2008, 'Social and Ethical Issues in Science Education', **17**(8-9)
 2008, 'Feminist Philosophy and Science Education', **17**(10)
 2009, 'Politics and Philosophy of Science', **18**(2)
 2009, 'Constructing Scientific Understanding through Contextual Teaching', **18**(5)
 2009, 'Science, Worldviews and Education', **18**(6-7)

The Contents of all the above issues can be downloaded from the journal's Springer site:

<http://www.springer.com/education/science+education/journal/11191>

5. Journal and Newsletter Book Review Editors and Reviewers Required

The IHPST newsletter goes direct to about 2,000 personal emails and it is also sent to various HPS and Science Education lists. The journal is subscribed to by about 3,000 institutions. The readership of the newsletter and journal, range over the fields of science education, history and philosophy of science, and philosophy of education. One useful service that the newsletter and journal can provide is to bring to the attention of readers important books published in these disciplines. It is difficult for one person to keep abreast of publications in these different fields, but it is hoped that by having a 'Review Editor' for each field, who would request books and seek out reviewers, this reviewing task might be able to be done in a much more efficient and comprehensive manner. It is anticipated that reviews would first appear in the newsletter, and then be published subsequently in the journal.

If any IHPST colleague is interested in taking on the role of 'Review Editor' for Science Education, for History of Science, for Philosophy of Science, or for Philosophy of Education, could they please make initial contact with the newsletter and journal editor (m.matthews@unsw.edu.au) giving a brief account of their scholarly background, present position, and their interest in the position or their experience in such work. It is anticipated that it would be a 3-year, renewable appointment.

The success of this endeavour will depend upon having a wide pool of reviewers. Accordingly anyone interested in doing the occasional book review is also invited to send their details to the editor, perhaps specifying in what specific areas of the above fields they have most interest.

6. Journal Special Issue: *Pseudoscience in Society and Classroom*

The special issue on ‘Pseudoscience in Society and School’ is open to a range of research fields: *philosophical* contributions dealing with the long-debated problem of demarcating science from non-science and pseudoscience and other such philosophical concerns; *psychological* and *sociological* contributions dealing with issues concerning pseudoscience and other such topics; and *educational* studies on how schools and teachers might address the questions arising from pseudoscientific beliefs prevalent in society and classrooms.

Examples of Possible Topics and Questions

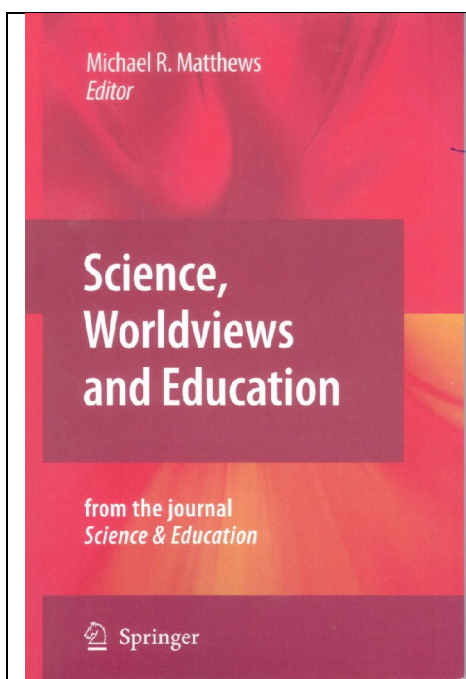
1. A Comparison of Belief in Intelligent Design (ID) to Belief in Other Pseudosciences.
2. Histories of Belief in Pseudoscience in various cultures.
3. Cognitive Development of Pseudoscientific beliefs.
4. Reasons for Weak and Strong Belief in Various Pseudosciences.
5. Systematic Research on Pseudoscientific Belief.
6. What Research is Needed and Why, in the Study of Pseudoscience?
7. How do State Science Education Standards Deal with the Issue of Pseudoscience?
8. Can Nature of Science (NOS) Studies Accommodate the Topic of Pseudoscience?

These are intended only as examples of topics that might be considered by potential contributors.

The guest editors, Ron Good (rgood@lsu.edu) and Peter Slezak (p.slezak@unsw.edu.au) can be contacted for further information.

Submission Deadline is December 31, 2009.

7. Anthology: *Science, Worldviews and Education*



Worldviews are an important and timely theme as many national and provincial education authorities are requiring that students learn about the Nature of Science (NOS), and that they learn about the broader historical and cultural contexts of science and its practice.

Questions about science and worldviews have had a long history. The Galilean revolution, the Darwinian revolution, and the Einsteinian revolution were all associated with profound cultural, religious and philosophical transformations and debates. The European Enlightenment was the first such major impact.

Globalisation and the science-based industrialization of many non-Western societies, with their own religious traditions and worldviews, make urgent the understanding of science and its inter-relation with worldviews, and for the development of informed and appropriate science education.

Springer are soon to publish an anthology based on the thematic double issue of *Science & Education*.

Appraisals by early readers have been very positive:

“What is a scientific worldview? How does it differ from other worldviews? Is it possible to be educated in science yet lack a scientific worldview? Can science thrive in a society where such a worldview is lacking? These questions and more are discussed in depth by a distinguished group of scientists, philosophers, educators and theologians in this uniquely valuable volume.”

Albert H. Teich, Director, Science & Policy Programs, American Association for the Advancement of Science.

“This wide ranging collection of essays is an excellent way to enter the too often neglected territory of how science and science education relate to larger socio-cultural worldviews.”

Peter Machamer, Department of History and Philosophy of Science, University of Pittsburgh.

Contents

HUGH G. GAUCH Jr. / Science, Worldviews, and Education
MICHAEL R. MATTHEWS / Teaching the Philosophical and Worldview Components of Science
GÜROL IRZIK & ROBERT NOLA / Worldviews and Their Relation to Science
ALBERTO CORDERO / Contemporary Science and Worldview-Making
HUGH LACEY / The Interplay of Scientific Activity, Worldviews and Value Outlooks
ENRICO RENATO ANTONIO GIANNETTO / Electromagnetic Conception of Nature at the Roots of the Special and General Relativity Theories, and its Revolutionary Meaning
STUART GLENNAN / Whose Science and whose Religion? Reflections on the Relations between Scientific and Religious Worldviews
MICHAEL REISS / Imagining the World: The Significance of Religious Worldviews for Science Education
YONATAN I. FISHMAN / Can Science Test Supernatural Worldviews?
COSTAS D. SKORDOULIS / Science and Worldviews in the Marxist Tradition
JOHN LAMONT / The Fall and Rise of Aristotelian Metaphysics in the Philosophy of Science
TANER EDIS / Modern Science and Conservative Islam: An Uneasy Relationship
HUGH G. GAUCH, JR. / Responses and Clarifications Regarding Science and Worldviews
MICHAEL R. MATTHEWS / Science and Worldviews in the Classroom: Joseph Priestley and Photosynthesis

ORDER FORM

Please mail ____ copies of *Science, Worldviews and Education* at cost of USD25 (postage included), to:

NAME:

ADDRESS:

EMAIL:

CREDIT CARD NUMBER (VISA or MASTERCARD):

EXPIRY DATE:

Return to: A/Prof. Michael R. Matthews, School of Education, UNSW, Sydney 2052, Australia

or, email this order information to:

m.matthews@unsw.edu.au

or, purchase from 'publications' section of: www.ihpst.org

8. University of Patras Web Journal

The journal *REVIEW of SCIENCE, MATHEMATICS and ICT EDUCATION (Re S M I C T E)* is a collective initiative taken on by the **Laboratory of Didactics of Sciences, Mathematics and ICT** of the University of Patras in Greece. The *Re S M I C T E* presents different didactical and pedagogical approaches and offers a wide range of papers on academic and interdisciplinary research and practice. This international journal is governed by a peer-review process. All manuscripts will be subject to peer review by two referees. The articles are published in English or French, according to the author's language preference.

The site of the **Re S M I C T E** is found in the electronic address:

<http://www.ecedu.upatras.gr/review/>.

The above site offers free access in all published papers.

For further details contact Konstantinos Ravanis, ravanis@upatras.gr

9. HPS&ST and NOS Course Outlines and Materials

Many colleagues in many countries are either teaching or preparing to teach courses with titles such as: 'History, Philosophy and Science Teaching', 'Nature of Science for Science Teachers', 'Science Studies and the Study of Science'. Such courses are taught to education students, science students and humanities students. Many are taught as in-service courses for science teachers.

What would be of great assistance to teachers and students is to have as many as possible of such course outlines – with their Reading Lists, Essay Topics, Web Pages – available for all to examine and make use of. Pleasingly IHPST member, Glen Dolphin at Syracuse University (grdolphi@syr.edu) has volunteered to coordinate the collection and up-dating of such materials, and to see that they are added to the IHPST web site (www.ihpst.org).

Could such files please be sent to Glen. After some months a list of such courses will be included in the Newsletter, with a link to where the full details can be found.

10. Teaching Evolution: Theoretical and Pedagogical Issues, GEITONAS School, Athens, 7-8 November 2009

To celebrate Darwinian anniversary a Conference is being organized by GEITONAS School in Athens (website: geitonas.edu.gr). Experts in the history of science, philosophy of science, and science education as well as teachers are invited to participate. Papers that focus on theoretical or pedagogical issues related to the teaching of evolution are welcome.

Submissions should be in the form of an extended summary (1,000-1,500 words) and should be

sent as an e-mail attachment to darwin2009@geitonas-school.gr in order to be reviewed by the members of the scientific committee.

Examples of topics may include (but are not limited to) the following:

- The life and work of Charles Darwin
- The theory of evolution in the light of the history and philosophy of science
- Cognitive barriers in understanding the theory of evolution
- Rationales and strategies for teaching evolution

INVITED SPEAKERS	SCIENTIFIC COMMITTEE
John Hedley Brooke <i>Emeritus Professor, University of Oxford</i>	Costas B. Krimbas <i>Professor Emeritus, University of Athens</i>
James G. Lennox <i>Professor, University of Pittsburgh</i>	Kostas Gavroglou <i>Professor, University of Athens</i>
David W. Rudge <i>Associate Professor, Western Michigan University</i>	Vassiliki Zogza <i>Professor, University of Patras</i>
Costas B. Krimbas <i>Emeritus Professor, University of Athens</i>	Vassilis Koulaidis <i>Professor, University of Peloponese</i>
Eleftherios Zouros <i>Emeritus Professor, University of Athens</i>	Stathis Psillos <i>Associate Professor, University of Athens</i>
Kyriacos Athanasiou <i>Professor, University of Athens</i>	
Vasso Zogza <i>Professor, University of Patras</i>	

Information and full programme at: darwin2009@geitonas-school.gr

11. Nordic Symposium on HPS & Science Teaching, October 28-30, 2009

I send here updated information of the Nordic Symposium on Philosophy and History of Science in Science Education. The updated web-page of the symposium is <http://per.physics.helsinki.fi/Nordic/index.html>

In the web-page there is also information of the possibilities for accommodation.

The preliminary plan is to have the topic especially concerned with physics education or practical aspect of science education on Friday 30th afternoon. On Friday morning there is a symposium: A European Research Project on the Contribution of History and Philosophy of Science in Science Teaching. This offers an excellent opportunity to plan collaboration and for networking.

On Thursday 29th there is concurrently a satellite symposium on Higher Education in Science and Mathematics, concentrating on pedagogical aspects of university level education. Participants of Nordic symposium are welcome to attend to this satellite symposium (without additional charges).

At present there are many open slots for presentations. Preliminary program is on the web-site.

I hope that many of you and your colleagues will find interest and time to attend. Meeting as many of you as possible in Helsinki would give good chances to discuss and decide how to strengthen the collaboration in this area of research in the Nordic countries.

We would appreciate receiving abstracts of presentations as soon as possible. Abstracts can be sent directly to Ismo Koponen (ismo.koponen@helsinki.fi) or they can be sent through the registration website.

NOTE: The deadline for the abstract submission has been extended to October 1st. Posters are welcome, also those participants having a talk are encouraged to bring posters to enhance discussion. When sending the abstracts, please mention if you intend to present a poster.

If you need more information, please contact to Ismo Koponen. Please circulate this message and the attached information to colleagues you think might be interested in participating.

Best wishes and hoping to meet many of you in Helsinki

Organizing committee:

Dr Ismo Koponen ismo.koponen@helsinki.fi Dr Ari Hämäläinen MSc Maija Pehkonen MSc Suvi Tala

12. NARST Conference, Strand 13 (HPS & ST), 20-24 March 2010

The coordinators for Strand 13 (History, Philosophy, and Sociology of Science) of the National Association for Research in Science Teaching conference invite proposals for the 2010 NARST conference in Philadelphia, PA.

Strand 13 focuses on issues related to the history and philosophy of science, socioscientific issues, argumentation, authentic science practices, as well as teaching and learning of epistemology of science [nature of science; nature of scientific inquiry].

Research studies involving all levels and contexts of science teaching and learning [e.g. preservice teacher education, professional development, preK-16+ students, scientists, informal settings] are welcome. Position and theoretical papers are also welcome. Especially encouraged are proposals reflecting the 2010 conference theme: Research into Practice: Practice informing Research.

The proposal submission site is: <http://www.narst.org/annualconference/2010conference.cfm>

Volunteers are needed to review proposals for Strand 13! If you intend to submit to Strand 13 or if you are interested in issues related to the History, Philosophy and Sociology of Science, please volunteer to review through the online NARST proposal submission site.

Renee' Schwartz (r.schwartz@wmich.edu)
Sherry Southerland (southerl@mail.coe.fsu.edu)
NARST Strand 13 Co-coordinators

13. First Latin American IHPST Regional Conference, 19-21 August, 2010

The First Latin American Regional Conference of the International History, Philosophy and Science Teaching Group (IHPST-LA) will be held 19-21 August 2010 at Maresias, a beach in the State of Sao Paulo, Brazil.

It will be devoted to the presentation and discussion of papers on the use of history and philosophy of science in treatment of pedagogical, curricular and theoretical problems in science teaching.

Submitted papers are welcome in Portuguese, Spanish or English - the official languages of the meeting.

The deadline for submissions is 1 March 2010.

For additional information, please visit the website:

<http://www.hpsst-brazil2010.org/IHPST-LA/index.html>.

14. Twenty-Second Biennial Meeting of the Philosophy of Science Association, November 4-6, 2010, Montreal, Quebec

Submission is now open for proposals for symposia and papers to be presented at the PSA 2010 meeting in Montreal, Quebec on November 4-6, 2010. Symposium proposals must include sufficient supporting material to permit the program committee to evaluate the quality and interest of the symposium. See below for details.

Symposia will follow the traditional format and involve several presenters on a topic of interest. A selection of symposia will be accepted for presentation at the PSA 2010 meeting. Symposium presenters may submit their papers for review for publication in a supplementary issue of *Philosophy of Science*. The evaluation for publication will be of individual papers in the session. All symposium papers resubmitted for review for publication will be electronically archived, whether or not they are accepted for publication. No previously published papers may be presented at the PSA meeting.

Symposia of interest to members of both the Philosophy of Science Association and the History of Science Society are warmly invited.

Proposals for symposia should include:

1. The title of the proposed symposium
2. A description of the topic and a justification of its current importance to the discipline (about one or two pages)
3. A short descriptive summary of the proposal (100-200 words)
4. Titles and abstracts of all papers
5. A list of participants and either an abbreviated curriculum vitae or short biographical description for each
6. Institutional affiliation and e-mail addresses for all participants
7. Full contact information for the organizer (who may or may not be a proposed speaker), to be used for communication with the Program Committee.

The PSA 2010 Program Committee will strive for quality, variety, innovation and diversity on the program. Members of the committee will be listed at www.philsci.org.

The deadline for Symposium and Paper proposals is **February 1, 2010**. Symposium organizers will be informed of the Program Committee's decision in early May, 2010.

Submissions must be electronically submitted through the Philosophy of Science Editorial Manager at phos.edmgr.com.

All questions about submissions should be directed to:
Stephen M. Downes, Email: s.downes@utah.edu

15. Opinion

There is no Opinion piece for this newsletter.

Opinion pieces on topics that bear upon the overlap of history, philosophy and science teaching are welcome. They should be sent as word attachments to m.matthews@unsw.edu.au.

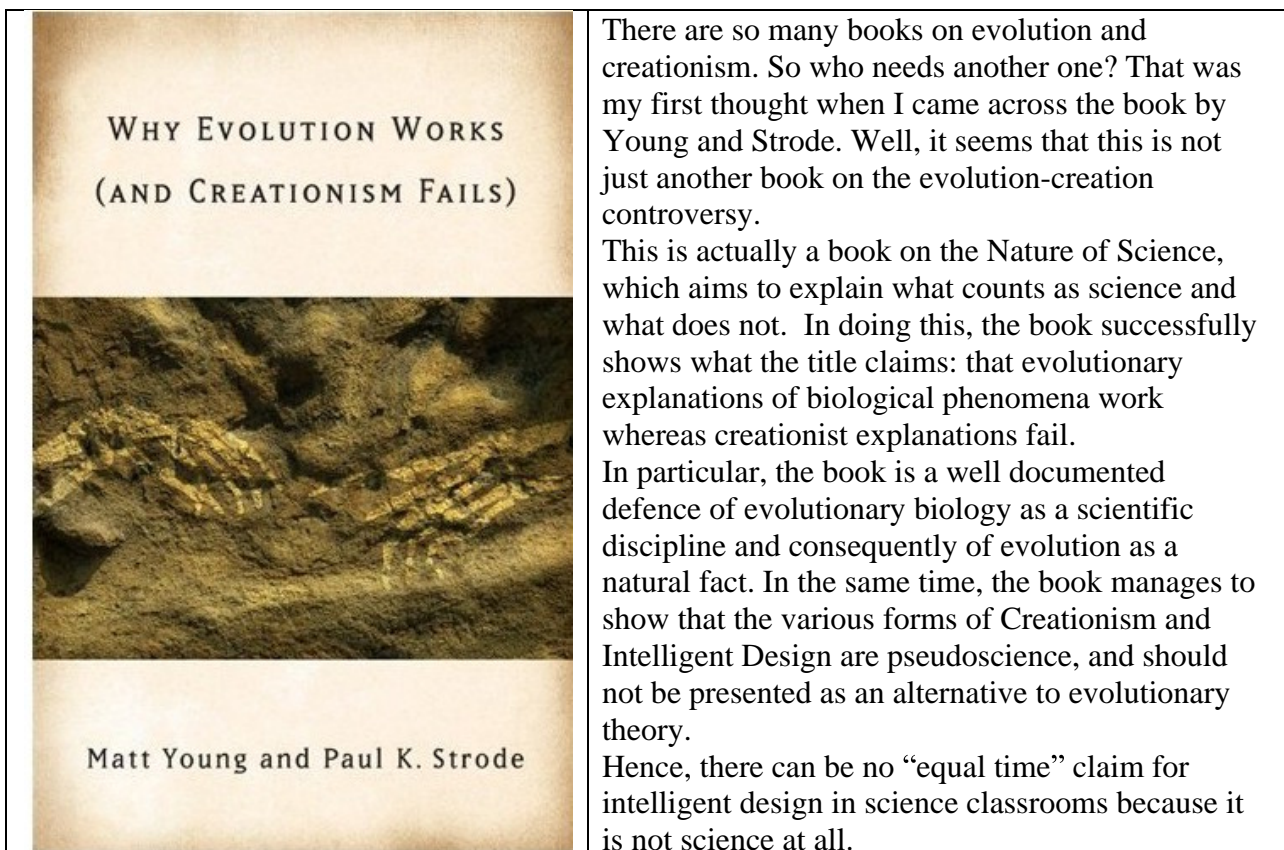
Maximum length 2,000 words.

16. Book Review

Why Evolution Works (and Creationism Fails) by Matt Young and Paul K Strode

Paper ISBN: 978-0-8135-4550-9, Cloth ISBN: 978-0-8135-4549-3, 224 pages,

Publication Date: June 2009, Price: \$21.95



It should be noted from the beginning that this is a highly readable book. It consists of short and informative chapters that keep the reader on track and help him avoid being lost in the details. The introductory chapter includes numerous examples of the importance of evolution for everyday life in medicine, agriculture etc. Then, various reasons for denial of evolution are discussed, such as people’s belief that it deprives life from purpose or that it is based purely on chance. The authors present many reasons why evolution seems counter-intuitive: it is often linked to unbelief, it seems incompatible with morality and purpose and it seems to contain a large component of chance. The authors briefly clarify these issues and then in chapter 2 they give an overview of the book. Finally, chapter 3 provides a selective history of creationism in USA, presenting the most widely known court cases from the 1925 Scopes trial to the 2005 Dover trial. So far so good, but nothing new.

The real strength of the book arises in the chapters that follow. Chapter 4 *How Science Works* and Chapter 5 *How Pseudoscience Works* are both excellent chapters on the Nature of Science. In chapter 4, the authors use examples from evolution and from other disciplines, as well, to clarify what science is. For example, they clarify the, often misunderstood, issue of falsification by explaining that science does not need to be falsified in practice but that it has to be falsifiable in principle. In Chapter 5, the authors show what science is not, through the examples of homeopathic medicine and astrology. Then in chapter 6 the authors show that creationism fails because it makes the unsuccessful attempt to fit the chronology of the Bible to the known chronologies of geology and evolution.

Chapter 7 is a brief presentation of the Argument from Design, as elaborated by William Paley. The authors also discuss some problems of this argument, such as that design can exist without any purpose at all. Then, they show in chapter 8 that intelligent design fails as well. The authors present the analogies used by some major defenders of ID such as Dembski and Behe and show that these are oversimplified, and occasionally inappropriate. For example, the authors respond to the claim that a mousetrap would not work if one of its parts were missing, by showing that either some of the various parts would be enough to do the job, even less efficiently, or that these could be performing other jobs before they came to form the mousetrap.

Chapter 9 is a (very) brief biography of Darwin. While this is quite useful, I have to say that I consider the emphasis on the joint presentation of the theory of natural selection by Darwin and Wallace unnecessary. This is only a small episode of the whole story of the development of the theory of natural selection. What is not made entirely clear in the book is that neither Darwin, nor Wallace presented anything during the meeting of the Linnaean society. One of Darwin's children had just died and this kept him home, while Wallace found out about the meeting several months later. At this point, I should mention another historical inaccuracy I identified on pages 21 and 60 of the book: that Lamarck believed that animals could develop new organs by acts of will. Lamarck on the contrary accepted only mechanistic explanations, and thought that it was the constant use of an organ which resulted to its growth. However, both these historical inaccuracies are minor problems for the book.

Chapter 10 is an excellent presentation of some fundamental evolutionary concepts. I consider the description of diffusion as an example of a random process with a predictable outcome as an excellent choice. Among other concepts, the authors explain fitness, a rather difficult-to-understand concept, very well by using many good examples. Then, chapter 11, another excellent chapter on the nature of science follows. It is the story of how Haeckel's drawings were uncritically incorporated in textbooks, and of how Gould, so many years later, managed to show that these drawings were far from accurate. According to the authors, the discovery of Haeckel's misstep is (indeed) an excellent example of how science self corrects.

Chapters 12, on the (relatively) new science of Evolutionary Developmental Biology (Evo Devo), and 13, on phylogenetics, are another important section of this book. In chapter 12, the authors describe a rather new scientific field that has recovered the details of how species have evolved due to changes in the expression of those genes that guide the developmental processes of organisms. In chapter 13, the authors clearly explain how evolutionary research is done and what kind of knowledge it produces, by showing not only what we know about evolution but also how we know it. Especially the discussion of how phylogenetic trees are constructed based on either morphological or molecular data is clear and illuminating.

Chapter 14 provides examples from human anatomy, such as the eye and the knee, as the consequences of the evolutionary process rather than the outcomes of the action of an Intelligent

Designer. The authors present the anatomy of these organs, showing that they are marvellous in engineering terms, but that they also have some major defects and hence are not perfect. They also explain that bodies exhibit some constraints which are effects, or side effects, of the evolutionary process and which should have never existed if the human body was indeed ‘intelligently designed’. This is a crucial point; people need to understand that the apparent design we observe in the human body is not perfect, and that it actually seems to be either not designed at all or at least badly designed. It is difficult to accept evolution if one believes that organisms are perfectly designed for their lives.

Chapter 15 is actually a brief but very informative history of earth and space sciences, which describes the methods used to study the age of the earth and of the universe over the years. This is an often neglected subject, although it is of enormous importance for a proper understanding of evolution. This chapter describes the methods used by creationists for their calculations of the age of the earth, but most importantly the methods used by scientists now which show that the earth is quite old. This is a crucial issue because in order to understand evolution, people need to understand the idea of ‘deep time’: that evolution has been taking place on the earth for a very long time. Finally, the authors make another important point; that geologic periods were established before 1859, therefore deep time existed independently of whether evolution had occurred; needless to say that this is another chapter of this book that might be used to teach about the nature of science.

Chapter 16 discusses and explains the anthropic principle and shows that although the universe permits life, there is not evidence that it was deliberately designed to do so. It suggests that there are not many reasons to believe that the earth was designed for life or that life on earth is itself something special and unique. Chapter 17 is a brief and clear discussion of the evolutionary origins of human morality, through altruism or cooperation. Finally, chapter 18 explains how science and religion might be compatible. A very important point that is made is that although science and religion are compatible in general, certain religious beliefs are incompatible with scientific facts. The authors tell the story of two ex-creationists who reconsidered their views in the light of scientific facts in favour of evolution, who nevertheless remained devout believers. This chapter also includes some interesting discussion of the efficacy of prayer in curing disease and of Gould’s NOMA principle (to which I will return)>

Overall, this is a very interesting book. I think that it will be very useful in teaching about evolution. However, there are some problems that need to be mentioned. One problem is the occasional use of teleological language throughout the text. For example, the authors write that (emphases added):

- Like convergent evolution, camouflage and mimicry do not evolve by chance but gradually, *owing to the needs* of the organism in its environment. Thus, to avoid predators, the snowshoe hare develops a white coat in the winter, the praying mantis looks like a leaf, and the walking stick (an insect) looks like a twig (pp.11-12)
- Finally, in a species with a “camera eye”, a lens formed *in order to* allow variable focusing (pp.70)
- Perhaps even more fascinating is the evolution of mimicry [in order] *to avoid* predation (pp.114)
- In order to perform the complex reactions of aerobic respiration efficiently, single-celled organisms *had to* develop additional structures and membranes to organize and manage the new complexity (p.119)
- As a result, humans *have to evolve* “designs” that at first blush seem not only clever but also purposeful (pp.131)

Unquestionably, these are descriptions used by many biologists and within the scientific community are considered quite legitimate. However, this is book for undergraduates who may not be that familiar with this kind of talk. Moreover, they may still hold teleological intuitions about purpose and design in nature. Hence, these descriptions may cause confusion, even though the book successfully shows that there is no need for intelligent design in nature.

Another major problem I identified in the book is the lack of citations. Throughout the book many excellent examples and data are given for evolution and against creationism. However, it is impossible for the interested reader to find out more as the authors usually mention the names of the people involved but do not provide a citation. For example, on page 111 the authors mention Mary Schweitzer, a palaeontologist who recovered DNA from the bone o a T. rex and discovered that its proteins were nearly identical to those of the modern chicken. This will be important news for many of the readers; however there is no further information on this in the book. When I checked the personal website of this scientists I found various references (Asara JM, Garavelli JS, Slatter DA, Schweitzer MH, Freimark LM, Phillips M, Cantley LC 2007. Interpreting sequences from mastodon and T. rex. *Science* **317**:325; Schweitzer MH, Suo Z, Avci R, Asara JM, Allen MA, Teran Arce F, Horner JR. 2007. Analyses of soft tissue from Tyrannosaurus rex suggest the presence of protein. *Science* **316**: 277-280; Asara JM, Schweitzer MH, Phillips MP, Freimark LM, Cantley LC. 2007. Protein sequences from mastodon (*Mammuth americanum*) and dinosaur (*Tyrannosaurus rex*) revealed by mass spectrometry. *Science* **316**:280-284). It would be very helpful if the authors had indicated which of these articles, if any, is the one they refer to.

My last major problem has to do with the reference to Gould's NOMA principle. After describing this principle, the authors write on page 191 that "Stephen Jay Gould, however, was seriously mistaken in thinking that science and religion are separate magisterial and have nothing to say to each other". I am afraid that the authors are seriously mistaken in their reading of Gould. My own reading of Gould's book does not lead me to any such conclusion; moreover, Gould wrote that "NOMA honors the sharp differences in logic between scientific and religious arguments. NOMA seeks no false fusion, but urges two distinct sides to stay on their own turf, develop their best solutions to designated parts of life's totality, *and above all, to keep talking to each other in mutual respect, and with an optimistic forecast about the value of reciprocal enlightenment*" (Gould SJ 1999. *Rocks of Ages: Science and Religion in the Fullness of Life*. Ballantine Books, New York – p.211, emphasis added).

However, this criticism should not undermine the value of this book. It is a valuable resource and deserves to be widely read. I conclude by expanding Matt Young's wish, made in his dedication of this book to his grandchildren: that this and other similar books guide people to understand what science is and what science is not, so that books of this kind will not be necessary in the future.

Kostas Kampourakis, Geitonas School , Athens, GREECE
email: kkamp@ath.forthnet.gr

All newsletter readers are invited to submit **Book Notes** or **Reviews**. They should follow the format and style as used in this newsletter, and be sent as attachments to m.matthews@unsw.edu.au . This basically means providing full bibliographic details, some brief account of the content of the book in 3-5 paragraphs, and ideally a scanned file of its cover. Longer reviews are also welcome

The **Book Notes** are a way of bringing good and relevant books on history and philosophy of science, sociology of science, philosophy of education to the attention of the large group of scholars interested in the utilisation of these fields of study in addressing theoretical, curricular and pedagogical issues in science and mathematics education.

17. 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.: 2007, 'Can Findings of Qualitative Research in Education be Generalized?', *Quality and Quantity: International Journal of Methodology* **41**, 429-445.
- Niaz, M.: 2008, 'Whither constructivism? --- A chemistry teachers' perspective', *Teaching and Teacher Education* **24**, 400-416.
- Niaz, M. : 2008, 'What 'ideas-about-science' should be taught in school science? A chemistry teachers' perspective', *Instructional Science* **36**, 233-249.
- Niaz, M.: 2009, *Critical appraisal of physical science as a human enterprise: Dynamics of scientific progress*. Springer, Dordrecht, The Netherlands.
- Niaz, M.: 2008, 'A rationale for mixed methods (integrative) research programmes in education', *Journal of Philosophy of Education*, *42*(2), 287-305.
- Niaz, M., & Fernández, R.: 2008, 'Understanding quantum numbers in general chemistry textbooks', *International Journal of Science Education* **30**, 869-901.
- Costu, B., Ayas, A., Niaz, M., Ünal, S., & Calik, M.: 2007, 'Facilitating conceptual change in students' understanding of boiling concept', *Journal of Science Education and Technology* **16**, 524-536.
- Carson, R. & Rowlands, S.:2007, 'Strategies for Affecting the Necessary Course of Cognitive Growth as an Integral Part of Curricular and Instructional Planning', *Interchange* **38**(2).
- Davson-Galle, P.:2008, 'Against Science Education: The Aims of Science Education and Their Connection to School Science Curricula', *Education Research Trends*, Nova Publishers, Bertrand, T. & Roux, L. (ed), pp. 1-30. ISBN 978-1-60456-640-6 (2008). Also available at: <http://eprints.utas.edu.au/7553/> in final submission, but unformatted, form.
- Schulz, R. M.: 2007, 'Lyotard, Postmodernism and Science Education. A Rejoinder to Zembylas', *Educational Philosophy and Theory*, **39**(6), 633-656.
- El-Hani, C. N. & Mortimer, E. F.:2007, 'Multicultural Education, Pragmatism, and the Goals of Science Teaching', *Cultural Studies of Science Education* **2**(3): 657-687.
- El-Hani, C. N.:2007, Between the Cross and the Sword: The Crisis of the Gene Concept. *Genetics and Molecular Biology***30**(2), 297-307.
- El-Hani, C.N. & Bandeira, F.P.S.F.: 2008,. 'Valuing Indigenous Knowledge: To call it "Science" will not help. *Cultural Studies of Science Education* **3**(3): 751-779. DOI: 10.1007/s11422-008-9129-6
- Ford, M.:2008, 'Disciplinary Authority and Accountability in Scientific Practice and Learning', *Science Education* **92**, 404-423.
- Rowlands, S.: 2008, 'The crisis in science education and the need to enculturate all learners in science'. In C.L. Petroselli (ed) *Science Education: Issues and Developments*. New York; Nova.
- Slezak, P.: 2007, 'Is Cognitive Science Relevant to Teaching?' *Journal of Cognitive Science* **8**, 171-208.
- Pitombo, M. A., Almeida, A. M. R. & El-Hani, C. N.: 2008, Gene concepts in higher education cell and molecular biology textbooks. *Science Education International* **19**(2): 219-234.
- El-Hani, C. N. & Bandeira, F. P. S. F.: 2008, Valuing Indigenous knowledge: To call it "science" will not help. *Cultural Studies of Science Education* **3**(3): 751-779. DOI: 10.1007/s11422-008-9129-6
- El-Hani, C. N.: 2008, Theory-based approaches to the concept of life and biological education. *Journal of Biological Education* **42**(4): 147-149.
- El-Hani, C. N.; Queiroz, J. & Emmeche, C.: 2009, *Genes, Information, and Semiosis*. Tartu, Tartu University Press, Tartu Semiotics Library.

- Chang, S.-N. & Chiu, M.-H.: 2008, 'Lakatos' Scientific Research Programmes as a Framework for Analysing Informal Argumentation about Socio-scientific Issues', *International Journal of Science Education* **30**(13), 1753-1773.
- Abd-El-Khalick, F., Waters, M. & Le, A.-P.: 2008, 'Representations of Nature of Science in High School Chemistry Textbooks over the Past Four Decades', *Journal of Research in Science Teaching* **45**(7), 835-855.
- De Housson, C. and Kaminski, W.: 2007, 'Historical Controversy as an Educational tool: Evaluating Elements of a Teaching-Learning Sequence Conducted with the Text "Dialogue on the Ways that vision Operates"', *International Journal of Science Education*, **29**, 617-642.
- Matthews, M.R.: 2009, 'History, Philosophy and Science Teaching: The Present Engagement', *Asia-Pacific Forum for Science Teaching and Learning* Vol.10 No.1 (available at: http://www.ied.edu.hk/apfslt/v10_issue1/)

The following books have recently been published by group members:

- Maria Rentetzi: 2007, *Trafficking Materials and Gendered Experimental Practices: Radium Research in Early 20th Century Vienna*, Columbia University Press, New York.
- Andre Koch Torres Assis & Julio Akashi Hernandez: 2007, *The Electric Force of a Current. Weber and the Surface Charges of Resistive Conductors Carrying Steady Currents*, Apeiron Books, Montreal.
[This book is also available as a pdf file from: <http://www.ifi.unicamp.br/~assis>]
- Kalman, C.S.: 2007, *Successful Science and Engineering Teaching in Colleges and Universities*, Anker Publishing Company, Boston
- Kalman, C.S.: 2008, *Successful Science and Engineering Teaching: Theoretical and Learning Perspectives*, Springer, Dordrecht.
- Andre Koch Torres Assis: 2008, *Archimedes, the Center of Gravity, and the First Law of Mechanics*, Apeiron Books, Montreal.
[This book is also available as a pdf file from: <http://www.ifi.unicamp.br/~assis>]
- Niaz, M.: 2008, *Teaching general chemistry: A history and philosophy of science approach*, Nova Science Publishers, New York.
- Forge, J.: 2008, *The Responsible Scientist: A Philosophical Inquiry*, University of Pittsburgh Press, Pittsburgh.

18. 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, 840 pps, USD10.
- #8 *The Pendulum: Scientific, Historical, Philosophical & Educational Perspectives* Michael R. Matthews, Colin Gauld & Arthur Stinner (eds.), Springer, 2005, USD20
- #9 *Science, Worldviews and Education* Michael R. Matthews (ed.), 2009, USD25

19. Coming Conferences

August 31-September 4, 2009, ESERA Conference, Istanbul Turkey.

Details at: <http://www.earli2009.org/>

September 7-10, 2009, Eighth International Congress on Research in Science Education, Barcelona.

Details at: <http://ensciencias.uab.es:80/congreso2009/>

October 21-24, 2009, Second European Philosophy of Science Association Conf., Amsterdam

Details at: www.epsa09.org

October 28-30, 2009, First Nordic History, Philosophy and Science Teaching Conference, Helsinki

Details from Dr Ismo T Koponen, ismo.koponen@helsinki.fi

March 20-24, 2010, National Association for Research in Science Teaching, Annual Conference, Philadelphia

Details at: www.narst.org

April 8-12, 2010, Philosophy of Education Society of USA, annual conference, San Francisco

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

June 7-9, 2010, The Genius of Archimedes: 23 Centuries of Influence on Mathematics, Science, and Engineering, Syracuse Italy

Details at: <http://www.archimedes2010.org/>

June 24-27, 2010, History of Philosophy of Science Society (HOPOS) Conference, Budapest

Details at: <http://www.hopos2010.ceu.hu> <http://www.hopos2010.ceu.hu/>

August 19-21, 2010, First IHPST Latin American Regional Conference, Maresias, Brazil

Details at: <http://www.hpsst-brazil2010.org/IHPST-LA/index.html>.

November 4-6, 2010, Philosophy of Science Association Conference, Montreal

Details: www.philsci.org

July 1-5, 2011, Eleventh IHPST Conference, Thessaloniki

Details from: Fanny Seroglou (fsero@skiathos.physics.auth.gr)

20. Journal Numbers for 2009

The following issues of *Science & Education* have appeared this year:

Volume 18 Nos.6-7, June 2009: Special Issue: Science, Worldviews and Education

HUGH G. GAUCH, JR. / Science, Worldviews, and Education

MICHAEL R. MATTHEWS / Teaching the Philosophical and Worldview Components of Science

GÜROL IRZİK & ROBERT NOLA / Worldviews and Their Relation to Science

ALBERTO CORDERO / Contemporary Science and Worldview-Making

ENRICO RENATO ANTONIO GIANNETTO / The Revolutionary Meaning of the
Electromagnetic Conception of Nature

MICHAEL REISS / Imagining the World: The Significance of Religious Worldviews for Science
Education

STUART GLENNAN / Whose Science and whose Religion? Reflections on the Relations between
Scientific and Religious Worldviews

JONATAN I. FISHMAN / Can Science Test Supernatural Worldviews?

HUGH LACEY / The Interplay of Scientific Activity, Worldviews and Value Outlooks

JOHN LAMONT / The Fall and Rise of Aristotelian Metaphysics in the Philosophy of Science

TANER EDIS / Modern Science and Conservative Islam: An Uneasy Relationship

HUGH G. GAUCH Jr. / Some Responses and Clarifications Regarding Science and Worldviews

MICHAEL R. MATTHEWS / Science and Worldviews in the Classroom: Joseph Priestley and
Photosynthesis

Erratum: The following paper should have been part of this special issue, but was inadvertently published in Volume 17 Number 6, 2008, pp.559-571.

COSTAS D. SKORDOULIS / Science and Worldviews in the Marxist Tradition

Volume 18 No.5, May 2009

Special Issue: *Constructing Scientific Understanding through Contextual Teaching*

Guest Editors: Peter Heering & Daniel Osewold

PETER HEERING & DANIEL OSEWOLD / Editorial

GÁBOR ÁRON ZEMPLÉN / Putting Sociology First -Reconsidering the Role of the Social in 'Nature of Science' Education

DAVID W. RUDGE & ERIC HOWE / An Explicit and Reflective Approach to the Use of History to Promote Understanding of the Nature of Science

DON METZ / William Wales and the 1769 Transit of Venus: Puzzle Solving and the Determination of the Astronomical Unit

STEPHEN KLASSEN / Identifying and Addressing Student Difficulties with the Millikan Oil Drop Experiment

PANOS KOKKOTAS, PANAGIOTIS PILIOURAS, KATERINA MALAMITSA, IOANNIS VLACHOS, KATERINA PLAKITSI, MYRONAS MAUROGIANNAKIS & EFTHYMIS STAMOULIS / Teaching Physics to In-service Primary School Teachers in the Context of the History of Science: The Case of the Fall of Bodies

YOUJUN WANG / Hands-on Mathematics: Two Cases from Ancient Chinese Mathematics

Volume 18 Nos. 3-4 April 2009

Ninth International, History, Philosophy & Science Teaching Conference (Select Proceedings)

Guest Editor: HsingChi Wang von Bergmann

HSINGCHI VON BERGMANN / Designing and Assessing Contextual Approaches to the Teaching of Science and Mathematics: Introduction

ROLAND M. SCHULZ / Reforming Science Education: Part I. The Search for a Philosophy of Science Education

ROLAND M. SCHULZ / Reforming Science Education: Part II. Utilizing Kieran Egan's Educational Metatheory

SUVI TALA / Unified View of Science and Technology for Education: Technoscience and Technoscience Education

HAYO SIEMSEN & KARL HAYO SIEMSEN / Resettling the Thoughts of Ernst Mach and the Vienna Circle to Europe: The cases of Finland and Germany

CALVIN S. KALMAN / The Need to Emphasize Epistemology in the Teaching of Science: Use of Reflective Writing

NAHUM KIPNIS / 'Physical Law' in the Classroom: the Case of Ohm's Law

COLIN F. GAULD / Newton's Use of the Pendulum to Investigate Fluid Resistance: A Case Study and Some Implications for Teaching about the Nature of Science

STEPHEN KLASSEN / The Construction and Analysis of a Science Story: A Proposed Methodology

GLENN ROBERT DOLPHIN / Evolution of the Theory of the Earth: A Contextualized Approach for Teaching the History of the Theory of Plate Tectonics to Ninth Grade Students

AGUSTIN ADURIZ-BRAVO & MERCÉ IZQUIERDO-AYMERICH / Physical Construction of the Chemical Atom: Is it Convenient to Go All the Way Back?

KATERINA MALAMITSA, MICHAEL KASOUTAS & PANAGIOTIS KOKKOTAS / Assessing the Development of Critical Thinking in Greece through an Approach of Teaching Science to Primary School Students which Incorporates Aspects of History of Science
CHARBEL NIÑO EL-HANI, RICARDO S DO CARMO & NEIF NUNES-NETO / Gaia Theory in Brazilian High School Biology Textbooks
CHARBEL NIÑO EL-HANI & GEILSA C BAPTISTA / Ethnobiology and Dialogue Between Ways of Knowing in Biology Teaching: A Case Study in a Brazilian Public High School

Volume 18 No. 2 February 2009

Special Issue: *Politics and Philosophy of Science*

Guest Editor: *Heather Douglas*

HEATHER DOUGLAS / Philosophy of Science, Political Engagement, and the Cold War: An Introduction
THOMAS UEBEL / Knowing who your Friends are: The Politics of Logical Empiricism
DAVID J. STUMP / Pragmatism, Activism, and the Icy Slopes of Logic in George Reisch's Portrait of the Philosophy of Science as a Young Field
SCOTT EDGAR / Logical Empiricism, Politics, and Professionalism
GEORGE REISCH / Three Kinds of Political Engagement for Philosophy of Science
DON HOWARD / Better Red than Dead - Putting an End to the Social Irrelevance of Post-war Philosophy of Science

Volume 18 Number 1, January 2009

IGAL GALILI / Thought Experiment – Determining the Meaning
CALVIN KALMAN / A Role for Experiment in Using the Law of Inertia to Explain the Nature of Science: A Comment on Lopes Celho
PETER KOSSO / The Large-scale Structure of Scientific Method
MANSOOR NIAZ / Progressive Transitions in Chemistry Teachers' Understanding of Nature of Science Based on Historical Controversies
VICTOR C. RUCKER & LILY J. ACKERMAN / Alexander Shulgin: Chemist Extraordinaire
VERONICA S. FLODIN / The Necessity of Making Visible Concepts with Multiple Meanings in Science Education: the Use of the Gene Concept in a Biology Textbook
SIU LING WONG, JENNY KWAN, DEREK HODSON & BENNY HIN WAI YUNG / Turning Crisis into Opportunity: Nature of science and Scientific Inquiry as Illustrated in the Scientific Research on Severe Acute Respiratory Syndrome
ANTON E. LAWSON / On the Hypothetico-Deductive Nature of Science-Darwin's Finches
ALBERTO VILLANI, JESUINA LOPES DE ALMEIDA PACCA, & DENISE DE FREITAS / Science Teacher Education in Brazil: 1950-2000
KATEMARI ROSA & MARIA CRISTINA M MARTINS / Approaches and methodologies for a course on History and Epistemology of Physics: analyzing the experience of a Brazilian university

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

Journal subscription (print version) can be effected at www.ihpst.org

21. IHPST Executive

Elections will soon be held to fill vacant positions on the IHPST Council.
The following positions are currently filled and will continue on till the coming election.

President: David Rudge (david.rudge@wmich.edu)
Past-president: Michael Matthews (m.matthews@unsw.edu.au)
President Elect:
Secretary: Pierre Boulos (boulos@uwindSOR.ca)
Treasurer:
Directors : Peter Heering (peter.heering@uni-oldenburg.de)

Student Member: Roland Schulz (rmschulz@shaw.ca)
Programme Chair: Fanny Seroglou (seroglou@eled.auth.gr)
Past Programme Chair: Don Howard (dhoward1@nd.edu)

Members of the Nominating Committee:

Elisabeth Cavicchi (ecavicch@mit.edu)
Ismo Koponen (ismo.koponen@helsinki.fi)
Igal Galili (igal@vms.huji.ac.il)
Mark Lattery (lattery@uwosh.edu)

Colleagues interested in standing for election to any of the Council positions should contact the Past President Michael Matthews (m.matthews@unsw.edu.au).

22. IHPST Graduate Students

The IHPST Group is keen to facilitate the research and scholarship of graduate students in the fields of Nature of Science studies, and Historical, Philosophical and Sociological studies and their utilisation in pedagogical and theoretical issues facing science teachers and curriculum writers.

One idea that has emerged out of Council discussion is to create a register of such students that would list their names, contact details, and thesis area or topic. This might be placed on the IHPST web site and progressively up-dated for each student as they progress through their studies. Where completed theses are required to be placed in public domain on the web, such retail would finally be given.

Such a register would enable students to make contact with each other; see who is doing comparable research; perhaps share results of literature searches; perhaps share drafts of work in progress; and perhaps be put in direct contact with more senior IHPST members who could add to local supervisor's comments on the project.

The IHPST Council Student Member, Roland Schulz (rmschulz@shaw.ca), has agreed to oversee this project. Thus beginning graduate students through to nearly-finishing students, are invited in the first instance to email Roland so as to commence this new initiative.

23. 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, colleagues or students 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'.

24. Newsletter Items

This IHPST Electronic *Newsletter* goes to 2,000 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 'Opinion', 'Recent Research', 'Recent Books', 'Books' or 'Conferences' sections.

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