

Newsletter of The History of Philosophy of Science (HOPOS) Working Group

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Inside this issue:

From the Editor	1
HOPOS 2002 in Montréal	1
Impressions of HOPOS 2000: A Report	2
<u>News of the Profession</u> Seminars, Conferences, and Colloquia	3
Competitions and Calls for Submissions	5
Electronic Resources	
Books Published	6
Jobs and other opportunities	
Journals	
Regional Maps of HOPOS Activity and Infrastructure: Brazil	7
Book Reviews	16
Membership Form	20
About HOPOS	20

From the Editor

The current Newsletter is a bit later to press than recent previous issues but reflects the hard work of our stalwart contributors.

This very spirit of hard work was much in evidence in Vienna this past July, when HOPOS held its third international meeting. That story is briefly recounted in Don Howard's report (p 2). [*The Editor could only corroborate this story second-hand, due to the birth of a second daughter as conferees met.*]

On the basis of this first foreign adventure, the Steering Committee has elected to meet outside the US again in 2002, when Hopoi will gather in Montréal. Not a distant land, perhaps, for most of us, but a site that is *pleine de charme*. Preliminary details (p 1) are offered by the chair of the local or-

ganizing committee, Andrew Wayne (Université de Montréal).

A further indication of the burgeoning international character of HOPOS-related studies is found in the latest travelogue, dedicated to Brazil (p 7). To adequately summarize the history and philosophy of science resources in that gargantuan nation required the Herculean efforts of three authors— Eduardo Barra and Irinéa Batista (State University of Londrina) and Valter Bezerra (University of São Paulo). Those who have had little commerce with our Brazilian friends will find much to discover on physical or virtual visits.

This issue's book reviews include Mort Schragin's look at George Boolos' posthumous collection of essays,

Logic, Logic, and Logic (focusing primarily on the second element of the title), Alex Levine's critique of Nick Huggett's Space from Zeno to Einstein, and Ken Jacobs' review of Jan Golinski's Making Natural Knowledge. While only Huggett's volume is purely HOPOS material, Boolos addresses Frege's philosophy of logic in historical terms, and Golinski's meditation on method in history of science draws on various themes in philosophy of science from the recent past. One lesson here is that little may be possible in science studies of any philosophical character without tackling issues in the history of the philosophy of science.

I close with two organizational notes. First, the HOPOS Working Group has had a change in leadership (without judicial coups

(Continued on page 2)

HOPOS 2002 in Montréal

The HOPOS Steering Committee has chosen Montréal, Canada as the location for our 2002 meeting. The local organizing committee is tentatively planning a mid-June date, just after the meetings of the Canadian Philosophical Association and Cana-

dian Society for History and Philosophy of Science in Toronto and just before the Montréal International Jazz Festival (so participants can stay for the jazz festival if they wish).

Philosophy departments at

all four Montréal universities will be jointly hosting the meeting (Concordia University, McGill University, Université de Montréal, and Université du Québec à Montréal). The actual location of the meeting hasn't been determined, although one university has already offered low-cost accommo-

(Continued on page 2)

From the Editor

(Continued from page 1)
d'état, thank you): Thomas Uebel (University of Manchester) is the first non-North American to head our Steering Committee, replacing Alan Richardson (University of British Columbia). Great thanks are due to Alan for two years of steering our Steers—and standing at the helm of the Working Group—with aplomb, efficiency, and tremendous productivity. I speak with great assurance for the Steering Committee in expressing our gratitude to Alan, and our fullest confi-

dence in Thomas as our new chair.

Second, Cassandra Pinnick, our diligent treasurer, has been hard at work arranging dues payment by credit card. This possibility—to be realized within a month or two—will facilitate payment from outside the US, and ease discharging of one's financial obligations to the Working Group. Let's thank Cassandra by ensuring that our dues are paid in timely fashion!

Best wishes,
Saul Fisher



Montréal

(Continued from page 1)
dation for the conference in student residences.

We are very enthusiastic about hosting HOPOS in Montréal. Many Montréal philosophers have HOPOS-related research interests, and the HOPOS meeting will provide an excellent opportunity to raise the profile of these activities. As well, Montréal is a wonderful tourist destination. It is a vibrant multicultural city that is affordable and easily accessible from Europe and North America.

HOPOS 2002 will be a bilingual conference with English and French as its official languages. The program committee for the conference is currently being formed by the newly constituted HOPOS Nominating Committee. A call for abstracts and symposia sessions will be issued in the newsletter and HOPOS-L sometime in the summer. Look for it!

Andrew Wayne
Chair, Local Organizing
Committee for HOPOS 2002



Impressions of HOPOS 2000: A report

HOPOS 2000, the Third International History of Philosophy of Science Conference, was held at the University of Vienna, July 6–9, 2000, under the sponsorship of the Institute Vienna Circle. With nearly 140 papers on the program, it was HOPOS's largest conference to date and surely its most successful—which is especially gratifying in view of the fact that this was the first HOPOS conference in Europe.

Highlights of the program included Michael Friedman's keynote lecture—"What is Scientific Philosophy?" (which was also the 8th annual Vienna Circle Lecture of the Institute Vienna Circle) and plenary lectures by Maria Luisa Dalla Chiara—"What is a Law?", Marina Frasca-Spada—"Hume and Sense Impressions", and Lothar Schäfer—"Neo-Kantian Origins of Modern Empiri-

cism". In addition, Robert Cohen and Brian McGuinness offered personal recollections from their perspective as the founders of the Vienna Circle Collection (published by Kluwer), a series that has made available in English the writings of most of the central figures in the Vienna Circle.

Lest the Viennese location and sponsorship by the Institute Vienna Circle give the wrong impression, this was not a meeting solely devoted to the history of the Vienna Circle. As with all HOPOS conferences, scholarship on all periods and subjects areas was encouraged and welcomed. We were treated to papers on Suarez, Rheticus, Galileo, Newton, Leibniz, Locke, Berkeley, Hume, Kant, Vico, Whewell, Poincaré, Cassirer, Husserl, Bachelard, and Foucault. Two sessions were devoted to

Popper, one to relations between metaphysics and mathematics in the 17th and 18th centuries, and one to the scientific background to Wittgenstein's *Tractatus*. There were interesting papers on Claude Bernard and hypothetico-deductivism, Hermann von Helmholtz's work on physiological acoustics, and Hermann Weyl at the crossroads between phenomenology and mathematics. Indeed, a rich and varied program.

As regular readers of the Newsletter know, the entry of Jörg Haider's Freiheitliche Partei Österreichs into the Austrian government in February led to a vigorous discussion of proposals to cancel HOPOS 2000 or move it to another location as a gesture of protest. In the end it was decided to keep the meeting in Vienna, as a way of bearing witness to the tragic fate of

the philosophy of science in Austria and Germany under fascism in the 1930s and 1940s—and as a gesture of support to our professional colleagues and ordinary Austrian citizens who are committed to the ideal of a democratic Austria in which the rights of all are respected. For the same reasons, the Program Committee also added two sessions specifically devoted to politics and the philosophy of science. Given the unusually charged political circumstances under which the conference was held, it was good to see the broad, international participation and the attention that the meeting received from the Austrian press—including an [article in the Wiener Zeitung](#) and interviews with conference participants by a science reporter for Österreichische Rundfunk.

In my view the single most interesting and important event at the meeting was the

Impressions of HOPOS

first of the two mentioned special sessions, "The Political Meaning and Cultural Context of Philosophy (of Science) in Austria and Central Europe before and after World War II." Four papers were presented, in German, for a Germanophone audience, by Friedrich Stadler, Gernot Heiss, Hans-Joachim Dahms, and Kurt R. Fischer. Most striking was the evidence presented of the continuing influence, *after* World War II, of reactionary forces within the Austrian academy in inhibiting the revival of the philosophy of science in its Austrian home. Specific examples included Arthur Pap's being refused a hoped-for appointment at the University of Vienna after he spent a year there as a visiting Fulbright Professor in the early 1950s—this because of the left-liberal reputation that attached to the philosophy of science as a discipline, and Moritz Schlick's being branded a "Jew, free-mason, and Bolshevik" by an influential member of the Vienna philosophy faculty—this, again, not before or during but *after* World War II. The papers presented at the two special sessions on politics and the philosophy of science will be published as a separate volume by the Institute Vienna Circle.

But the conference was not all deep thinking and heady politics. No visit to Vienna is complete without an evening spent relaxing at a Heuriger, that uniquely Austrian institution created by an edict of Kaiser Josef

II in 1784 granting a tax exemption to wine served at a restaurant on vineyard grounds. On Saturday evening we went to the Heurigerrestaurant Fuhrgassl-Huber, where the wine flowed freely and food seemed never to end and where the music and dancing was still going strong when we left near midnight. I'm sorry to report that the HOPOI proved not to be good dancers, for the most part; perhaps more practice is needed. And we're all still trying to figure out who that man was who let his dog clean up the scraps from our buffet.

Montréal will be home to HOPOS 2002. After our meetings in Roanoke in 1996 and at Notre Dame in 1998, the Vienna meeting set a new standard of excellence and hospitality. Special thanks for that are owed to our host, the Institute Vienna Circle, its Director, Friedrich Stadler, his assistant, Michael Stözlner, and the Institute's secretary, Angelika Rzhacek. Sincere thanks are also owed to the co-chairs of the Program Committee, Michael Heidelberger, of the Humboldt-Universität, Berlin, and, again, Friedrich Stadler. A volume of selected conference papers will appear in 2001 in the [Institute Vienna Circle's Yearbook series](#).

Don Howard

Department of Philosophy and Graduate Program in History and Philosophy of Science
University of Notre Dame



News of the profession.

Call for Reports.

The Newsletter features occasional, concise reports on conferences of interest to HOPOI. If you are interested in writing such reports, please contact the Editor.

Seminars, Conferences, and Colloquia.

- November, 2000-June, 2001
Università di Firenze, Italy
Seminar on Physics of the 19th Century. Departments of Physics and Philosophy. For information, contact R. Casalbuoni (casalbuoni@fi.infn.it) or E. Castellani (castella@unifi.it).
- November 6, 2000-May 21, 2001
Centre Alexandre Koyré, Paris, France
Seminar on "Formation of knowledge at the beginning of the modern era: Humanists, Geometers, and Mechanists". The first, third, and fifth Mondays of the month. For information, go to http://www.ehess.fr/centres/koyre/Centre_A_KOYRE.html.
- November 22, 2000-March 28, 2001
Institut Henri Poincaré, Paris, France
Seminar on the history of mathematics. Monthly, on Wednesdays. For information, go to <http://www.ihp.jussieu.fr>.
- December, 2000-January, 2001
TU Berlin, Germany
- December 4, 2000-January 29, 2001
École Normale Supérieure, Paris, France
Seminar on the Probabilist Point of View. Mondays. For information, contact Martin Andler (andler@math.uvsq.fr)
- December 7, 2000-February 22, 2001
Università di Padova, Italy
Seminar in philosophy of biology. Fortnightly. For information, contact Giovanni Boniolo (boniolo@ux1.unipd.it).
- December 7, 2000-May 17 2001
Centre d'Études du Vivant, Institut Jacques Monod, Paris, France
Monthly seminar on the genetic program. For information, go to <http://www.sigu7.jussieu.fr/cev/cevprogene.html>.
- December 12, 2000-June 26, 2001
Archives H. Poincaré, Nancy, France
Seminar on Logic and History of Science. Fortnightly on Tuesdays. For information, contact Philippe Nabonnan (nabonnan@plg.univ-nancy2.fr) or go to <http://www.univ-nancy2.fr/ACERHP/seminair.html>.

Colloquium on "Naturverständnisse - Naturverhältnisse". Institut für Philosophie, Wissenschaftstheorie, Wissenschafts- und Technikgeschichte. For information, go to <http://www.philosophie.kgw.tu-berlin.de/Philosophie>.

Seminars, Conferences, and Colloquia.

- December 13, 2000–
May 16, 2001
Centre Alexandre Koyré,
Paris, France
Lecture series on the development of scientific ecology and the emergence of environmental ethics. Second and fourth Wednesdays of the month. For information, contact Donato Bergandi (bergandi@mnhn.fr).
- December 14, 2000–
June 7, 2001
Université de Paris 8
Vincennes-Saint Denis,
France
Research group on history and philosophy of science seminar on science, legitimacy, and mediation: the question of interpretation and the place of the historian. Thursdays, monthly, Département de mathématiques, Paris 8, Saint-Denis. For information, go to <http://www.ai.univ-paris8.fr/uf6/maths/semi2000.html>.
- December 21, 2000–
June 7, 2001
Maison de la Recherche,
Université Lille 3, France
Monthly Seminar on the reception of Euclid's Elements in the Middle Ages and Renaissance.
For information, contact Sabine Rommevaux (rommevaux@univ-lille3.fr)
- January 8-10, 2001
University of Leeds, UK
British Society for the History of Science Postgraduate Workshop, School of Philosophy, Division of History & Philosophy of Science.
For information, go to <http://www.philosophy.leeds.ac.uk/html/hps.htm> or contact John Friesen (phljpf@leeds.ac.uk).
- February 19-23, 2001
La Orotava, Tenerife,
Canary Islands, Spain.
International Symposium Galileo 2001. Organized by the Fundacion Canaria Orotava de Historia de la Ciencia. For information, go to <http://www.iac.es/project/galileo/galileo.html>.
- March 17-18, 2001
Claremont Graduate University, Claremont CA
Graduate student conference on 'The New Science: Emerging Viewpoints in the Early Modern Era'. For information, contact howard.fitzgerald@cgu.edu.
- March 30-April 1, 2001
University of Notre Dame,
Indiana
Mephistos Graduate Student Conference for the History, Philosophy, and Sociology of Science. Abstracts by January 15, 2001. For information go to <http://www.nd.edu/~meph2001> or contact Ryan Cameron MacPherson (ryan.macpherson.1@nd.edu)
- April 12, 2001
Boston University, Boston,
Massachusetts
Boston Colloquium for Philosophy of Science—Kant on the Sciences. For information, go to <http://www.bu.edu/philo/centers/cphs/00-01/Apr12-2001.html>.
- May 17-19, 2001
Pavia, Italy
Model-Based Reasoning: Scientific Discovery, Technological Innovation, Values (MBR 01). For information, go to <http://philos.unipv.it/courses/progra1.html> or contact Lorenzo Magnani (lorenzo@philos.unipv.it).
- May 24-26, 2001
Lille, France
Congress on the history of science and engineering. Société Française d'Histoire des Sciences et des Techniques. For information, go to <http://wwwrc.obs-azur.fr/cerga/hdsn/SFHST.html> or write to SFHST.2001@free.fr.
- May 24-26, 2001
Université Laval, Quebec City, Canada
Canadian Society for History and Philosophy of Science (CSHPS) annual conference. Proposals by January 30, 2001. For information, go to the Humanities and Social Sciences Federation of Canada website (<http://www.hssf.ca>) or the Canadian Society for History and Philosophy of Science website (<http://www.ukings.ns.ca/cshps>).
- May 24-June 1, 2001
Florence and Vinci, Italy
4th International Laboratory for the History of Science: Art, Science and Techniques of Drafting in the Renaissance. Sponsored by the Dibner Institute (Cambridge, MA), the Istituto e Museo di Storia della Scienza (Florence), the Max-Planck-Institut für Wissenschaftsgeschichte (Berlin), the University of Athens, and Tel Aviv University. For information, contact Laura Manetti (laura@imss.firenze.it).
- May 29-June 1, 2001
Bielefeld University,
Germany
Philosophy Department
Pentecoste lectures 2001, delivered by Philip Kitcher: (1) Science, Truth, and Democracy, and (2) Mendel's Mirror: Biological Reflections of Humanity. For information, contact Martin Carrier (mcarrier@philosophie.uni-bielefeld.de)
- June 13-16, 2001
Queens Hotel, Cologne
(Köln), Germany
6th annual meeting of the International Society for the History of the Neurosciences and 8th Meeting of the European Club for the History of Neurology. For information, contact Axel Karenberg (ajg02@rrz.uni-koeln.de) or Paul Eling (eling@nici.kun.nl), or go to <http://www.ishn.org/call2001.htm>.
- June 21-24, 2001
Indiana University,
Bloomington, Indiana
CHEIRON: The International Society for the History of Behavioral and Social Sciences 33rd Annual Meeting. For information, contact Marlene Shore (mshore@yorku.ca), Cheiron Program Chair, or go to <http://www.yorku.ca/dept/psych/orgs/cheiron/cheiron.htm>.
- July 8-14, 2001
Mexico City, Mexico
XXI International Congress of History of Science. For information, go to <http://>

(Continued on page 5)

Seminars, Conferences, and Colloquia.

(Continued from page 4)

www.smhct.org or contact
xxiichs@servidor.unam.mx.

- July 12-14, 2001
University of Vienna,
Vienna, Austria
Conference on the Vienna
Circle and Logical Empiri-
cism: Re-Evaluation and
Future Perspectives of Re-
search and Historiography.
Sponsored by the Institut
Wiener Kreis and the Uni-
versity of Vienna Center for
Interdisciplinary Research.
Abstracts by December 31,
2000. For information, con-
tact Friedrich Stadler
(friedrich.stadler@univie.ac.at).

- July 12–14, 2001
University of Vienna,
Vienna, Austria
Vienna International Sum-
mer School on philosophy
of science, organized by
IVC and the University of
Vienna (CIR). The theme
is: “Unity and Plurality of
Science”. For information,
go to <http://ivc.philo.at>

- July 18-22, 2001
Quinnipiac University,
Hamden, Connecticut
International Society for the
History, Philosophy and
Social Studies of Biology.
Proposals by March 15,
2001. For information, con-
tact Douglas Allchin
(Q2001@tc.umn.edu) or go
to <http://www.phil.vt.edu/ishpssb/2001>.

- August 6-9, 2001
Loughborough University,
Loughborough,

Leicestershire, UK
Fifth Symposium on the
Philosophy of Chemistry
and Biochemistry—under
the auspices of the
International Society for the
Philosophy of Chemistry.
For information, contact
Tony Edmonds (t.e.edmonds@lboro.ac.uk).

- September 28-
October 1, 2001
Hamburg, Germany
Annual meeting of the Ger-
man Society for the History
of Medicine, Science and
Technology. Proposals by
December 31, 2000. For
information, contact
Helmuth Albrecht
(halbrech@vwl.tu-freiberg.de) or go to <http://www.mpiwg-berlin.mpg.de/dggmnt/tagungen/hamburg2001.html>.

- July 3-7, 2002
Vienna, Austria
Karl Popper 2002 Centenary
Congress. Organized by the
Karl Popper Institut, the
University of Vienna, the
City of Vienna, and the
Austrian Ministry of Sci-
ence. For information, con-
tact Gerhard Budin (gerhard.budin@karlpopperinstitut.org).

Electronic Resources.

- Website of Theuth, the
French history of science
group: <http://www.sigu7.jussieu.fr/hpr/theuth-index.html>

- Jonathan Bennett’s ren-
ditions of texts by Locke,
Berkeley, Hume, Descartes,
and Kant are now available

Competitions and Calls for Submissions.

- Editions de l’Harmattan
is launching a book series in
the history of science, com-
prising reprint editions,
new studies, and thematic
anthologies. For informa-
tion, contact Gilles Denis
(gilles.denis@wanadoo.fr),
Alain Herreman
(herreman@paris7.jussieu.fr), or Sophie Roux (Sophie.Roux@damesme.cnrs.fr)

- The Journal of College
Science Teaching seeks re-
viewers for submissions in
history, philosophy and so-
cial studies of science. For
information, contact Doug-
las Allchin (allchin@pmlink.com).

- MartianusCapella.com, a
new online journal seeks
submissions. For informa-
tion, go to <http://www.martianuscapella.com>.

- The Philosophy of Sci-
ence Association will award
a prize for an essay written
by a graduate student in
2000. Deadline: Decem-
ber 31, 2000. For informa-
tion, go to <http://www.indiana.edu/~philsci>.

- Johns Hopkins UP is
looking for potential authors

and suggestions for a new
series of history of science
and technology textbooks.
For information, contact
Roberta Magnusson
(Roberta.J.Magnusson-1@ou.edu)

- Foundations of Chemis-
try seeks submissions for a
special issue on chemical
education For information,
contact Eric Scerri
(scerri@chem.ucla.edu),
editor.

- National Endowment for
the Humanities—Applica-
tions to conduct an NEH
Seminar or Institute in Sum-
mer 2002. Deadline: March
1, 2001. Current projects
are listed at <http://www.neh.gov/teaching/seminars2.html>. For information, go to
<http://www.neh.gov/grants/onebook/seminars.html>.

- Methodos is a new jour-
nal dedicated to classical
philology, philosophy, and
history of science.
Submissions may be sent to
the editorial secretariat,
Florence Thill (thill@univ-lille3.fr). For information,
go to <http://www.univ-lille3.fr/www/recherche/set>.

at <http://www-hl.syr.edu/phil>.

- philoscience.com is an
online French bookshop
specialized in second-hand
books on philosophy and
history of science, at <http://www.philoscience.com>.

- Website of the Florence
Center for the History and
Philosophy of Science:
<http://associazioni.comune.firenze.it/florenceCHPS>.

- Website of the Philoso-
phy of Science Society of
Japan: <http://wwwsoc.nacsis.ac.jp/pssj/index.html>.

Books published.

- Soler, Léna, Introduction à l'Épistémologie. Editions Ellipses. For information, go to <http://www.editions-ellipses.com>.

- Gasser, James (ed.), A Boole Anthology, Kluwer Academic Publishers, Synthese Library, 2000. For information, go to <http://www.wkap.nl>.

- Barberousse, Anouk & Kistler, Max, and Ludwig, Pascal, La Philosophie des Sciences au XXe siècle, Flammarion, Champs Université, 2000. For information, go to <http://www.paru.com/redac/critiquePhilosophie>.

Mélika Ouelbani (ed.), La Philosophie Autrichienne: spécificité et influences, La Faculté des Sciences Humaines et Sociales de Tunis, 2000. For information, contact ouelbani.melika@planet.tn

- Peter A. Schouls, Descartes and the Possibility of Science, Cornell University Press, 2000. <http://www.cornellpress.cornell.edu>.

- Stathis Psillos, Scientific Realism: How Science Tracks Truth, Routledge, 1999. For information, go to <http://www.routledge.com>

- Thomas E. Uebel, Vernunftkritik und wissenschaft, Springer, 2000. For information, go to <http://www.springer.at>.

- Malachi Haim Hacohen, Karl Popper: the Formative

Years, 1902-1945, Cambridge University Press, 2000. For information, go to <http://www.cup.org>.

- J. Lennart Berggren and Alexander Jones, Ptolemy's Geography, Princeton University Press, 2000. For information, go to <http://pup.princeton.edu>.

- Demetra Sfendoni-Mentzou, Aristotle and Contemporary Science, Volume One, Peter Lang, 2000. For information, go to <http://www.peterlang.com>.

- Mai Lequan, La Chimie selon Kant, PUF, 2000. For information, go to <http://www.puf.com>.

- Pierre-Marie Morel, Atome et nécessité. Démocrite, Épicure, Lucrèce, PUF, 2000. For information, go to <http://www.puf.com>.

- Isabelle Dupéron, G. T. Fechner. Le parallélisme psychophysique, PUF, 2000. For information, go to <http://www.puf.com>.

Journals.

- HYLE (6/2). Papers are available at <http://www.uni-karlsruhe.de/~philosophie/hyle.html>.

- Foundations of Chemistry (2/2). For information, go to <http://www.wkap.nl/journalhome.htm/1386-4238>.

Jobs and other opportunities.

- Oakland University, Michigan. Assistant professorship in history of science and technology, beginning September, 2001. Specialization in Modern Europe preferred. For information, contact Sean Farrell Moran (moran@oakland.edu).

- Université de Versailles-Saint-Quentin, France. Maître de conférences (lecturer) in HPS. This person will participate in activities of the Centre Cavailles at the ENS in Paris. For information, contact Martin Andler, UVSQ (andler@math.uvsq.fr) or Michel Morange, Centre Cavailles (morange@wotan.ens.fr).

- University of California, Davis. Director of STS program, tenured associate or full professor, beginning Fall 2001. For information, contact James Griesemer (jrgriesemer@ucdavis.edu).

- Max Planck Institute for the History of Science in Berlin, Germany. Postdoc-

toral Fellowship for two years, beginning spring 2001. For information, contact Jochen Schneider (jsr@mpiwg-berlin.mpg.de).

- National Endowment for the Humanities. Applications to conduct NEH Seminars or Institutes in summer 2002 are due March 1, 2001. For information and application guidelines, go to <http://www.neh.gov/grants/onebook/seminars.html>.

Hans-Sigrist-Foundation, University of Bern, Switzerland. Postdoctoral fellowships in HPS. For information, contact Barbara Lischetti (barbara.lischetti@afg.unibe.ch).

- University of Bielefeld, Germany. Postdoctoral fellowships in philosophy, history, or sociology of science and technology, at the Development, Structures and Consequences of Science and Technology research group. For information, go to <http://www.uni-bielefeld.de/iwt/gk> or write to christian.castor@uni-bielefeld.de.

- Epistemologia (23/1). For information, go to <http://www.tilgher.it/epistemologiae.html>.

- Azogue is an electronic journal for the historical study of alchemy. For information, go to <http://personal5.iddeo.es/emclmffgm>.

- Cahiers du Centre d'histoire des sciences et des philosophies arabes et médiévales (3). For information, contact M. Rouabah (rouabah@vjf.cnrs.fr).

- A new journal for the history of geological science is being planned. For information, contact Jean Gaudant (gaudant@ipgp.jussieu.fr).

Regional maps of HOPOS activity and infrastructure.

Brazil (No. 5).

Report on HOPOS-related resources in Brazil.

Introduction

Brazil is known around the world through a number of stereotypes. It is customary for people in many countries to draw the standard easy associations: Brazil is (in some suitably flexible sense of “being”) football (soccer), samba, Rio (as tourist’s paradise), Carnival, or the Amazon rainforest. If access to information is a greater, elements may be successively added to the reference frame: Brazil is also street children, urban violence, expert race car drivers, or *bossa nova*.

Less known than these stereotypes is that Brazil is the tenth largest economy in the world, that it is one of the countries where the Internet is growing the fastest, or that São Paulo is the fifth largest city in the world. Much less known still is that Brazilians have developed highly sophisticated styles of instrumental music, that Brazilian advertising agencies always earn prizes in festivals worldwide, or that writers such as Machado de Assis are as creative and prolific as the greatest names in major European literature.

Brazil is a huge, almost unbelievably diverse, country that can be known only iteratively, through successive approximations. Indeed, the country is so huge, complex, and contradictory that *any* given picture is doomed to be profoundly incomplete. Even now, as the country celebrates the fifth centennial of its official discovery by the

fleet of Portuguese commander Pedro Álvares Cabral, Brazilians feel that they have a lot to do to understand their own country and to shape its destiny.

It is a commonplace among Brazilians to say that two countries coexist simultaneously within Brazil: one that is highly developed, industrialized, densely interconnected, with dynamic cultural life, and one that is poor and underdeveloped, where human potential is painfully wasted in the hard daily effort to survive. There is no sharp divide between them: they often intermingle in a kind of fractal pattern, sharing the same spaces, especially in the big cities. The clash between the “two countries” can occur anywhere, at any time, giving rise to startling contrasts and, at times, to puzzling scenes.

Brazil is an unequal country, perhaps as a result of having forced many regions to leap directly from an almost feudal system to a post-industrial society. Perhaps it has something to do with the weird ability of average Brazilians to find compromise between contradictory facts, beliefs, or actions. In any case, such inequality—at all scales, levels, and times—has deep structural roots in Brazilian society, and poses formidable challenges to government and public policy-makers.

But the most remarkable aspect about Brazil is something largely independent of

geography and socio-economic indicators: the endless creativity that Brazilians exhibit even under the most unfavorable conditions. This creativity has enabled them to construct a formidable folklore extending far beyond the Rio Carnival: amazing literature, music, art, and architecture, in spite of having undergone neither a Renaissance nor an Enlightenment—and science and technology that, despite a lack of resources, achieve surprising levels of excellence in unexpected areas.

One aspect of this richness born out of difficulty is academic life. Universities in Brazil are young, most of the larger ones being just 50 to 100 years old. In spite of their young age, Brazilian universities display some unexpected scars, as a result of being forced in decades past to defend freedom of thought and becoming spaces of political reflection and action. Further, it has been necessary for universities to engage in recurrent battles for research funding and against the dismantling of lines of research. Since necessity is the mother of invention, Brazilian researchers have been endowed with a great ability to overcome difficulties creatively and with a tendency to be protective of what they have been able to achieve. In this manner quite a few areas have achieved international recognition: condensed matter physics, dynamical systems, mathematical logic, genetics, zoology, sociology, and anthropology.

If Brazilian science witnesses a permanent struggle between difficulties and creativity, then Brazilian philosophy of

science—and history of philosophy of science—could hardly tell a different story. Courses in philosophy of science in Brazil date back to the mid-1950’s, when Gilles-Gaston Granger wrote *Lógica e Filosofia das Ciências*—probably the first introductory book in Portuguese on the subject. Later pioneers of the 1960s included Leônidas Hegenberg, Hugh Lacey, and Oswaldo Porchat, among others. Philosophy of science constitutes an interesting case in the context of Brazilian academia, because Brazilian philosophy has always been strongly influenced by the French tradition. The Continental influence reveals itself, for example, in the fact that most philosophy in Brazil is done from an exegetical and historical perspective. The same holds, in some measure, for philosophy of science—thus, HOPOS is a field with great appeal for Brazilian philosophers. In recent times Brazilian philosophy departments have increasingly promoted diverse philosophical styles. Within the philosophy of science the coexistence of the Anglo-American and French traditions has been basically peaceful, and people in the field (especially those pursuing more formalized, open-ended, and evolving research) have displayed a keen interest in being up-to-date with the latest developments.

The report that follows is an attempt—surely an incomplete one—to meet two goals: to give an idea of what is going on in history and/of philosophy of science in Brazil; and as an exercise in clairvoyance, to give the average HOPOI hints as to what they could find interest-

(Continued on page 8)

HOPOS-related resources in Brazil

(Continued from page 7)
ing to look for when visiting Brazil with intellectual purposes (this does not necessarily exclude having a good time visiting the Northeast and Rio beaches, the Amazon rain forest, the Pantanal, the Iguazú falls and so on...). Many people and institutions in Brazil deserve to be included in this report—our sincerest apologies to those who we may have forgotten to mention here.

For further information on Brazilian academia, see the ‘Brazil’ article in the *Encyclopedia of Higher Education*, Volume 1 (National Systems of Higher Education), 82-92 (Burton Clark and Guy Neave, editors, Pergamon Press, 1992 [Oxford, New York, Seoul, Tokyo]).

Notes on travel and contact information. Complete and up-to-date information on many Brazilian cities—including hotels, restaurants, services, transportation, shopping, addresses, visits, events, cultural life, local news—can be found at the *Virtual Cities* site of the *Terra* internet portal, at <http://www.terra.com.br/cidades>.

Telephone and fax numbers are given here in the format (area code) plus (number). When calling from a different area, one must preface these with ‘0’ (long-distance) and a two-digit operator code. When calling from within the same area, dial the number without the area code. When calling from abroad, the country code for Brazil is ‘55’. The postal code in mailing addresses is prefaced by ‘CEP’.

Academic and Scholarly Institutions.

Brasilia, DF

University of Brasilia (UnB)
Department of Philosophy,
PO Box 04661, CEP 70910-900, Brasília, DF (tel (61) 307-2727, 307-2728, 307-2758; fil@unb.br; <http://www.unb.br/ih/fil>)

The UnB Department of Philosophy has a graduate program in theory of knowledge which regularly offers core courses in the history and philosophy of science. Staff includes three professors that do research in general philosophy of science, history of science (17th, 18th and 19th centuries), philosophy of physics (Relativity Theory and Quantum Mechanics), and philosophy of biology.

São Paulo, SP

University of São Paulo (USP)

Cidade Universitária “Armando de Salles Oliveira” (University City), São Paulo, SP (<http://www.usp.br>)
Founded in 1934, this is the largest university in Brazil and the main center of excellence in many areas. The University was constituted through the joint efforts of preeminent members of the city’s economic and cultural elite, and was intended to have core strengths in its Faculty of Philosophy, Languages and Human Sciences (FFLCH—originally the Faculty of Philosophy, Sciences and Languages, FFCL). Some of its institutes, such as the School of Law, Polytechnic School (Engineering) and Faculty of Medicine already

existed independently before 1934 (the first courses in the School of Law date back to 1827). The newly founded University invited many foreign professors (many of them from France) to give courses, conduct research, and provide initial momentum. During the two first decades, illustrious visitors such as Claude Lévi-Strauss (Anthropology), Roger Bastide (Sociology), Fernand Braudel (History), Pierre Monbeig (Geography), Giuseppe Ungaretti (Literature), Felix Rawitscher (Biology), Gleb Wataghin and David Bohm (Physics), among others, taught at the University and helped implement a high-level research mentality.

The University was located downtown from its beginning until 1969; first, scattered among many buildings and later, from 1949 to 1969, with all FFCL departments sharing the building at Maria Antonia St. In 1969, amid dramatic political changes in the country, the University was thoroughly restructured and transferred to the University City, near the Pinheiros River. Today, besides the University City (where most of its 33 faculties and institutes are located), other São Paulo sites include the downtown buildings of the School of Law, the Observatory of the Astronomical Institute (located at the State Park), and the huge complex comprising the Faculty of Medicine, its associated General Hospital, the School of Public Health and the School of Nursing. In addition, the University has other self-sufficient campuses within São Paulo state, in the cities of Bauru, São Carlos, Ribeirão Preto and Piracicaba. A collectively authored

history of the University can be found in the special number of the journal *Estudos Avançados* (published by the Institute of Advanced Studies) celebrating the 60 years of the University (Volume 8, Number 22, Sept-Dec, 1994). Although the University does not have an institute dedicated to history and philosophy of science, there is much HOPOS-related activity at the Departments of Philosophy and History, the Institute of Physics, the Faculty of Education, and other institutes.

Department of Philosophy
Faculty of Philosophy, Languages and Human Sciences (FFLCH)

Av. Prof. Luciano Gualberto, 315 - Sala 1005, PO Box 8105, CEP 05508-900, São Paulo, SP (tel (11)3818-3761; filosofo@org.usp.br; <http://www.ffcch.usp.br>)
The History and Philosophy of Science Group in the USP Department of Philosophy comprises six professors (with the occasional collaboration of another three) who pursue these lines of research: (a) contemporary philosophy of science (realism and antirealism, problem-solving, scientific change, and rationality); (b) Duhem’s physics, philosophy, and historical studies; (c) history of philosophy and science in the 17th and 18th centuries; (d) history of logic and the foundations of mathematics (Frege, Wittgenstein); (e) general epistemology; (f) mathematical logic (including paraconsistent logic, nonreflexive logic, quasi-set theory, and model theory); and (g) scientific axiomatics (including set-theoretic structures, pragmatic truth, and undecidability)

(Continued on page 9)

HOPOS-related resources in Brazil

(Continued from page 8)
ity and incompleteness in scientific theories). Recent visiting professors include David Miller (Warwick), Hugh Lacey (Swarthmore), Michel Paty (REHSEIS, France), Gilles-Gaston Granger (Collège de France), Claude Comte (REHSEIS, France), and Francisco Doria (UFRJ, Rio). The HPS group publishes the journal *Ciência e Filosofia* (Science and Philosophy).

The Department has a total of 28 professors, with graduate programs at the PhD and MA level. The Department promotes colloquia and conferences, and maintains a publishing house, Discurso Editorial (<http://www.discurso.com.br>), that publishes original works and translations, the philosophy journal *Discurso*, and (together with the Université Paris 7, Denis Diderot) the international philosophy journal *Épistémologies - Philosophie, sciences, histoire*. The Department is also one of the sponsors of *Jornal de Resenhas* (The Reviews Journal), a monthly book review supplement to the major Brazilian newspaper *Folha de São Paulo*, featuring a section about new books on science and HPS.

Logic and Theory of Science Group, Institute of Advanced Studies (IEA)

Av. Prof. Luciano Gualberto, Travessa J, 374, térreo, CEP 05508-900, São Paulo, SP (tel (11)3818-3919; 3818-4442; iea@edu.usp.br; <http://www.usp.br/iea>)

Lead by logicians Newton C. da Costa and Jair M. Abe, this is one of the oldest and most active research groups at the Institute of Advanced

Studies. Major research areas include paraconsistent and non-classical logics, applications of non-classical logics to artificial intelligence and expert systems, foundations of physics and biology, undecidability and incompleteness in scientific theories. The Group promotes conferences and colloquia, and issues pre-prints on a regular basis. Foreign guests are frequently invited for conferences and roundtable discussions.



Newton da Costa,
father of paraconsistent logic

Interinstitute Center for the History of Science
PO Box 8105, CEP 05508-900, São Paulo, SP (tel (11) 3818-3776; chciencia@edu.usp.br)

The Centro Interunidades de História da Ciência (CHC)—directed by the historian of science Shozo Motoyama—was founded in 1988 as an initiative of professors from the USP History department. Currently, the CHC also gathers researchers from other institutes of the University. Major lines of research include social history of Brazilian science, technology, industrialization, and devel-

opment in Brazil, history of techniques and technology in Brazil, Brazilian scientific institutions, and history of modern physics.

Institute of Physics

Rua Do Matão, Travessa R, 187, Cidade Universitária, CEP 05508-900, São Paulo, SP (tel (11) 3818-6900; if@edu.usp.br; <http://www.if.usp.br>)

The Institute of Physics, which started its activities in the Thirties (as a Department of the Faculty of Sciences and Languages) thanks to the vision of Gleb Wataghin, is now one of the leading scientific institutions in Brazil. The emphasis on history and philosophy of science is stronger in the work of the Physics Teaching Group and its graduate students, but there

are also people working on foundational issues, especially in quantum mechanics, statistical mechanics and thermodynamics. Mario Schenberg, widely regarded as Brazil's greatest theoretical physicist, studied and later taught at the Institute, as did many other distinguished physicists. The Institute's experimental research facilities include a linear accelerator, a Pelletron electrostatic accelerator, two plasma Tokamaks (one still under construction), and large laboratories for condensed matter physics.

Pontifícia Universidade Católica de São Paulo (PUC-SP)

Graduate Program in the History of Science

Rua Marquês de Paranaguá, 111 - Prédio I - Sala 2, CEP 01303-050, São Paulo, SP (tel (11)256-1622 ext. 211; cesimahc@pucsp.br; <http://cogeae.pucsp.br/pos/mestre/>

[hcs.html](#))

This graduate program is the first in Brazil entirely dedicated to the history of science. Scholars from the PUC-SP and other Brazilian universities occasionally contribute to its activities. Researchers pursue programs in history, science, and culture, and in history and theory of science.

Simão Mathias Center for the Study of the History of Science (CESIMA)

Rua Marquês de Paranaguá, 111 - Prédio I - Sala 2, CEP 01303-050, São Paulo, SP (tel (11)256-1622 ext. 211; cesimahc@pucsp.br)

Founded in 1994, CESIMA is affiliated with the PUC-SP graduate program in the history of science. Undergraduates, graduate students, and researchers from various institutions pursue interdisciplinary studies of the history of science in seminars, courses, and other forums. In 1995, with the support of the São Paulo State Research Support Foundation (FAPESP), the CESIMA developed a Sector of Multimedia Documentation, together with a method for digitizing original resource materials. The CESIMA is currently enlarging its virtual library of resources in history of science and intensifying its scholarly exchange with research centers in Brazil and abroad.

The Simão Mathias Center bears the name of a distinguished Brazilian chemist and historian of science. Mathias graduated in the very first class (1937) from the just-established Chemistry Department of the Faculty of Sciences and Languages at USP, and was the first PhD from the FFCL. He built the first laboratory of physical

(Continued on page 10)

HOPOS-related resources in Brazil

(Continued from page 9)

chemistry, was later head of the Department, then founded and directed in the Institute of Chemistry, and was instrumental in bringing the field of liquid crystal research to the Institute. For many years he was editor of a scientific journal, *Selecta Chimica*.

Always interested in the history of his discipline, in 1974 he went to the Department of History, participated in the Center for History of Science, and was a founding member of the SBHC. Prof. Mathias also took an active part in the consolidation of SBPC and its transformation into a forum for the defense of democracy and civil liberties in Brazil in the Seventies.

Campinas, SP

[State University of Campinas \(Unicamp\)](#)

Center for Logic, Epistemology and the History of Science (CLEHC)

PO Box 6133, CEP 13083-970, Campinas, SP (tel (19) 289-7374; logica@cle.unicamp.br;

<http://www.unicamp.br/cle/clehc.html>)

The Center for Logic, Epistemology and the History of Science (CLEHC, or simply, 'CLE') of the State University of Campinas (Unicamp) was founded in 1976 by Oswaldo Porchat, and officially opened in 1977. The Center was conceived with the aim of promoting research in the fields of logic, epistemology, and the history of science, and work of an interdisciplinary nature. The Center maintains several research projects in logic, self-organizing systems, and epistemology of the natural and formal sciences.

Its members (currently over

one hundred) include researchers from many different departments of the Unicamp, and from numerous other universities. CLE has always maintained active academic exchanges with researchers and institutions elsewhere in Brazil and abroad. Some of the people that were either professors or short-term visiting research fellows at CLE over the past decades include: Steven French, Michel Ghins, Harvey Brown, Carlos-Ulises Moulines, Marcelo Dascal (who was editor of the journal *Manuscrito* for many years), Gilles-Gaston Granger, Maurice Clavelin, Gottfried Gabriel, Michel Paty, Francis Wolff, Gerard Lebrun, and Maurice Debrun.

The Center organizes seminars and scientific conferences and other research activities, and provides administrative support for interdisciplinary post-graduate courses. The Center's library holds an important collection of books, periodicals, and other documents.

The Center publishes two journals of international circulation, *Manuscrito: Revista Internacional de Filosofia* (in Portuguese, Spanish, French and English), since 1977, and *Cadernos de História e Filosofia da Ciência*, since 1980. A third journal, *The Journal of Non-Classical Logic*, was founded in 1982 and published until 1991.

This was the first international journal devoted to non-classical logics, and in 1992 its publication was taken over by the publishing house Hermès (Paris), under the title *The Journal of Applied Non-Classical Logic*.

The imprint *Coleção CLE* founded in 1987 is a book

series consisting of original works primarily, though not exclusively, aimed at a Latin American readers of logic, philosophy of language, epistemology, and the history and philosophy of science.

Coleção CLE publishes, on average, two titles a year. Besides its research activities, CLE is also the host institution of the ANPOF (National Association of Graduate Programs in Philosophy—see below) and SBL (the Brazilian Logic Society).

History and Theory of Science Group,
Department of Cosmic Rays and Chronology

PO Box 6059, CEP 13081-970, Campinas, SP

(ghtc@ifi.unicamp.br; <http://www.ifi.unicamp.br/~ghtc>)

This group was created in 1991 at the Unicamp Department of Cosmic Rays and Chronology, a division of the Gleb Wataghin Physics Institute. Research activities include foundations, methodology, and history of physical and biological sciences, and history of Brazilian and Portuguese science, medicine, and technology.

The Physics Institute bears the name of the Russian-Italian physicist who played a fundamental role in establishing physics in Brazil. Wataghin organized the Department (later Institute) of Physics at USP from the ground up and later taught at Unicamp. Many distinguished Brazilian physicists were his students.

Department of Science and Technology Policy (DPCT),
Institute of Earth Sciences

PO Box 6152, CEP 13083-970, Campinas, SP (tel (19) 3788-4555, 3289-1097; dpct@ige.unicamp.br; [\[www.ige.unicamp.br/deptos/dpct/depto_dpct.htm\]\(http://www.ige.unicamp.br/deptos/dpct/depto_dpct.htm\)\)](http://</p>
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This department emphasizes research on scientific and technological innovation and development. The department is dedicated to analyzing innovation, generation, and diffusion of science and technology, evaluating its implications in developing countries, and elaborating strategies and mechanisms targeted at scientific and technological development.

Rio de Janeiro, RJ

[State University of Rio de Janeiro \(UERJ\)](#)

Department of Philosophy, Institute of Philosophy and Human Sciences (IFCH)

Rua São Francisco Xavier, 524 - 9º Andar - Sala 9027 - Bloco B, CEP 20550-013, Rio de Janeiro, RJ (tel (21) 587-7232 / 587-7746;

pgfil@uerj.br; <http://www2.uerj.br/~fil>)

This group of UERJ philosophy department is composed of four professors who focus on philosophy of science, history and foundations of physics, French epistemology, and studies of Boyle, Descartes, Bachelard, Foucault and Boltzmann. The Department has a total of 23 professors, and students at the PhD, MA, and undergraduate level. There is also an undergraduate research program. The Department promotes colloquia and conferences.

[Federal University of Rio de Janeiro \(UFRJ\)](#)

Graduate Program in the History of Science and Engineering and Epistemology, Graduate School and Research in Engineering (SCOPPE)

Technology Center, Bl. G,

(Continued on page 11)

HOPOS-related resources in Brazil

(Continued from page 10)
room 101, Fundão Island, PO Box 68513, CEP 21945-970, Rio de Janeiro, RJ (tel (21) 590-5036 / 590-5489; diretoria@coppe.ufrj.br; http://www.coppe.ufrj.br/posgraduacao/historia_das_ciencias; COPPE homepage: <http://www.coppe.ufrj.br>)
This interdisciplinary group is devoted to research and teaching regarding history and philosophy of science and the cognitive sciences. These lines of research have a long tradition in COPPE, which over the last two decades has produced a great output of courses, seminars, conferences, papers, books, and theses. Areas of research include foundations and conceptual history of physics, computing and epistemology, STS, history of Brazilian science, and diffusion of science and technology.

The Oswaldo Cruz Institute Foundation (FIOCRUZ)
Casa de Oswaldo Cruz—Prédio do Relógio, Av. Brasil, 4365, CEP 21045-900, Rio de Janeiro, RJ (tel (21) 280-9241; coc@fiocruz.br; <http://www.fiocruz.br/coc>)
Founded in 1986, the Casa Oswaldo Cruz conducts research in history, sociology and philosophy of science and public health, and as activities in museology, documentation, teaching, popular science education, and other cultural projects. It publishes the journal *História, Ciências, Saúde - Manguinhos* (<http://www.fiocruz.br/hscience>), dedicated to history of health sciences and science in general.
The Oswaldo Cruz Foundation (which originated from the Manguinhos Institute)

bears the name of one of the most important Brazilian scientists in medicine and life sciences. Cruz (1872-1917) was responsible for the eradication of bubonic plague, yellow fever and smallpox in Rio at the beginning of the century, despite widespread public resistance against his methods. Together with Vital Brazil, Carlos Chagas, Emilio Ribas and Adolfo Lutz, he forms the first generation of modern Brazilian pioneers in epidemiology, microbiology, and public health.

Salvador, BA

Federal University of Bahia (UFBA) and State University of Feira de Santana (UEFS)
Graduate Program in History, Philosophy and Science Teaching, Science and Education Program (PICE)
Institute of Physics, Campus Universitário de Ondina, CEP 40210-340, Salvador, BA (tel (71)247-2033; pice@fis.ufba.br; <http://www.fis.ufba.br>)

This graduate program (at the MA level) in history, philosophy, and science teaching was recently created in the Bahia state. Two universities—the Federal University of Bahia (UFBA) [the headquarters] and the State University of Feira de Santana (UEFS)—are responsible for this program, which is called *Interdisciplinary Studies in Science and Education*. The program aims to analyze the production, diffusion, and teaching of science. The program sponsors research and dissertations on historical and epistemological aspects of the sciences with implications for science teaching. Research lines include his-

torical studies of concepts and theories of modern science, from social and epistemological perspectives; investigations of experimental and theoretical science teaching and their influence on student conceptions of scientific concepts; and philosophy of science, as is relevant to science teaching. Investigations also focus on contemporary critiques, authors such as Popper, Kuhn, Lakatos, Bachelard, Peirce, and Wittgenstein, and the relation between philosophy and history of science.



Cesar M. G. Lattes, physicist, codiscoverer of the pi meson (1947).

Londrina, PR

State University of Londrina (UEL)
Lato Sensu Graduate Program in History and Philosophy of Science
Universidade Estadual de Londrina, Departamento de Filosofia – CCH, PO Box 6001, CEP 86051-990, Londrina, PR (tel (43)371-4486; filhfc@uel.br; <http://www.uel.br/cch/pos/filhfc>)
Since 1988, the State University of Londrina (UEL) has offered an interdepartmental *lato sensu* ('broad sense') graduate degree in history and philosophy of science, which gives students a preliminary graduate-level training in preparation for their next level of studies. Students have undergraduate educations in areas such as

philosophy, history, biology, and the arts. The faculty comprises researchers in history of science, philosophy of science, mathematical logic, formal semantics, generative grammar, and science education.

Florianópolis, SC

Federal University of Santa Catarina (UFSC)
Logic and Epistemology Research Group (NEL)
PO Box 476, CEP 88010-970, Florianópolis, SC (tel (48)331-8808; nel@cfh.ufsc.br; <http://www.cfh.ufsc.br/~nel>)

The NEL group was created in 1996. NEL promotes cooperation between research groups in logic, theory of knowledge, philosophy of science, history of science, and related subjects, at the UFSC and elsewhere. Since 1997, NEL has published *Principia—An International Journal of Epistemology*, in partnership with the UFSC University Press. *Principia* accepts submissions in English, Spanish, French, and Portuguese, about topics in epistemology and related subjects. NEL's editorial service also publishes (since 1999) the book series *Rumos da Epistemologia*, devoted to longer texts on epistemology and philosophy of science. A new series, *Sképsis*, is being prepared with the Skepticism research group of ANPOF. *Sképsis*' first issue will be published in 2001, in paper and electronic formats. NEL regularly promotes conferences and lectures. In 1999 the First Principia International Symposium was held in Florianópolis. The second symposium in that series will take place in Au-

(Continued on page 12)

HOPOS-related resources in Brazil

(Continued from page 11)
gust 6–10, 2001, on the works of Bertrand Russell.

Porto Alegre, RS

Federal University of Rio Grande do Sul (UFRGS)
Philosophy and History of Sciences Interdisciplinary Group (GIFHC), Latin American Institute for Advanced Studies (ILEA)
Universidade Federal do Rio Grande do Sul - Campus do Vale, ILEA, Prédio 43322, sala 104, Av. Bento Gonçalves, 9500, CEP 91509-900, Porto Alegre, RS (tel (51)316-6941, 316-6945; gifhc@ilea.ufrgs.br; <http://www.ilea.ufrgs.br/gifhc>)

This group comprises researchers from scientific and philosophical fields and other related areas. It started its activities in 1993, and since 1996 has been affiliated with the Latin American Institute of Advanced Studies. The group pursues research on philosophy and history of science through special projects, discussions, courses, and meetings. Meetings take place every fortnight for planning, discussions, and evaluations of projects. The group publishes the journal *Episteme: Filosofia e História das Ciências e Revista* (<http://www.ilea.ufrgs.br/episteme/index.html>). On the GIFHC website, one may find the list of members, the group's objectives and activities, annual reports, and abstracts from *Episteme*.

Scientific Societies.

The following Brazilian scientific societies are dedicated to the promotion of HOPOS-related research—or have a wide enough scope to include

such research among their activities.

Associação Nacional de Pós-Graduação em Filosofia - ANPOF (National Association of Graduate Programs in Philosophy)
PO Box 6133, CEP 13083-970, Campinas, SP (tel (19) 788-8532; anpof@that.com.br; <http://www.that.com.br/anpof/index.htm>)

ANPOF brings together graduate programs in philosophy from Brazilian universities, and represents such programs before the government institutions responsible for policy-making, assessment, and funding of graduate studies in Brazil. The Association promotes a biennial congress that assembles Brazilian researchers in philosophy (and foreign guests). The most recent congress took place in Poços de Caldas, MG (October 2000), with 700 participants. On that occasion, the philosophy of science working group had 30 contributed papers. The Association publishes a quarterly newsletter that features activities, events, and publications of affiliated programs.

Sociedade Brasileira de Física - SBF (Brazilian Physical Society)
Rua do Matão, travessa R, 187, Edifício Sede, PO Box 66328, CEP 05315-970, Cidade Universitária, São Paulo, SP (tel (11)3816-4132 / 3816-2063 / 3818-6922 / 814-7358; <http://www.sbf.if.usp.br>)

The SPF publishes the *Brazilian Journal of Physics*, *Revista Brasileira de Ensino de Física* (Brazilian Journal of Physics Teaching), and *Revista de Física Aplicada e*

Instrumentação (Journal of Applied Physics and Instrumentation), and promotes congresses and summer institutes.

Sociedade Brasileira de História da Ciência - SBHC (Brazilian Society of History of Science)
For information, contact Ana Maria Ribeiro de Andrade (Museum of Astronomy and Related Sciences), President (amra@omega.lncc.br).

Sociedade Brasileira de História da Matemática - SBHMat (Brazilian Society of History of Mathematics)
PO Box 68, CEP 13500-970, Rio Claro, SP (sbhm@rc.unesp.br)

The *Sociedade Brasileira de História da Matemática* (SBHMat) was founded in 1999 with 80 charter members. The Society promotes research and scholarship in the history of mathematics, with special emphasis on the history of mathematics in Brazil, and supports teaching the history of mathematics at all levels of schooling. Besides regional meetings and seminars, the Society organizes a biennial national meeting with considerable foreign participation. The next meeting, the *IV Seminário Nacional de História da Matemática* (IV SNHM) will take place in Natal, RN, on April 8-11, 2001. The Society publishes several serials, including a research journal (*Revista Brasileira de História da Matemática*), a newsletter (*Boletim Informativo da SBHMat*), and—in preparation—a journal devoted to teaching the history of mathematics and a monograph series.

Sociedade Brasileira para o Progresso da Ciência - SBPC

(*Brazilian Society for the Advancement of Science*) (<http://www.sbpnet.org.br/>)
Founded in 1948, this is the largest and most important scientific society in Brazil. The SBPC has a long history in the defense of democracy, civil liberties, the social responsibility of scientists, sustainable development, and university autonomy. It promotes large annual congresses (each year in a different Brazilian state) and publishes the journals *Ciência e Cultura* (Science and Culture) and *Ciência Hoje* (Science Today), which are similar in level and scope, respectively, to *Science* and *Scientific American*.

For further information on Brazilian scientific societies, consult the following website, which maintains online directories of scientific associations:
SBPC: <http://www.sbpnet.org.br/>

Museums.

Casa da Ciência (The Science House)
R. Lauro Müller, 3, CEP 22290-160, Rio de Janeiro, RJ (tel (21)542-7494; ccien@cciencia.ufrj.br; <http://www.cciencia.ufrj.br>)
Installed in a restored old house, this center aims at public awareness of the dynamics of science, its discoveries, inventions, and historical transformations. It promotes interactive thematic exhibitions, performing arts events, meetings, and other activities. A research center focuses on development of techniques and media suitable for popularizing science. The website features a directory of institutions dedicated to popular science education

(Continued on page 13)

HOPOS-related resources in Brazil

(Continued from page 12)
in Brazil and abroad.

Estação Ciência (The Science Station)

R. Guaicurus, 1274. CEP 05033-002, São Paulo, SP (tel (11)3673-7022; info@eciencia.usp.br; <http://www.eciencia.usp.br>)

This center of popular science education, situated in the restored building of a former textile industry, is owned by the University of São Paulo and sponsored by the CNPq. The permanent collection features interactive demonstration experiments related to science, technology, and information and computer science; there are temporary exhibitions as well. The Science Station develops educational software, conducts courses for science teachers and the general public, seminars and congresses on popular science education, and scientific video and film exhibits. The website features an interactive ‘virtual laboratory’.

Instituto de Estudos Brasileiros (Institute for Brazilian Studies)

University of São Paulo, SP. This institute has a large collection of original documents related to the history of São Paulo cultural life and houses the complete personal archives of the Brazilian intellectual Mario de Andrade, among other valuable collections.

Museu de Anatomia Veterinária (Veterinary Anatomy Museum)

Rua Prof. Lúcio Martins Rodrigues, Travessa 4, bloco 7, Cidade Universitária, University of São Paulo, SP (<http://www.usp.br/fmvz/>)

museu.htm)

Museu de Arqueologia e Et-nologia (Archaeology and Ethnology Museum)

Av. Professor Almeida Prado, 1466, Cidade Universitária, CEP 05508 – 900, University of São Paulo, SP (<http://www.mae.usp.br>)

Museu de Astronomia e Ciências Afins - MAST (Museum of Astronomy and Related Sciences)

Rua General Bruce, 586, São Cristóvão, RJ (tel (21)589-4965; <http://pub2.lncc.br/mast/>; mast@omega.lncc.br)

This research institution (under the umbrella of the Federal Ministry of Science and Technology (MCT)) also houses a museum that is open to the general public. Research is conducted in museology, science education in informal contexts, history and sociology of science, and the social sciences of astronomy. MAST also sponsors initiatives to document the history of science in Brazil: the History of Science Archive, which houses 17 archives and three collections, including some fifteen thousand documents (texts, charts, photographs, and recordings), the Brazilian Bibliography in History of Science, and various databases. The Library holds 7,000 volumes on history of science and popular scientific education. The Museum’s website makes available papers in the history of Brazilian science written by researchers who have benefited from the History of Science Archive. An educational program includes courses, seminars, workshops, and reproduction of experiments in the Science Park and Laboratories.

Museu de Ciências e Tecnologia da PUC-RS (Sciences and Technology Museum)

Av. Ipiranga, 6681, Prédio 40, Porto Alegre, RS (<http://www.mct.pucrs.br/mct/index.html>; mct@pucrs.br)

Museu de Ciência e Técnica da Escola de Minas

Ouro Preto, MG (<http://www.em.ufop.br/museus.htm>)

Museu de Geociências (Earth Sciences Museum)

Instituto de Geociências, Rua do Lago, 562 - 1º andar, Cidade Universitária, University of São Paulo, SP (mugeo@edu.usp.br; <http://www.igc.usp.br/html/museu.html>)

Museu de Zoologia (Zoology Museum)

Av. Nazaré 481, Bairro do Ipiranga, CEP 04263-000, São Paulo, SP (<http://www.mz.usp.br>)

Museu do Instituto Biológico (Museum of the Biological Institute)

Av. Conselheiro Rodrigues Alves, 1252. São Paulo, SP.

Museu do Computador (The Computer Museum)

São Paulo, SP (<http://www.museudocomputador.com.br>) This museum features a large collection of vintage computers and related equipment.

Museu Geológico do Estado (State Museum of Geology)

Av. Francisco Matarazzo, 455. Parque Ibirapuera, São Paulo, SP.

Museu Histórico do Instituto Butantan (Historical Museum of the Butantan Institute)

Av. Dr. Vital Brasil, 1500,

Butantã, CEP 05503-900, University of São Paulo, SP (instbut@uol.com.br)

Museu Nacional da UFRJ (National Museum of the Federal University of Rio de Janeiro)

Parque Quinta da Boa Vista, Rio de Janeiro, RJ (museu@acd.ufrj.br; <http://acd.ufrj.br/museu>)

Museu Paraense Emílio Goeldi (Pará State Emílio Goeldi Museum)

Belém, PA (<http://www.museu-goeldi.br>) This museum is dedicated to scientific research, management of scientific resources and promotion of public awareness about natural and socioeconomic systems related to the Amazon region.

Planetário Municipal (São Paulo City Planetarium)

Av. Pedro Álvares Cabral, 10, CEP 04094-050, São Paulo, SP (<http://www.planetario-sp.com.br>) Located at the Parque Ibirapuera, this planetarium offers regular shows and introductory courses in astronomy, and features a collection of old scientific instruments and demonstration experiments.

Publishers.

The presence of original Brazilian work on history and philosophy of science in Brazilian bookstores is still modest, with most titles in print being translations from foreign languages. These publishing houses have (or had) many relevant items in their catalogues. The first one listed, moreover, is particularly concerned with the publication of original works by Brazilian authors.

(Continued on page 14)

HOPOS-related resources in Brazil

(Continued from page 13)

Center for Logic, Epistemology, and the History of Science

PO Box 6133, CEP 13083-970, Campinas, SP (tel (19) 289-7374; logica@cle.unicamp.br; <http://www.unicamp.br/cle/clehc.html>)

Since 1987 this center has published the book series *Coleção CLE*, which consists of original works in logic, philosophy of language, epistemology, and the history and philosophy of science.

Discurso Editorial

University of São Paulo, SP (<http://www.discurso.com.br>)

Publications include works by Hugh Lacey, Newton da Costa, and the journal *Discurso* (in Portuguese). Together with the Université Paris 7 (Denis Diderot), it also publishes the journal *Épistémologiques - Philosophie, sciences, histoire* (in French and English).

Editora Contraponto

(<http://www.contrapontoeditora.com.br>)

Translations published include Darwin, Einstein, Bohr, Poincaré, Heisenberg, Bachelard, and Gaukroger.

Editora Cultrix

Rua Dr. Mário Vicente, 374, São Paulo, SP (tel (11)272-1399; pensamento@cultrix.com.br; <http://www.cultrix.com.br>)

Translations published include Popper, Lakatos & Musgrave, and Bohm.

Editora Perspectiva

Av. Brigadeiro Luís Antonio, 3025/3035, CEP 01401-000, São Paulo, SP (tel (11)3885-8388; perspect@netpoint.com.br; <http://www.EDITORAPERSPECTIVA.COM.BR>)

[EDITORAPERSPECTIVA.COM.BR](http://www.EDITORAPERSPECTIVA.COM.BR))

Translations published include works of Thomas Kuhn, Gilles-Gaston Granger, Hugh Lacey, Mario Bunge, Abraham Moles, Nagel & Newman, and Feyereabend. Since the late 1960s, *Perspectiva* has published the two most traditional book series of interest to the humanities community in Brazil, *Debates* (over 270 titles) and *Estudos* (over 160 titles).

Editora Rocco

Rua Rodrigo Silva, 26 - 5º andar, CEP 20011-040, Rio de Janeiro, RJ, (tel (21)507-2000; rocco@rocco.com.br; <http://www.rocco.com.br>)

Translations published in the 'Ciência Atual' series include popular science and mathematics writings of Gelernter, Barrow, Hawking, Gell-Mann, Dawkins, and Weinberg.

Editora da UNESP (São Paulo State University Press)

Praça da Sé, 108, CEP 01001-900, São Paulo, SP (tel (11)232-7171; <http://www.editora.unesp.br>)

This major university press has published translations of works in physics (David Ruelle, Ilya Prigogine, Roger Penrose), HPS (Gilles-Gaston Granger, Bruno Latour, Paolo Rossi, Paolo Casini, Anthony O'Hear, Feyereabend), and philosophy (Hume, Norberto Bobbio, Cassirer, an abridged edition of the *Encyclopédie*). Editora da UNESP has an editorial agreement with Cambridge University Press.

Editora da UNICAMP (State University of Campinas Press)

Rua Caio Graco Prado, 50,

PO Box 6074, CEP 13083-970, Campinas, SP (tel (19) 788-1097; editora@unicamp.br; <http://www.editora.unicamp.br>)

This major university press has published translations of Voltaire, Rousseau, D'Alembert, Diderot, Condorcet, Condillac, Hume, Cassirer, Weber, and Émile Benveniste—and many other titles in history of ideas and history of philosophy.

Editora da USP (University of São Paulo Press)

University of São Paulo, SP (<http://www.usp.br/edusp>)

This major university press has published many original works in Portuguese by USP scholars and translations of classical works in physics (Newton) and philosophy (Wittgenstein, Hegel), and HPS (Michel Paty, C. P. Snow, H. Weyl).

Livraria da Física (The Physics Bookstore)

University of São Paulo, SP (livifusp@if.usp.br; <http://www.livifusp.com.br>)

This new publishing house, associated with the bookstore at the Institute of Physics, is the successor to Nova Stella Editorial. In 2000 Livraria da Física began publishing the four volumes of *Fundamentos da Física*, including papers on the foundations of physics and proceedings of the *David Bohm Symposium*.

Nova Stella Editorial

This publishing house produced translations of classic works in astronomy and physics (including Galileo, Newton, Copernicus, Johannes de Sacrobosco). From 1987 to 1990, Nova Stella Editorial published the international journal *Fundamenta Scientiae* (formerly at Pergamon), featuring papers in

French and English. Nova Stella was founded by the Institute of Physics at the University of São Paulo, and is now closed.



Mario Schenberg (1914-1990), theoretical physicist and art critic.

Papirus Editora

R. Dr. Gabriel Penteado, 253, PO Box 736, CEP 13001-970, Campinas, SP (tel (19)272-4500; editora@papirus.com.br; <http://www.papirus.com.br>)

This publisher's catalogue includes translations and original Brazilian works in history and philosophy of science (Redhead, Ziman, Hawking & Penrose, Paulo Abrantes) and psychoanalysis.

For further information on Brazilian publishers, go to:

- *Câmara Brasileira do Livro (Brazilian Book Chamber)*, Rio de Janeiro, RJ (<http://www.cbl.org.br>)
- *Editoras.com* (<http://www.editoras.com>)
- Associação Brasileira de Editoras Universitárias - ABEU (Brazilian Association of University Presses) (<http://www.abeu.org.br>; abeu@abeu.org.br)

Bookstores.

Some of the bookstores in

(Continued on page 15)

HOPOS-related resources in Brazil

(Continued from page 14)

São Paulo where HOPOS-related books can be either found or ordered include:

Livraria Cultura
(livros@livrariacultura.com.br;
<http://www.livcultura.com.br/>)

- Av. Paulista, 2073 - Conjunto Nacional, CEP 01311-940, São Paulo, SP (tel (11)285-4033)
- Av. Nações Unidas, 4777 - Shopping Villa Lobos, São Paulo, SP (tel (11)3024-3599)

Livraria Triângulo
Rua Barão de Itapetininga, 255 - Loja 23/24, PO Box 2098, CEP 01055-900, São Paulo, SP (tel (11)231-0922 / 231-0362; triangulo@livrariatriangulo.com.br;
<http://www.livrariatriangulo.com.br/>)

Livraria Belas Artes
Av. Paulista, 2448, CEP 01310-300, São Paulo, SP (tel (11)256-8316 / 231-5764; belasartes@belasartes.com.br;
<http://www.belasartes.com.br/>)

Traditionally has a good choice of titles in the history and philosophy of science.

Livraria da Física
Rua do Matão, 187 - University of São Paulo, CEP 05508-090, São Paulo, SP (tel (11)3815-8688; livif@fusp.br;
<http://www.livifusp.com.br/>)
Outstanding for books on physics and its history and foundations.

Livraria Francesa
(franliv@livrariafrancesa.com.br;
<http://www.livrariafrancesa.com.br/>)
• R. Barão de Itapetininga,

275, CEP 01042-914, São Paulo, SP (tel (11)231-4555

- R. Prof. Atílio Innocenti, 920, CEP 04538-001, São Paulo, SP (tel (11)3849-7956)

The best place to find all sorts of books in French.

FNAC
(dve@fnac.com.br; <http://www.fnac.com.br/>)

- Av. Pedroso de Moraes, 858 - Pinheiros, São Paulo, SP (tel (11)3097-0022)
- Rua Domingos Agostin, s/nº - térreo (Shopping Metrô Tatuapé), São Paulo, SP (tel (11)6192-9400)

Electronic Resources.

Filosofia & Filosofia da Educação (<http://www.filosofia.pro.br/>). A journal focusing on philosophy of education, analytic philosophy, and pragmatism.

Santista Prize (prestigious scientific and cultural prize in Brazil) (<http://www.santista.com.br/fundacao/premio/inframe.htm>). Biographical sketches of many Brazilian scientists and intellectuals.

Instituto Brasileiro de Informação em Ciência e Tecnologia - IBICT (Brazilian Institute for Information in Science and Technology) Brasília, DF (<http://torio.ibict.br/socied/index.htm>)

Programa de Informação e Comunicação para a Pesquisa - PROSSIGA (Program of Information and Communication for Research) Brasília, DF (<http://www.prossiga.cnpq.br/>)

Sistema Integrado de Bibliotecas da Universidade de São Paulo - SIBI (University of São Paulo Integrated Library System) (<http://www.usp.br/sibi>). Includes full online catalogue of all libraries in the University, which collectively constitute the most complete and up-to-date library system in Brazil.

Research Funding Agencies.

Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq (National Council for Scientific and Technological Development) (<http://www.cnpq.br>)

The main research funding agency in Brazil is an arm of the Federal Ministry of Science and Technology (MCT).

Fundação de Amparo à Pesquisa do Estado de São Paulo - FAPESP (São Paulo State Research Support Foundation)

Rua Pio XI, 1500 - Alto da Lapa, CEP 05468-901, São Paulo, SP (tel (11)3838-4000; info@fapesp.br; <http://www.fapesp.br>)

The São Paulo State government funding agency sponsors the Brazilian Genome Project and the ONSA (Organization for Nucleotide Sequencing and Analysis) research network (<http://watson.fapesp.br/onsa/Genoma3.htm>), as well as the Virtual Biodiversity Institute (BIOTA-SP), which is cataloguing the biodiversity of São Paulo State, charting its economic potential, and defining mechanisms for preservation and sustainable use (<http://www.biotasp.org.br>; biota@trieste.fapesp.br). FAPESP was also responsible for early internet initiatives in Brazil. Currently, it

maintains the Academic Network in São Paulo (ANSP), which connects universities and research institutions throughout the State and constitutes an important part of Brazil's internet infrastructure.

Coordenação de Aperfeiçoamento de Pessoal do Ensino Superior - CAPES (<http://www.capes.gov.br>)

This agency of the Federal Ministry of Education (MEC) assists the Ministry in formulating national policy for graduate studies, and promotes training and improvement of university personnel for teaching and research. CAPES maintains a permanent system of evaluation and assessment of graduate programs in Brazil.

Financiadora de Estudos e Projetos - FINEP (<http://www.finep.gov.br>)

This agency of the Brazilian Federal government, constituted in 1967, supports technological development and innovation, from basic laboratory research to commercial processing. It also supports R&D infrastructure.

Suggested Readings on the History of Brazilian Science and Philosophy.

Arantes, Paulo Eduardo. *Um departamento francês de ultramar: estudos sobre a formação da cultura filosófica uspiana: uma experiência nos anos 60* (A French overseas department: studies on the making of the USP philosophical culture: an experience in the Sixties). São Paulo, SP: Paz e Terra, 1994.

Azevedo, Fernando de (ed). *As ciências no Brasil* (The sciences in Brazil). 2 vol-

HOPOS-related resources in Brazil

umes, 2nd edn. Rio: Editora da UFRJ, 1994 (originally published in 1956).

Fernandes, Ana Maria. A construção da ciência no Brasil e a SBPC (The construction of science in Brazil and the SBPC). Brasília, DF: Editora da UnB, 1990.

Ferri, Mário Guimarães, and Shozo Motoyama (eds). História das ciências no Brasil (History of sciences in Brazil). 3 volumes. São Paulo, SP: EPU/EDUSP, 1979-1981.

Hamburger, Amélia I. *et al* (eds). A ciência nas relações Brasil-França (1850-1950) (Science in the Brazil-France relationship, 1850-1950). São Paulo, SP: EDUSP/FAPESP, 1996.

Schwartzman, Simon. Science and Higher Education in Brazil: An Historical View, 1979. Available online at <http://www.10minutos.com.br/simon/wwcenter.htm>.

Vargas, Milton (ed). História da técnica e da tecnologia no Brasil (History of engineering and technology in Brazil). São Paulo: Editora da

UNESP/CEETEPS, 1995.

Various Authors (Team of the *Centro Interunidades de História da Ciência da USP*). 500 anos de ciência e tecnologia no Brasil (500 years of science and technology in Brazil). In: Pesquisa FAPESP, special issue, no.52, April, 2000. Available online at <http://www.fapesp.br>.

Various Authors. 60 anos de USP: Ciências Básicas e Humanidades. Origens e linhas de pesquisa, perfis de mestres. In: Estudos Avançados, special double issue, vol.8, no.22, Sept-Dec, 1994. São Paulo, SP: IEA-USP, 1994.

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Book Reviews

Logic, Logic, and Logic

George Boolos. *IX + 443pp. Cambridge, MA: Harvard University Press 1998. \$22.95 (paperback).*

Mathematics is a science. Therefore, philosophy of mathematics is philosophy of a science. Investigations into the foundations of

mathematics are a part of the philosophy of mathematics. Studies about earlier investigations into the foundations of mathematics

are a part of the history of the philosophy of a science, and hence are relevant to HOPOS. Some of the articles in this posthumously published collection of articles by George Boolos are expository and critical remarks on Gödel, Russell, and especially Frege, and so this volume is likely of interest to some HOPOI.

Although some articles require great familiarity with symbolic logic, many of them, especially the ones dealing with historical figures, require little more than familiarity with standard quantificational symbolism or, at most, second-order quantification over *predicate* variables as well as individual variables. As far as logical notation is concerned, I was pleased to find that Boolos prefers the simpler ‘ $\forall x$ ’ to ‘ (x) ’ and ‘ $\exists x$ ’ to ‘ $(\exists x)$ ’.

The book is divided into three sections. Eight articles make up the first section, ‘Studies on Set Theory and the Nature of Logic’, of which only two are directly related to philosophical issues. Chapter 2 is a response to Charles Parsons on “Sets and classes,” where Boolos outlines his objections to Parsons’ view that the “language of set theory is systematically ambiguous.” Chapter 7 is an introductory note to the Gibbs lecture given by Kurt Gödel in 1951, and was first published in Gödel’s Collected Works in 1955.

The second section is entitled ‘Frege Studies’ and contains thirteen articles, all of which carry some interest for HOPOI interested in

Frege’s contributions to the foundations of mathematics. Yes, Frege made a mistake, yet he also made significant contributions to our understanding of the structure of mathematics. Boolos tries to show that “The principles Frege *employs* in the *foundations* are consistent. Arithmetic can be developed on their basis...the major part of what he was trying to do—develop arithmetic on the basis of consistent, fundamental, and simple principles concerning objects, concepts, and extensions—can be done, in the way he indicated.” (p. 199)

Notice, however, that Frege himself was not aware of his accomplishment. Neither was Russell. Indeed, no one until very recently appreciated Frege’s positive achievement. And so it is *not* a part of the history of the philosophy of mathematics. Frege’s achievement as such played no historical role. Frege’s writings and his anti-Kantian ap-



proach of course were influential, but not the achievement that Boolos discusses. This phenomenon should be distinguished from other

(Continued on page 17)

Review of *Boolos*

non-historically-relevant cases, such as Leonardo who did not publish his discoveries, or Mendel who thought he had discovered something important but no one could fit it into the science of the time.

Richard Dedekind

In these articles, *Boolos* shows how Frege built on Dedekind's earlier work, and how Russell tried to avoid Frege's error. Chapter 15 also considers how Frege's work differed from Peirce's work on foundations, especially the concept of "ancestral." In other chapters, *Boolos* comments on some of the work of Michael Dummett and Hilary Putnam, trying here to get the philosophical issues straight rather than historical issues.

The final section, 'Various Logical Studies and Lighter Papers', contains nine quite various papers, none of which is very pertinent to HOPOS. Yet readers will perhaps find it challenging, if not enjoyable, to wrestle with *Boolos'* treatment of Raymond Smullyan's notorious puzzles. It is also worth noting that his classic explanation (not derivation) of Gödel's Theorem using only words of one syllable is reprinted here.

Caution: My copy has several pages that are only partially printed. Check pages 410 and 442 before purchasing the book.

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Space from Zeno to Einstein: Classic Readings with Contemporary Commentary.

Nick Huggett (ed.), 279 pp. Cambridge, MA: M.I.T. Press, 1999 \$22.50.

This is an excellent teaching text that will doubtless make its way onto the syllabi of numerous introductory courses in the philosophy of science, including my own. Though one might quibble about particular selections or omissions, Huggett's compilation has plotted a worthwhile trajectory through the history of Western thinking on space. His commentary on the selected

texts is always insightful and accessible, though its historical appropriateness may be questioned, and in the classroom, probably should be.

The text ends, as advertised, with a reading from Einstein (Chapter 14, "The Problem of Space, Ether, and the Field in Physics"). It does not, however, begin with Zeno. Instead, before canvassing the familiar four

paradoxes as glossed by Aristotle and Simplicius (Chapter 3), Huggett presents selections from Plato (*Timaeus*; Chapter 1) and Euclid (*Elements*; Chapter 2). This ordering makes it clear that Huggett's primary pedagogical aims are philosophical, not historical, and indeed he says as much. Chapter 9, which unites readings from Berkeley (*De Motu*) and Mach (*The Science of Mechanics*) also wears this preference for thematic over chronological continuity on its sleeve. On the whole, however, the readings, which include selections by Descartes, Newton, Leibniz, Kant, and Poincaré, in addition to the above, are presented in loose historical sequence.

Texts and commentaries allow the reader to trace with surprising ease the course of perennial debates over the materiality of space, its extent and divisibility, and the relative or absolute nature of space and motion. Inevitably, other themes which might have been pursued with equal justification are given shorter shrift. In Chapter 3, for example, the notorious fifth postulate of *Elements* I is introduced without comment, only to reappear much later as a bone of contention in Poincaré's discussion of non-Euclidean geometry (Chapter 13). Cantor's Continuity Hypothesis is simply assumed in the solution of Zeno's Plurality Paradox offered in Chapter 3. Debates on the nature and extent of continuity were, of course, a prominent feature of nineteenth and twentieth century discus-

sions of space, and the status of Cantor's CH relative to ZFC and various extensions thereof remains a live issue today.

As these remarks suggest, Chapter 3 illustrates both the chief advantages and most serious shortcomings of Huggett's book. Huggett's thematic focus allows him to consider *Elements* as presenting a *theory of space*, which (as Huggett acknowledges) was quite clearly *not* Euclid's own primary goal. The advantage of this approach is that it allows him (anachronistically) to treat Zeno's paradoxes as challenges to this theory, and to resolve them by treating Cartesian algebraic geometry, Cauchy's theory of infinite series, and Cantor's notion of continuity as *supplements* to that same theory. The result is a wonderfully accessible display of the philosophical power of modern mathematics.



Euclid

Huggett does not shy away from formalism, but still makes sure that all mathematical expressions are meticulously explained in plain text. Math-phobic students may actually be turned on

(Continued on page 18)

Review of Huggett

(Continued from page 17)

by his discussion. The problem, of course, is that this approach rides roughshod over the historical integrity of the primary sources. This is not necessarily a terrible thing for a philosopher of science to do, provided appropriate precautions are taken. The instructor using Huggett's book should be sure to take such precautions, lest students be seriously misled.

Predictably, Huggett follows standard contemporary practice in essentially ignoring everything written between Euclid and Descartes. He does acknowledge that interesting things happened over the course of the nearly two millennia separating these two, and provides a five-page reduction (Chapter 5, "The Aristotelian Tradition") by way of apology for not doing them justice. This brief chapter contains several severe oversimplifications, not to mention sheer inaccuracies. Buridan's notion of impetus is described as "at the heart of Newtonian mechanics" (p. 87), and we are told that the philosophical Platonists were "lead by Augustine in the sixth century" (p. 89, *sic.*; Augustine lived from 354 to 430). Huggett's goal is to provide students with just enough historical background to allow them to understand certain philosophical roots of contemporary mathematical physics, and toward that end I suppose a case can be made for passing quickly over late antiquity and the middle ages. Still, when I use this text in my philosophy of science course, I in-

tend to skip this chapter in favor of the much more thorough treatment in Kuhn's *Copernican Revolution*.

Chapter 1 provides some basic tools for students who have never had a logic or philosophy of science course before, and on the whole, it is quite helpful. Somewhat idiosyncratically, however, Huggett distinguishes between deductive and *abductive* inferences, where I am sure that his use of 'abduction' isn't quite what Peirce had in mind. He may have had a reason for not wanting to talk about *induction*, though most of his examples of abduction would normally be classified as straightforwardly inductive. If this text is being used in a course in which, like my own, students will also be exposed to readings by Hume, Hempel, and Goodman, this issue should be addressed so as to avoid confusion.

Finally, I think a word needs to be said about Huggett's treatment of Kant (Chapters 11-12). Readings from the *Critique of Pure Reason* (Chapter 12) are drawn exclusively from the Introduction and the Transcendental Aesthetic. But given the thematic strengths of the book, and in light of his inclusion of the Leibniz-Clarke correspondence (Chapter 8), one would expect some selection from the Dialectic. The first and second Antinomies come to mind as displaying Kant's objections to the transcendental realist's understanding of space, an understanding which, according to Kant, was *shared* by Leibniz and Clarke.

Space from Zeno to Einstein fills a niche in the philosophy of science curriculum, and I expect my students will profit from it. I can't recommend it as a sole text on the concept of space, but

that would be a tall order in any case.

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Making Natural Knowledge: Constructivism and the History of Science.

Jan Golinski. XIV + 236 pp. Cambridge: Cambridge University Press, 1998 \$49.95.

Many sociological and philosophical standpoints suggest that science as it has developed through history must be seen as a social activity and its products as social constructions. In this relatively short and extremely readable book, Golinski turns the arrow of analysis in the opposite direction. He accepts the social constructivism of scientific knowledge as a given, and his principal question is rather this: how can we move on to a more realistic evaluation of the history of science?

Golinski's major goal is to escape the "didactic macro-histor[ies] of science" (p.14, quoted from Fuller (1972), 272), and delve into the historical literature from a constructivist standpoint—to better understand the history and then use that history to arrive at a "more subtle awareness of the complexities of the sciences as creations of human culture" (p. ix) than that produced by theoretical musings of constructivists. He achieves this goal admirably, by discussing in a particular historical setting several themes common to science

studies: the social dimension of scientific life, the locus (laboratory, 'the field') and tools of scientific activity, the enabling and limiting aspects of scientific discourse, and science as a practical activity—in its performance and the representation of its products.

Golinski's definition of the constructivist view is centrist: "that which regards scientific knowledge primarily as a human project, made with locally situated cultural and material resources, rather than as simply the revelation of a pre-given order of nature" (p. ix). He distances himself from epistemological relativism and takes constructivism to be based on a methodological relativism "which stipulates that all forms of knowledge should be understood in the same manner" (p. xi).

This methodological constructivism is developed in a discussion that draws heavily on Thomas Kuhn. Golinski's account of the elusive notion of 'paradigm' stresses its pragmatic sense,

(Continued on page 19)

Review of Golinski

(Continued from page 18)

as model problem-solution. Transmission of “how to do it right” occurs within “sub-cultures considerably smaller than all of the practitioners of a discipline... [exhibiting]... forms of social life and... situations of controversy” (p.22).

Post-Kuhn developments such as Bloor and Barnes’s elaboration of the ‘Strong Programme’ and the contributions of Collins and Pickering are well summarized. Latour’s studies of laboratory life (complete with microbial ‘actants’) receive evenhanded, even overly gentle treatment. Although I would have liked to see here a comparison of the latter with, for example, David Hull’s (1988) *Science as a Process*, biology figures very little in Golinski’s book and, to be fair, the author already has engaged a huge literature.

The character of science as a social activity is explored in a discussion focusing on two periods: the early-modern emergence of experimental science—and the academies and universities in which it was fostered—and the 18th/19th century ‘second scientific revolution’. Before reviewing the history of science literature for these periods, Golinski critiques Mertonian ‘externalist/internalist’ models—as modified by Ben-David (1971/1984)—proposing their inadequacy when applied to the chapter’s two focal periods. Further, he underscores the im-

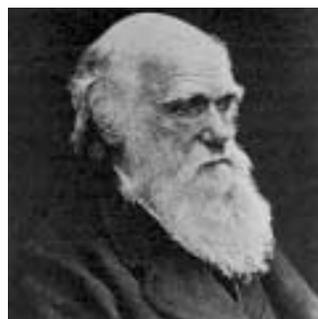
portance of individual scientists, social structures within which they pursue science, and the interactive ways in which the identities of each are formed.

As regards the first period, Golinski rejects both the standard view of an inexorable establishment of empirical science (and the scientists who were its Masters) and a simple constructivist view wherein some overarching social force molded science’s development. Golinski borrows Biagoli’s (1992) notion of *bricolage*—the rearranging of pre-existing elements (here, material goods and social relations) to achieve desired short-term goals—to portray the skirmishing of natural philosophers for patronage and institutional affiliation. By contrast, the latter period is characterized by more clearly defined institutional niches. Those seeking to fill them submitted to more predictable, standardized training. Still, Golinski notes, the dynamics were more complex than simple constructivist models might predict, with individuals having a greater than often recognized role in creating and then shaping the niches to be filled.

Golinski’s assessment of scientific communication stresses the hermeneutic and rhetorical character of the newly-arrived scientific journals, which changed the nature of the community to which a scholar could plead his (much less frequently, her) case. Golinski focuses on a few cogent examples of word use as a ‘method’ to get one’s argument across

(e.g., Shapin (1984) on Boyle), and on the possible dangers of using the wrong trope (Wallace’s warnings to Darwin; cf. Young (1985) 100; cited p.125). The goal is to demonstrate that scientific discourse and the factors affecting its diversity (or lack thereof) are numerous and nuanced.

In a chapter entitled ‘Interventions and Representations’, the medium is image rather than word. Golinski discusses the perennial anxiety that scientific results may be nothing but artifacts of one’s scientific instruments, the consequent conservatism that emerges when new instruments are proposed, and the subtle strategies used to overcome reticence in the face of novelty. The chapter is well illustrated and referenced, and clearly shows the way in which images inevitably are used not just to represent but also to define the subject of study. Anyone familiar with the impact of Darwin’s ‘geneological tree’ will well understand the power of representational manipulation as Golinski portrays it here.



Charles Darwin

Given his belief that neither traditional teleological or progressivist views nor

strong constructivist models can do justice to the nuances of the scientific endeavor, it is unsurprising that Golinski concludes that science is intrinsically complex and confusing because humans are involved in its practice. He counsels that rather than “regretting the passing of the comforting old stories of scientific progress, [saying that] we should...embrace the prospect of entirely new ones” (p.206). In his view, constructivist tools provide for a deeper understanding of history of science and, in turn, the historical insights gained provide a means to fine-tune the constructivist approach to science in general.

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Notes and Explanations (as needed):

About HOPOS

HOPOS, The History of Philosophy of Science Working Group, is an informal, international society of scholars who share an interest in promoting serious, scholarly research on the history of the philosophy of science and related topics in the history of the natural and social sciences, logic, philosophy, and mathematics. We interpret this statement of shared interest broadly, to include all historical periods and diverse methods. We aim to promote historical work in a variety of ways, including sponsorship of meetings and conference sessions, publication of books and special issues of journals,

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The HOPOS electronic mailing list is a genial virtual medium for the exchange of news, ideas, and queries regarding the history of the philosophy of science.

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