FROM THE EDITOR

We are pleased to announce the return of the HOPOS Newsletter to publication, following a two-year hiatus for re-formulation of this and other media of the organization. This issue describes these changes in detail and demonstrates the new focus of the newsletter via its contents. We hope to continue publication now on a more regular basis, and to begin a transition toward more substantive use of the newsletter to complement the growth of the field of history of philosophy of science as a whole.

In addition to an article noting added interactive features of the HOPOS website and corresponding shifts to newsletter features, and another proposing a new series of articles on the state of research on major figures in the field, the present issue contains a summary of over 200 new works in print and four extensive reviews of books. We especially thank the reviewers for their unfailing patience about the delay of publication of the newsletter, and are sure that their commentaries on these works—about Jesuit physics in early modern Germany, the historical context of Kant, the unity of the work of Auguste Comte, and the historical relationship of science and religion—will be of great interest to Hopoi.

We would like also to stress that many of the new capabilities of the website, and the new orientation of this newsletter, depend for their success on the assistance of the HOPOS membership at large. We encourage you to read here about how you can contribute to the website and newsletter—by using online forms to post announcements, by joining HOPOS online, by helping to develop databases of HOPOS resources, and by offering to write articles for the newsletter on events of interest, new books, and resources for research and teaching in our subdiscipline. Finally, any readers interested in an ongoing role in developing the newsletter as Assistant Editor are especially enjoined to contact the editor at tstaley@vt.edu.

Thanks again to all for your forebearance during the hiatus of the newsletter, and we hope that this issue meets your expectations.

The Editor
Recent Changes to HOPOS Media: Website, Listserv, & Newsletter

The past two years have witnessed comprehensive changes to all existing HOPOS media platforms. Beginning in 2007 with the creation of a second generation HOPOS website housed at Virginia Tech (www.hopos.org), we began an initiative to reformat and re-conceive the various communication outlets of the organization and to consolidate them into a more efficient whole. These efforts have further included moving the HOPOS listserv – which had long been admirably managed by Don Howard at Notre Dame – to management at Virginia Tech (under the ownership of David Stump of U. San Francisco) and – with this present issue – changing the mission of the HOPOS Newsletter to better mesh with the new capabilities of the website. This article will outline the salient changes that have resulted from these activities to better acquaint all Hopoi with the new resources and functions now available via these media, especially those related to the new website and to future newsletters.

**HOPOS website**

The HOPOS website accessible at www.hopos.org incorporates a number of new capabilities. In particular, the site now includes databasing functions that allow members to post announcements of upcoming events and available positions. By accessing the form pages located at www.hopos.org/announcements, site users can create online notices of such events as conferences, symposia, and other meetings as well as positions including job openings, graduate scholarships or fellowships, and ongoing program opportunities. Completing the online forms as appropriate (subject to subsequent webmaster approval) will generate an online announcement in a permanent database. These announcements will also be forwarded to the HOPOS listserv (HOPOS-L@listserv.vt.edu), and will automatically be moved to ‘expired’ status in the online database following the end date of the event or position. This new capability will not only provide Hopoi access to more information on the field in real time, but will also help to ensure that a standard set of details in a reliable format is included in all future announcements.

In the near future, the public archives of the website will also include a “Resource Database” listing HOPOS-related organizations (academic departments, professional societies), resources for scholarly research (archives, libraries, websites, etc.), and other miscellaneous resources of interest (for example, syllabi for HOPOS-related courses or reading lists on special topics). The collective input of the HOPOS membership will be required to fill in this database with relevant information. An announcement of the launch of this Resource Database will be put out over the HOPOS listserv as soon as it becomes available for your input.

Another online form page that was enabled in advance of the HOPOS2008 conference in Vancouver allows interested individuals to join HOPOS as official members at www.hopos.org/membership/form.html. Current membership rates are $75 for a two-year period, and membership is a prerequisite for participation in HOPOS conferences. The membership form includes a series of optional questions for new or renewing members about their fields of research and expertise. This information is held in a non-public database for informational purposes only. HOPOS officers or other designated individuals will have access to this data as a permanent resource on the interests and skills of our members. It may be used for such purposes as finding appropriate reviewers for HOPOS-related books or to determine collective statistics on membership demographics.

Other more cosmetic features of the new website include the ‘antiquarian’ color scheme of the site as a whole, and a set of automatically-rotating images of figures in the history of philosophy of science prominently featured on the front page. If repeated viewing does not reveal your own favorite figure in the field, you can send an image in JPEG format to the webmaster at tstaley@vt.edu for incorporation into the site.

We welcome any ideas for further improvement of the website, whether functional or aesthetic in nature. Please direct your ideas to the webmaster (again, at tstaley@vt.edu).

**HOPOS Newsletter**

With the incorporation of the several features noted above into the website, much of the content that was once included in the (nominally semi-annual) newsletter is now available directly online in a much more timely fashion. Thus, the newsletter is currently being reconceived to suit a different set of needs, with the present issue being the first to reflect these changes.

Most conspicuously, the newsletter will no longer feature event or position announcements, which were frequently out of date by the time of publication in past issues. The forms available at www.hopos.org/announcements allow users to post these themselves into a permanent online database.

To replace obsolete features, we will be introducing new content to try to maintain the vitality of the newsletter. As a separate article in this issue describes, we are soliciting reviews of the ‘state of the art’ on scholarship regarding major historical figures in the philosophy of science. We encourage persons with expertise on particular individuals or groups to

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help the newsletter by submitting such reviews. Please see the related article below on this page for more details.

The newsletter will continue to feature new books in print, as the extensive listing in this issue reflects. Critical book reviews will also be featured on a regular basis for the foreseeable future, although current plans for the development of a formal HOPOS journal may eventually make this feature obsolete as reviews move to a new and more prominent venue in the organization. The editor also encourages the submission of any topical articles related to HOPOS for inclusion in the newsletter (email any ideas or submissions to tstaley@vt.edu). Also, to help maintain the timeliness and substance of the newsletter, we ask any Hopoi interested in serving as Assistant Editor to contact the editor.

‘State of the Art’ Essays on HOPOS Figures: Call for Contributions

As a new feature of this newsletter, we are proposing a series of essays providing summaries of resources for research on major figures in the history of philosophy of science. Each contribution would detail the historiographic state of the art on a particular individual or group, pointing the interested reader toward salient topics in the existing literature and opportunities for additional investigation. These essays would afford the HOPOS community with the accumulated expertise of scholars specializing in each topical area, as introductory guides to the field. The new series would thus extend the set of essays published in earlier issues of this newsletter on resources for HOPOS work in particular geographic locations. Authors interested in contributing to this series should contact the editor (tstaley@vt.edu) with proposals for a topic. Details on plans for this series follow here.

As currently envisioned, each essay would include the following information:
- A brief review of central primary sources by the featured figure(s).
- A summary of the central ideas in their work.
- An overview of the social network (predecessors, peers, and successors) related to the figure(s).
- An annotated bibliography of central secondary sources, including both ‘classic’ works and exemplary contemporary books and articles.
- A listing of archives and libraries housing important collections on the subject.
- A guide to main topical concerns in current scholarship, summarizing what remains to be done by future researchers. These essays should be directed toward an audience at the level of an introductory graduate student, or an equivalent rising scholar, who might pursue work on the figure(s) in question.

We would like to begin this series with profiles of the following central theorists of science and scientific activity (in chronological order):

1) Aristotle (384-322 BC)
2) René Descartes (1596-1650)
3) Isaac Newton (1642-1727)
4) Gottfried Wilhelm Leibniz (1646-1716)
5) David Hume (1711-1776)
6) Immanuel Kant (1724-1804)
7) J.S. Mill (1806-1873) & ‘Philosophical Radicals’
8) Bertrand Russell (1872-1970)
9) Ludwig Wittgenstein (1889-1951)
10) The ‘Vienna Circle,’ including Rudolf Carnap

Additional profiles will hopefully proceed to consider work related to individuals and schools of thought including (but by no means limited to):

11) Hellenistic Philosophy
12) Medieval Islam
13) Medieval Europe
14) Late Scholasticism
15) Francis Bacon
16) Thomas Hobbes
17) The Cambridge Platonists
18) Pierre Gassendi and the Mersenne Circle
19) Christian Huygens
20) Benedict Spinoza
21) Locke and Berkeley
22) Jean-Jacques Rousseau
23) The French Encyclopedia Project
24) Thomas Reid and the ‘Common Sense’ School
25) French ‘Idéologie’
26) The Weimar and Jena Idealists
27) Whewell, Herschel, & Cambridge Analytical Society
28) Auguste Comte and the Classical Positivists
29) C.S. Peirce
30) William James
31) John Dewey and George Santayana
32) The St. Louis Hegelians
33) Neo-Kantianism
34) Heidegger and Husserl
35) F.H. Bradley and the Absolute Idealists
36) Gottlob Frege
37) G.E. Moore
38) The Oxford ‘Common Language’ School
39) Renouvier, Durkheim, Bergson, Poincaré, & Duhem
40) Bachelard and Canguilhem
41) Kuhn, Popper, and Feyerabend

This list constitutes only a cursory survey of possible articles from the point of view of the editor. Suggestions for, and submissions of, other topical articles along these lines are of course more than welcome. Again, we encourage you to contact the editor (tstaley@vt.edu) if you would like to contribute to this project.
Call for Reports
The Newsletter features occasional, concise reports on conferences and other events and resources of interest to HOPOI. If you are interested in submitting such a report, please contact the Editor.

NEW BOOKS IN PRINT
NOTE: More information on the books listed here can be found on the following publisher’s websites, as appropriate for the work in question.
- Ashgate Publishing: www.ashgate.com
- Bradford Books: www.mitpress.mit.edu
- Brepols: www.brepols.net
- Brill: www.brill.nl
- Cambridge University Press: www.cambridge.org/us
- Cornell University Press: www.cornellpress.cornell.edu
- Edwin Mellen Press: www.mellenpress.com
- F. Meiner: www.meiner.de
- Franz Steiner: www.steiner-verlag.de
- Hackett: www.hackettpublishing.com
- Harvard University Press: www.hup.harvard.edu
- Johns Hopkins University Press: www.press.jhu.edu
- Peter Lang: www.peterlang.net
- MIT Press: www.mitpress.mit.edu
- Olschki: www.olschki.it
- Open Court: www.opencourtbooks.com
- Ousia: www.eurorgan.be
- Palgrave: www.palgrave.com
- Peeters: www.peeters-leuven.be
- Polity: www.polity.co.uk
- Presses Universitaires de France: www.puf.com
- Routledge: www.routledge.com
- Science History Publications: www.shpusa.com
- Semiotext(e): www.semiotexte.com
- Springer: www.springer.com
- SUNY Press: www.sunypress.edu
- Sussex Academic Press: www.sussex-academic.co.uk
- Thoemmes Continuum: www.continuumbooks.com
- University of Chicago Press: www.press.uchicago.edu
- University of Notre Dame Press: www.undpress.nd.edu
- University of Pittsburgh Press: www.упress.pitt.edu
- University of Toronto Press: www.utpress.utoronto.ca
- Vrin: www.vrin.fr
- Yale University Press: www.yale.edu/yup
- Zone Books: www.zonebooks.org

Ancient


Democritus: Science, the Arts, and the Care of the Soul, Aldo (Continued on next page)


Medieval & Renaissance


Early Modern

(Continued on next page)


(Continued on next page)


(Continued on next page)


Nineteenth Century


(Continued on next page)

Twentieth Century & Contemporary


(Continued on next page)


General Works


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Budapest and its environs. In association with this upcoming meeting, individuals interested in reviewing these works should contact the editor at tstaley@vt.edu with a statement of their qualifications.


**Books Currently Available for Review**

The following books have already been received from the publishers, and can be made available for critical review immediately. Individuals interested in reviewing these works should contact the editor at tstaley@vt.edu with a statement of their qualifications.


**HOPOS 2010 - Budapest: Initial Announcement**

Following on our highly successful seventh congress in Vancouver, Canada, in June 2008, our next meeting will – as is customary – return to the other side of the Atlantic for 2010. The eighth biennial congress of HOPOS will be held in Budapest, Hungary, at the campus of the Central European University, June 24–27, 2010. The conference is sponsored by the Central European University (CEU), Eötvös Loránd University (ELTE), and the Budapest University of Technology and Economics (BME). The conference is open to scholarly work on the history of philosophy of science from any disciplinary perspective. The conference committee and local organizing committee are already hard at work preparing for keynote speakers will be announced and a formal call for papers will be issued during Summer 2009.

In association with this upcoming meeting, individuals intimately acquainted with the Budapest area are encouraged to contact the newsletter editor (tstaley@vt.edu) to write articles about HOPOS-related resources in Hungary and activities for scholars in Budapest and its environs. Such articles will be slated for publication in this organ prior to the conference.
Hellyer's Catholic Physics tells the companion story: how a different kind of scientific practice could be derived from Aristotelian logic under the leadership of an intellectual community educated in a tradition of systematic analysis and a respect for a millennium of scientific authorities. His principle example is physics, tracing how the projects and themes that this branch of natural philosophy takes up were extended in the modern era. His strategy is novel: Hellyer builds up the climate of Jesuit education to explain the conduct of Jesuit science.

The first part, "Discourses and Institutions," offers three chapters that survey the Jesuit Order's establishment of its modern pedagogy in the wake of its 1599 pedagogical blueprint, the Ratio studiorum. These chapters situate major contributors in the establishment of the order's German, most notably Peter Canisius (1521-97) and the General Claudio Acquaviva (1581-1615). He traces how, early in this evolution, the Order was at pains to outline the relation of theology and philosophy. Overtly, the question they adhered to was how to teach Aristotle for the new generation, especially when there were multiple Aristotles available, as far afield as the heretical version of Averroes (17). A first solution was found in the establishing canons of propositions that students needed to learn to defend, and in textbooks containing standard defenses. But at the same time, a textbook could not be taken as static: new eras and new audiences would require attention to new propositions, or different strategies applied to old. The challenge, therefore, was to create textbooks that could guarantee uniformity without stagnation, to create general guidelines for teaching overall. One result was a huge publishing industry by the generate of Acquaviva, combining censorship with education in strategies that would guarantee proper adherence to Aristotle.

The seventeenth century saw the situation complicated, leading to the Ordinatio of 1651, and to new strategies for argument in science, especially with regard to hypothesis. After the Thirty Years War, the colleges were either founded or substantially reordered by the act of the Jesuits. Hellyer provides extensive discussions of the curriculum, how education was structured, and the kinds and logics of the buildings created to house scholars and teachers. Overall, then, Part I will orient the readers to the philosophical and theological conditions on which Jesuit triumphs of the seventeenth century would rest.

Part II of the text is devoted to that seventeenth century. Chapter 4 reconstructs the Jesuit curriculum to the degree possible. It is particularly valuable in outlining how Logic and Physics were tied into Metaphysics, and how the links among them were made in terms of specific kinds of analysis. Chapter 5 on "The Physics of the Eucharist" (90-113) is a particularly clear exemplification of how this generation's scientific thinking works, as categories of quantity, substance, and
accidence were extended from logical principles into theological contexts. After that, we see how math and physics created the environment in which eminent scientists like Athanasius Kircher would function. The culmination of this discussion is exemplified in Chapter 7's discussion of "The Peregrinations of the Pump" (138-161), referring to the scientific problems called to attention by Otto von Guericke's air pump.

Part III of Hellyer's text is devoted to the eighteenth century extensions of this Jesuit science into contexts particular of experimentation. Here, he begins with Gottfried Wilhelm Leibniz (1646-1716), and his correspondence with Bartholomaeus des Bosses (Jesuit theology professor at Hildesheim). Subsequent chapters turn to the Order's somewhat conservative reactions to the Enlightenment, and to distinct features of the Catholic scientific culture within it (for instance, how the air pump turns up in emblems).

The too brief conclusion to the volume points to what aspects of Jesuit history have not been approached (particularly studies of Jesuit economics and of the publishing industry in their circles), all of which would improve the picture drawn here about the educational enterprise.

The tale told will be critical for all the era's historians of science to keep in mind, no matter their project. Hellyer offers a way into the era's hallmark discussions, contextualizing heresies, important intellectual contributions and disputes, textbooks, and institutional-political impetuses. Many of his presentations are brief, but that brevity is an advantage in his overall goal of establishing a coherent context that demonstrates this educational project and its ramifications. Catholic Physics will be a particularly important corrective for scholars of the Enlightenment. The French Revolution is not the end to continental Catholic culture; the Jesuit Order's influence would not disappear when it was officially dissolved in 1773; the Holy Roman Empire's cultural legacy and the strength of its Catholic infrastructures, especially in the schools, was not dispersed when Napoleon dissolved it in 1806.

Hellyer's work should lead us to reconsider Jansenism, the intellectual climate in Vienna, and the older German universities in Prague. In Catholic Physics, Hellyer has shown us an intellectual culture aiming at problem-solving in joint theological and practical contexts, how that culture was established and maintained, and its strengths and weaknesses. Scholars from the early modern era through the nineteenth century need to take his work into account, in order to recover what indeed the governments of Europe thought was worthy of suppression, and an alternate paradigm for "ordinary science" that countered Protestantism well into the nineteenth century.

Katherine Arens
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established harmony as principally a solution to the mind-body problem, and he rejected Leibniz’s doctrine of idealism, and Knutzen even attempted a “Leibnizian” argument against pre-established harmony. Crusius, on the other hand, cannot even be said to have a Leibnizian starting point, and his philosophy deviates even more starkly from that of Leibniz. For example, not only did he reject Leibnizian pre-established harmony (and the thesis that substances are “worlds apart”), but he also sought an explanation for how different substances could together form a single world. It becomes clear through this chapter that the philosophical world that Kant lived in after completing his studies was one in which Leibniz’s criticisms of physical influx had been overcome through the work of Knutzen and Crusius, and in which Leibnizian idealism (to the extent that it was understood by the extant texts) was largely ignored or rejected.

In Chapter Two, Watkins shows the development of Kant’s pre-critical views of causality given the historical context laid out in the previous chapter. While Kant’s writings on natural philosophy, for example, his Thoughts on the True Estimation of Living Forces (1747) and Physical Monadology (1756), provide a metaphysics that explains the properties of bodies and their causal powers, it is the Nova Dilucidatio (1755) that is the most significant work on causation in this period. According to Watkins, Kant not only attempts in this work to correct Wolff’s principles of contradiction and sufficient reason, he also adds two of his own principles: the principle of succession and the principle of coexistence. In arguing for the former, Kant explicitly rejects the pre-established harmony of the Leibnizian school in favor of physical influx; in arguing for the latter, Kant undermines Crusius’s account of existential grounds and analyzes God’s role in intersubstantial causation. Further, Watkins argues that in the pre-critical period, Kant was influenced by Hume because Hume’s account of causality made Kant see that, if one advocates physical influx, one cannot understand grounds to be purely logical. This is what led Kant to introduce the concept of a “real ground” in The Only Possible Argument (1763), Negative Magnitudes (1763) and various early Reflexionen. According to Kant, a ground is “something by which, having been posited, something else is posited.” And “every ground is either logical, by means of which the consequence that is identical to it is posited as a predicate according to the rule of identity, or real, by means of which the consequence that is not identical to it is not posited according to the rule of identity.” (AA 28: 11; quoted, p. 162)

In Chapters Three and Four, Watkins provides, first, a close reading of the Second and Third Analogies of the Critique of Pure Reason, and, second, a broad philosophical discussion of the issues involved in Kant’s account of causality. For Watkins, the Analogies argue that something ontological is required to ground something epistemological, that is, “Kant is claiming that knowledge of objective temporal relations requires substantive ontological principles.” (p. 200) But, of course, the ontological principles concern not things in themselves but phenomenal substances whose conditions are constrained by the human epistemological framework. Further, while the critical turn really does represent a revolution, there are some very important continuities between the Critique of Pure Reason and, in particular, the Nova Dilucidatio. After all, in the Nova Dilucidatio Kant had presented his principles of succession and coexistence, and the point of the Second and Third Analogies is, of course, to demonstrate that causal relations are required for the temporal relations of succession and coexistence. Another important continuity that Watkins highlights relates to Kant’s assumption that a substance cannot act on itself to change itself or determine its temporal location (though it can be said that a substance has a nature that unfolds over time). Now, it is common to assume that Kant’s account of causality is constructed within the same framework as Hume’s account of causality, but, as Watkins shows, this is simply not the case. Not only does Kant reject Hume’s empiricist principles, but, more interestingly, Kant also rejects event-event causation as presented by Hume. Quite simply, a model of causation in which one event causes another event is inconsistent with the claim of the Third Analogy that mutual interaction is necessary for knowledge of coexistence, since two events cannot stand in such a relation of reciprocity. Rather, Kant’s model of causality is based on the notion of essential powers of substances, and this account follows naturally from Kant’s pre-critical writings. For Kant, the exercise of a causal power is “not a determinate event, but rather an asymmetrical and indeterminate activity that brings about passive determinations in a distinct substance.” (p. 296)

In Chapter Five, Watkins turns to an analysis of the Third Antimony and Kant’s account of freedom. As he shows, Kant’s model of causality is completely consistent with his conception of free will, for free will is simply to be understood as an agent’s exercising its own causal powers according to its own conception of the good. The final chapter aims to show that, on the one hand, Kant’s model of causality is, in fact, so radically different from Hume’s that a true refutation of Hume was never actually intended and attempted by Kant, and, on the other hand, that the Kantian model of causality can even now offer us an account of causality that is relevant to contemporary discussions of causality, since the majority of modern accounts are, more or less, Humean in spirit. Regarding the former point, Watkins convincingly shows that, “Kant’s strategy is not the use a set of explanatory terms and concepts he shares with Hume to show how Hume failed to see which implications they had… but rather to provide a different set of concepts and doctrines that are supposed to obviate the very framework that Hume’s approach presupposes.” (p. 386) Regarding the second point, Watkins shows that Kant’s model of the activity of substances can show how a causal power is distinct from and
irreducible to an event – an issue at the heart of contemporary discussions on the metaphysics of causality. He also argues that Kant’s account of causality can help us understand the supposed necessity of laws of nature “because Kant grounds the laws of nature in the natures of substances and because substances must act in accordance with these natures.” (p. 407) Finally, Watkins claims that Kant’s account of agency actually provides a response to contemporary objections to agent causation. In short, the message of this final chapter is that we have fallen into our own Humean philosophical slumber and Kant’s metaphysics can provide a wake-up call.

Yet, the manifest of the Vienna Circle did not mention Comte’s career, from the Course of Positive Philosophy to the System of Positive Politics (16, 132, 162). In a way, in the Course, sociology represents the last and the most complex science of the encyclopaedic classification; as such, sociology seems to be considered in a global epistemological perspective. But, in Lesson 51, the reader is asked to convert his point of view. The epistemological descriptions had no other purpose than their political effects. Science will be taken as a dogma, so as to assure a new social basement to a new political order. Such a return to a comprehensive treatment of Comte’s entire career appears necessary, all the more so as “logical positivism” was deeply criticized in the 1960’s from a sociological point of view. According to Bourdeau, the authors who are generally seen as “post-positivist” do not deserve such a name. In the first place, a philosophical movement should not be qualified as coming after another: it does not show what the new generations conceptually brought to the history of philosophy of science (158). Secondly and above all, we should talk of a “post-neo-positivism”: Kuhn, Feyerabend and Lakatos were clearly opposed to a certain form of “neo-positivism” (119, 136). Now, by contesting an exclusively logical point of view, and by reintroducing a sociological orientation, they did nothing less than temper an internal analysis of the “context of justification” with very Comtian reflections on the social status of scientists (23, 46, 57, 164). As Bourdeau suggests, the field of science studies would gain now a great deal by re-discovering Auguste Comte: it would not only help them make many of their developments explicit – on the conditions of social control of science, or on the kind of relationship science and opinion could entertain (129, 134). It would also prevent our contemporaries from a few excesses: as the unity of Comte’s work demonstrates, separating an “internal” philosophy and an “external” sociology of science – i.e., dividing attention to the validation of proofs on the one side, and the analysis of the social consequences of scientific activities on the other side – makes no sense (121, 123, 137).

It has sometimes been insisted that Comte had “two careers”, given that he had been concerned by politics only after he fell in love with Clotilde de Vaux in 1847 and decided to develop a new cult of Humanity, supposed to replace the old Theology (85, 120, 139, 144). Yet, Bourdeau’s ambition is to demonstrate that there is no reason distinguishing so sharply two moments in Comte’s life and works, as if we had better conserve the epistemological discoveries of the former period, and forget the ridiculous and dangerous political fancies of the later one. “How to achieve the French Revolution?”: this question, shared by many French thinkers at the turn of the 19th century (e.g., Tocqueville, Saint Simon, Bonald or De Maistre) was a constant and insistent interrogation throughout Comte’s career, from the Course of Positive Philosophy to the System of Positive Politics (16, 132, 162). In a way, in the Course, sociology represents the last and the most complex science of the encyclopaedic classification; as such, sociology seems to be considered in a global epistemological perspective. But, in Lesson 51, the reader is asked to convert his point of view. The epistemological descriptions had no other purpose than their political effects. Science will be taken as a dogma, so as to assure a new social basement to a new political order. Such a return to a comprehensive treatment of Comte’s entire career appears necessary, all the more so as “logical positivism” was deeply criticized in the 1960’s from a sociological point of view. According to Bourdeau, the authors who are generally seen as “post-positivist” do not deserve such a name. In the first place, a philosophical movement should not be qualified as coming after another: it does not show what the new generations conceptually brought to the history of philosophy of science (158). Secondly and above all, we should talk of a “post-neo-positivism”: Kuhn, Feyerabend and Lakatos were clearly opposed to a certain form of “neo-positivism” (119, 136). Now, by contesting an exclusively logical point of view, and by reintroducing a sociological orientation, they did nothing less than temper an internal analysis of the “context of justification” with very Comtian reflections on the social status of scientists (23, 46, 57, 164). As Bourdeau suggests, the field of science studies would gain now a great deal by re-discovering Auguste Comte: it would not only help them make many of their developments explicit – on the conditions of social control of science, or on the kind of relationship science and opinion could entertain (129, 134). It would also prevent our contemporaries from a few excesses: as the unity of Comte’s work demonstrates, separating an “internal” philosophy and an “external” sociology of science – i.e., dividing attention to the validation of proofs on the one side, and the analysis of the social consequences of scientific activities on the other side – makes no sense (121, 123, 137).

If it was important to remind the readers of “logical positivism” that social and political problems had always been taken into account in the primitive “positivist” doctrine (which could

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certainly have helped Neurath, who was one of the only ones in the Circle considering social issues – 49), Bourdeau may have another specific purpose. To tell the truth, French thinkers know perfectly well that Comte conceived a new science he called “sociology”. In the past two years, two books have highlighted this point. Guillaume Leblanc’s *L’esprit des sciences humaines* (Paris: Vrin, 2005) and Bruno Karsenti’s *Politique de l’esprit: Auguste Comte et la naissance de la science sociale* (Paris : Hermann, 2006) are focused on the Comtian foundation of social – or human – sciences. If Bourdeau’s purpose consists in proving to the American descendants of “logical positivism” that they should not forget sociology, he also aims at reminding the French readers of Durkheim and Foucault that Comte’s sociology presupposes an original philosophy of sciences. *Les trois états* is thus organised into three moments, corresponding to the symmetrical objective of its author.

Bourdeau first shows that Comte presented himself as a “philosopher of history”, as many other thinkers of his time. Like Hegel, he had the ambition of depicting the ineluctable progress of Humanity through the different stages of its development. But, according to Bourdeau, after Auschwitz and Hiroshima, we do not believe any more in the evidence of such a progress (19, 35, 41, 163). On the other side, sociologists like Durkheim judged that Comte’s sociological essay could be relevant only if we abandoned so wide and vague an object as Humanity, to consider more specifically defined and restrained human communities (34, 113). Consequently, Bourdeau claims that we should interpret Comte’s famous “law of the three stages” less as a historical law than a sociological description of mankind.

This well-known law establishes that the human mind was progressively led from a theological stage to a positive one, through a metaphysical “mediation”. Confronted to unexplained phenomena, men first explained them by supposing the action of supernatural entities behind the stream of facts. This kind of imaginative explanations had less and less weight compared to positive observations and scientific forecasts (90). The metaphysical stage, which substituted abstract entities to the supernatural agents of the theological stage, has become an obstacle to the triumph of the positive stage (94). Little by little, field after field, positivism progressively appears as the “normal” and “definite” state of intelligence (163). Bourdeau insists on the possibility to see in such a law not only an apprehension of diachronic stages of mankind, but also synchronic forms of human mind. Science, theology and metaphysics often coexist in human mind (113). The second part of the book is devoted to the conceptual features of these forms. The reader is here provided with many lightening epistemological developments on the nature of facts, laws, hypotheses; on the problem of the unity of science, shared with the Vienna Circle (63-76); on the necessity of “regional epistemologies”, as Bachelard would have said (62, 114).

Bourdeau shows that the *Course* leads us from man to the world, from the most subjective and imaginative stages to the most objective and positive ones. Adds the author, Comte’s final ambition is to reunify mankind and nature through a “subjective method” (53-54, 83). *De facto*, religion cannot anymore “unify” or “connect” Humanity (as could be thought due to the ancient and false etymology from the Latin *re-ligare* – 142). God is dead (140). But the third and last part insists on a strong, original and paradoxical thesis: Comte made a place for a non-theological religion (141). Indeed, no other means than religion could maintain rules for individual morality (146) and social community (147). The new cult will take Humanity as its specific object – there exists no Next World to expect, and no other “Great Being” to be honoured (149, 152). Such a cult of Humanity will be based on the History of Science as on its dogma. A new positivist calendar will replace Saints by Scientific Genius or Men of a peculiar wisdom (153). As weird as it may seem, Comte’s second career is thus attached to the same goal as the first one: the end of dualism, the reconciliation between moral and natural philosophy.

Written by a philosopher trained as a logician and very well informed as far as the history of philosophy is concerned, this book will be read with great profit by all those interested in the history of positivism, from its primitive and complex “Comtian” formulation, to its renewal through “logical positivism”, and to the most recent forms of “post-positivism” which reproduce Comte’s thesis without being aware of it.

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Phil Dowe, an Australian philosopher of physics who has significantly refined Wesley Salmon’s theory of causation, has written a very clear and engaging introduction to the philosophical issues surrounding the relationship between science and religion. The book’s grounding in a wide range of historical examples should make it especially appealing to HOPOS members, especially those who

(Continued on next page)
accept the pedagogical value of keeping the book’s guiding questions open “in the final analysis”.

Dowe’s book is distinctive in both provenance and approach. Eerdmans is a well-known independent religious publisher with historic ties to Calvinism. For his part, Dowe, who refrains from revealing his own religious – or, for that matter, scientific – beliefs, approaches the topic very much as it presented itself to Galileo, namely, in terms of the reconcilability of scientific findings and Biblical statements. By today’s standards, this is quite a bold move, since it does not afford him the easy luxury – allowed, say, to Philip Kitcher in his recent Living with Darwin – of ‘reconciling’ science and religion by a division of labour between the head and the heart. For Dowe, the only reconciliation on offer is a cognitive reconciliation with the Judaean-Christian religious tradition. Readers may be surprised to learn that, even in those restricted terms, Dowe believes that science and religion can be indeed reconciled.

Much turns here on issues relating to the interpretation of both scientific and religious knowledge claims, which Dowe handles with admirable even-handedness. His modus operandi is to introduce historical examples as well as bits of hermeneutics and analytic philosophy with a light touch on a need-to-know basis. But contrary to the impression conveyed in the title, the book is not really organized around personalities but roughly in the historical order in which conceptual problems facing the science-religion relationship have arisen in the West.

One does not need to be too specialized in the history or philosophy of science or religion to get quite a lot out of this book. A good case in point is Dowe’s clear recognition of the role that the Bible’s imago dei conception of humanity has played in motivating the scientific enterprise, especially in the 17th and 18th centuries (pp. 60-72). Here, in brief succession, one finds a discussion of the original Hebrew expression of the ‘image and likeness of God’ as ‘family resemblance’, Galileo’s association of mathematical certainty with our convergence on the workings of God’s mind, Descartes’ preference for the will as the psychic seat of the divine (with every decision a mini-creation), and Bacon’s conviction that humanity’s recovery from its fallen state requires reappropriating our divine heritage by exerting dominion over nature. Common to this interpretive tradition of imago dei is that we are most like God by becoming God. It takes very seriously the idea that, as children of God, we eventually mature and assume God’s parental role – and in that sense, God may pass from the scene, as the Deists suggested. The maturation motif recurs throughout the Enlightenment, not least in Kant, providing inspiration for the establishment of a rational social order, by analogy with a rational natural order, ex nihilo – that is, in the

wake of revolution, which is akin to the chaos that precedes the cosmos.

Where I differ with Dowe is that I believe that this understanding of imago dei reads the Bible literally, not metaphorically. To his credit, Dowe does justice to Biblical literalism as a heuristic for scientific inquiry. He not only considers with remarkable charity the recent literalism of Henry Morris of the Institute for Creation Research, which is distinctive in its appeal to modern physical science (especially thermodynamics) to support the Bible (pp. 138-41), but also such classic defenses of Biblical literalism as Calvin’s Institutes of Christian Religion and especially St. Augustine’s De Litteram (pp. 22-9). The latter is of particular note, given its prominence in the recent best seller, The Language of God, by Francis Collins, the head of the US team on the Human Genome Project, who appeals to Augustine’s interpretation of Genesis to discourage fellow Christians from endorsing intelligent design theory.

Dowe portrays Calvin as a literalist who manages to avoid a know-nothing attitude towards science by presuming that the Bible is about the world as it appears to our naked senses. This leaves open the prospect of other means by which we might enhance our understanding of divine creation. Whether true to Calvin, this interpretation seems true to those who have found Calvin a spur to scientific inquiry. In the case of Augustine, Dowe, like Collins, is inclined to read him as cautioning against treating Genesis as a scientific rather than a ‘spiritual’ text, which suggests a metaphorical – perhaps even ‘esoteric’ (at least when compared with Calvin) – interpretation is in order, especially given palpable textual contradictions such as alternative creation stories.

I read Augustine rather differently. I see him as a Biblical literalist who is cautioning against knee-jerk responses to Genesis that reflect more the reader’s immediate preoccupations than the text itself. After all, the book was written to address potentially everyone, and so it demands that the reader tunes into its universal themes. That the book appears to contain contradictory creation stories simply reflects that the same chain of events can be seen from at least two different perspectives -- and possibly more. This may explain the cognitive role of angels, who are in a position to represent these various frames of reference. In attributing Biblical literalism to Augustine, I mean to suggest that the text is meant to have some direct bearing on the reader’s orientation to the world. Whatever else, a ‘metaphorical’ reading of the Bible is supposed to imply, its implications for action are normally seen as indirect. For this reason, Collins says that the Bible can be read literally for its moral but not its scientific teachings. Dowe, of course, does not deal with ethics in his book but I doubt he would be satisfied with Collins’
crude pick-and-mix approach to Biblical hermeneutics.

Ultimately my main difficulties with the book concern Dowe’s mapping of the field of engagement, which has implications for his interpretation of particular matters. Dowe rightly observes at the outset that those who believe science and religion are in conflict tend to see the conflict in all-or-nothing terms, as in today’s disputes between evolutionists and creationists, where each side appears to want to vanquish the other. Dowe seems to believe that this perspective can even be found in Cardinal Bellarmine’s response to Galileo (p. 4). I rather doubt that, and elsewhere in the book (pp. 30-2) so does Dowe, as he settles for Pierre Duhem’s view that Bellarmine accepted Galileo’s science on antirealist terms.

This ambiguity in characterizing cases reflects a larger methodological problem in acquiring a synoptic grasp of the relationship between science and religion – namely, it has been always subject to retrospective rationalization. Thus, the idea that Galileo and the Catholic Church were in ‘conflict’ in the same sense as, say, defenders of Darwin and defenders of religious orthodoxy was itself born of late 19th century historians (e.g. Andrew Dixon White and William Draper) seeking to establish precedent for the sort of challenge they took Darwin to be posing.

However, taken on their own terms, Galileo’s and Darwin’s predicaments vis-à-vis religious knowledge claims were rather different. Galileo explicitly provoked conflict on the basis of controvertible evidence, much of it derived from unproven sources, such as the telescope. Moreover, this conflict largely concerned the secular knowledge (of Aristotle, Ptolemy, etc.) that the Church had already reconciled to Scripture. Galileo was also urging a reinterpretation of Scripture to render it compatible with his new science. For his part, Darwin presented an array of findings made by familiar naturalistic means in a manner suggesting they could be explained without invoking a supernatural intelligence. This is at most a ‘conflict’ by implication, as Darwin denied the need for, not the fact of, God’s agency in nature. Otherwise, Darwin offered no opinions on the science-religion relationship and, if anything, played down his contribution to it.

In both the Galileo and Darwin cases there was an enormous amount of common ground between the Contesting parties, especially with regard to the facts of the matter. Indeed, this enabled the contestants to think there was something worth fighting about. (To be sure, the veracity of telescopic observations and the fossil record were still disputed, but generally speaking the tide of opinion was moving towards accepting them as forms of evidence, though evidence for what remained unclear.) Yet, this common ground was not sufficient to render Dowe’s own preferred option -- an openness to multiple interpretations of the science-religion relationship, what he calls ‘pluralistic interactionism’ -- historically viable. This is a puzzle not only for Dowe but also his precursors, the logical positivists, whom he unfortunately mischaracterizes as ‘naturalists’, a label that only the Vienna Circle’s convenor, Moritz Schlick, would have accepted without major qualification (p. 3).

That the logical positivists (and, for these purposes, the Popperians can be included) are not naturalists was much more apparent to them than to us. For them, ‘naturalism’ named the metaphysical opposite of supernaturalism, the differences between which the positivists remained neutral because they could not be resolved by strictly scientific means. To recall a term Dowe uses when discussing Biblical interpretation, deciding for one or the other metaphysic was a matter of ‘policy’ (p. 18). In other words, regardless of the outcome of any particular experiment, the general interpretive framework would remain intact. But for science to be a genuinely critical and progressive enterprise, there must be an epistemic level
that lacks such metaphysical immunity. The positivists thus followed Russell, and before him Mach, in advancing ‘neutral monism’, implying that all higher-order entities starting with space, time and cause are logical constructions of sensations, the units of scientific currency in terms of which all hypotheses, regardless of metaphysical commitments, may be compared.

In these Kuhnified times, it is often forgotten that when the logical positivists promoted the scientific method, they did not mean also to be promoting particular scientific theories or research programmes, whose fates vis-à-vis the method were bound to change over time. Instead they retained Francis Bacon’s original juridical image of the scientific method as a neutral court for resolving contesting accounts of nature, which in 17th century England came from opposing Christian factions that would be otherwise at each other’s throats. Unfortunately, in Kuhn’s wake, the scientific method – insofar as its existence is still upheld – is treated as the preserve as the dominant paradigm in a given field. This results in a ‘kangaroo court’ epistemology, which has been in evidence in encounters between evolutionists and their religiously inspired opponents in the US over the past quarter-century, in which judges explicitly identify the pursuit of science with adherence to the dominant scientific theories.

Dowe does not consider the historic failure of science-religion relations to adopt his pluralistic interactionism, which from the tenor of Galileo, Darwin, and Hawking would allow some space for intelligent design in the high school science class. This may have to do with his principled decision to draw a sharp distinction between what he calls ‘philosophical’ and ‘social’ conflicts (p. 7). As a result, he avoids engaging with what made the history and philosophy of science such an exciting field in the 1960s and 1970s, namely, its concern for what Larry Laudan perspicuously called ‘the context of pursuit’. This context was designed to muddy the waters that Reichenbach originally tried to clear when he divided ‘discovery’ from ‘justification’. Laudan recognized that scientific decisions involve competition for scarce resources – be it research funding or textbook space -- in an arena where one always expects substantial change in the future. In that case, one must not merely apportion belief to the evidence as it arises but decide proactively on the different worlds that might result from the various scientific trajectories one might pursue, assuming that many, if not all, of them are likely to be ‘successful’ in some sense. A book that took this issue head-on in terms of the science-religion relationship would be a worthy successor to Dowe’s.

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