



AUSTRALIAN RESEARCH COUNCIL
NETWORK FOR EARLY
EUROPEAN RESEARCH



CAMPION COLLEGE
Australia
Catholic Learning in the Liberal Arts

Scientific Institutions and Experimental Science: 1657-1757

Friday 4 December, 2009
Campion College, Australia

Schedule

- 9.30am:** Opening Address by David Daintree, Campion College President
- 9.35am:** Luciano Boschiero, "Introduction"
- 9.45am:** John Schuster, "How not to do the history of experimental natural philosophy/sciences – Being the young person's guide to experimental science and natural philosophy (Variations on themes of Bachelard, Kuhn, Pinch, Gaukroger and A.B.H. Taylor)"
- 10.30am:** Morning Tea
- 11.00am:** Luciano Boschiero, "Translation, Experimentation and the Spring of the Air: the *Saggi di naturali esperienze*"
- 11.45am:** Alan Salter, "The European Origins of Restoration Science"
- 12.30pm:** Lunch
- 1.30pm:** Gerhard Wiesenfeldt, "Academic Traditions and the Meanings of Experimental Philosophy"
- 2.15pm:** John Gascoigne, "The Royal Society, Natural History and the Peoples of the 'New World[s], 1660-1800"
- 3.00pm:** Afternoon Tea
- 3.30pm:** Charles Wolfe, "Private Vice, Public Virtue: the hidden bio-materialism in the Académie des Sciences, 1666-1730"
- 4.15pm:** Michael Bennett, "The Royal Society and Smallpox Inoculation: Experimentation at Arms-Length"
- 5.00pm:** Drinks
- 6.00pm:** Transport to Parramatta
- 6.15pm:** Dinner at Bavarian Bier Cafè, Parramatta

Abstracts

*How not to do the history of experimental natural philosophy/sciences—
Being the young person's guide to experimental science and natural philosophy
(Variations on themes of Bachelard, Kuhn, Pinch, Gaukroger and A.B.H. Taylor)*

John A. Schuster

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This paper is inspired by Barry Barnes' famous exercise in negative heuristics for budding sociologists of scientific knowledge.¹ It is a toolkit for projects about the Symposium topic, consisting of examples, models, diagrams, critical concepts, bold heuristics, helpful suggestions, daring claims, dire warnings, and, yes, downright infallible *pronunicamenti*, all drawn from my past and future efforts to understand the dynamics of early modern natural philosophy, its relation to emergent experimental natural philosophy of the later 17th century, and the eventual historical windfall of freshly crystallising experimental sciences in the 18th century.

Topics and resources in the toolkit may include: the generic theory/discourse loading of hardware in all experimental sciences; the role of natural philosophical language and contention in the emergence of early experimental sciences; how to talk about 'systematicity' in natural philosophies and what that has to do with thinking through the unintended emergence of experimental fields; why particular actors' natural history concerns are largely irrelevant to the macro history of experimental natural philosophy/sciences; the dangerous cul-de-sac, for actor and analyst alike, of any 'single-hardware phenomenalism'; how not to mistake actors' method/covering/accounting rhetorics for accurate accounts of material and conceptual practices in experimental natural philosophy/sciences; and finally, how to study those particular organizational processes inside scientific institutions that were partly constitutive of early modern experimental natural philosophy/sciences.

Along the way some ironic, hence heuristic counterpoint will flow from an unlikely source of comic relief, let alone historiographical wisdom—the entangled fact-finding, experimental and systematising natural philosophical concerns of one Monsieur René Descartes—who can be made to look more like the next generation of experimental natural philosophers and natural historians than is perhaps comfortable for today's historians of experimental natural philosophy/sciences.

¹ B. Barnes, 'How not to do the Sociology of Knowledge' in A. Megill [ed.] *Rethinking Objectivity* (London, 1994), 21-35.

Translation, Experimentation and the Spring of the Air: Saggi di naturali esperienze

Luciano Boschiero
Campion College

In 1668, when the Royal Society of London received a copy of the book of experiments compiled by the Tuscan Accademia del Cimento, it was deemed by the Londoners to contain little that was new or innovative, and was seemingly soon forgotten. Yet fifteen years later, Richard Waller's English translation of this book was licensed and published by the Society. The only reason offered by historians for this turnaround in the English attitude towards the book, has been the social and political circumstances facing the Society in the early 1680s. However, a closer look at the reception of the translation and the intellectual interests of some of the Society's members at this time, especially the Society's temporary curator, Denis Papin, reveals that the Tuscans' work was re-evaluated for its significance to natural philosophical theories developed in the field of pneumatics.

The European Origins of Restoration Science

Alan Salter
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Restoration Science saw itself as uniquely English, a world-first project aimed at material progress, providentially appearing at the close of the Puritan Revolution. It embodied, so the narrative went, the English genius for invention, for toleration and method. It saw a purpose to science, a materialism that was absent in other nations. And in the Royal Society it created an institution that set afoot a progress unmatched by any similar institution in Europe.¹

Scholars have typically endorsed this foundation myth. Some have denied any European influence; others have merely neglected it; a few have recognized influence in certain areas, such as institutional method or philosophy but none have argued that the science of the Restoration period displays evidence of deliberate borrowing from the great European societies across a wide range of scientific practices.

It is this claim that I make in my paper. I argue that English science in the Restoration period had its origins in the thought, institutions, social structures and practices of Europe, particularly Catholic France and Italy. I show that there was both a tacit indifference to the well-publicised materialism of the Royal Society and that the systems of belief, philosophy and method can be traced to thinkers such as Descartes, Comenius and Mersenne and to academies such as the Montmor, the Lincei and the Cimento. I discuss the familiarity of early Fellows such as Moray, Petty and especially Oldenburg with these academies and the resultant similarities of

¹ I assume a close relationship between Restoration Science and the Royal Society of London. While some scientists of the period practiced their trade independently of the Society, such as Highmore in Dorset or Bathurst at Oxford, the large part of institutional science took place within the Society.

governance that existed between Europe and London. Scientists came from the same class, subscribed to the same social norms and held similar beliefs; it is scarcely surprising then that they established the same sorts of academies.

Academic Traditions and the Meanings of Experimental Philosophy

Gerhard Wiesenfeldt

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Traditionally, the historiography of early modern science has made a categorical distinction between academies and scientific societies on the one hand and universities on the other. While this dichotomy reflects the rhetoric of some proponents of the new sciences in the 17th century, it obscures many structural similarities in the institutionalisation of science in academies, societies and universities. Focussing on the example of the Dutch university of Leiden, but drawing upon other protestant universities throughout Europe, this paper will analyse central aspects of the establishment of experimental natural philosophy at early modern universities. It will show how after the dissolution of the Aristotelian system of knowledge in the early 17th and prior to the emergence of scientific disciplines at the end of the 18th century, the scope, content and relevance of experimental philosophy at universities was largely determined by local academic traditions, the economy of university teaching and the contingencies of academic politics. Yet, within the institutional framework the contingent subject of experimental philosophy was moulded into systematic knowledge that in some cases became powerful beyond the local context.

The Royal Society, Natural History and the Peoples of the 'New World[s]', 1660-1800

John Gascoigne

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This paper will focus on the response of the Royal Society to the increasing contact with parts of the globe beyond Europe. Such contact was in accord with the programme of Baconian natural history which the early Royal Society espoused but it also raised basic questions about the extent and nature of the pursuit of natural history. In particular, the paper will be concerned with the attention paid to one particular branch of natural history, the study of other peoples and their customs. Such scrutiny of other peoples in distant lands raised basic questions about what methods natural history should employ and the extent to which it could serve as foundation for more general and theoretical claims. By taking a wide sweep from the beginnings of the Royal Society until the end of the eighteenth century it is hoped to shed light on the changing understanding of natural history over this period.

Private Vice, Public Virtue: the hidden bio-materialism in the Académie des Sciences, 1666-1730

Charles T. Wolfe

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Early modern and Enlightenment academies of science have for obvious reasons come under new focus in a historiographic climate focused on the public constitution of the ‘savant’, or the ‘trust’ required for what will become ‘science’ and a ‘scientific proof’, or again the ‘network’ of discourse and practices within a scientific community. I have a different object of interest here which is the treatment of ‘Life’ within these academies, here, the Académie des Sciences for the first two generations of its existence. The question of the nature of organic beings, the specificity of which will be studied in the science called ‘biology’, which emerges in name and in kind in the last years of the 18th century, is not normally recognized as a key feature of these academies (with the exception of Salomon-Bayet’s study of the Académie). Social histories of early modern science repeat the physico-mechanical characterizations of experiment and empiricism without attending to the dimension of ‘embodiment’. I would like to focus on the study of Life in the Académie to show that a practice – call it theoretical practice, conceptual matrix, experimental discourse ... – emerges there which is very different from the mainstream (Cartesian) mechanistic picture.

*The Royal Society and Smallpox Inoculation
Experimentation at Arms-Length*

Michael Bennett

University of Tasmania

From around 1700 the Royal Society began to receive reports of various forms of smallpox inoculation from around the globe. Its publication of Emanuele Timoni’s account of the practice in Constantinople in the *Philosophical Transactions* in 1714 gave some credit to the notion that inoculation with smallpox matter on the arm would induce a relatively mild case of the disease and subsequent immunity. In 1721 Sir Hans Sloane, who was Vice-President of the Royal Society as well as President of the Royal College of Physicians, supervised a public trial of the practice at Newgate when six convicts, three male and three female, submitted themselves to inoculation in return for a royal pardon.

This paper examines the role of the Royal Society in the introduction, assessment and promotion of smallpox inoculation in Britain. It notes the attention given to the practice in the meetings, publications and correspondence of the Royal Society, the active interest of some of its leading members, and considers the work of James Jurin, Secretary of the Royal Society, in seeking out case-histories, collating experimental findings and deploying the data statistically to demonstrate the safety and efficacy of the procedure. Furthermore it argues that, while the Royal Society did not conduct the Newgate experiment, it is hard to imagine its taking place without the initiative, participation and endorsement of Sloane and other Fellows. In addition to its success

in promoting a culture of experimentation, it seems that some of its Fellows had been anticipating a trial of inoculation.

Apart from receiving and distributing accounts from Britain, scientific academies in continental Europe did not play so obvious a role in promoting smallpox inoculation. There were many factors and variables inhibiting its introduction in various countries, not least the particular configurations of professional colleges and scientific societies, and their respective powers and responsibilities. There can be little doubt, though, that Charles-Marie de La Condamine's discourse on smallpox inoculation to the Académie Royale des Sciences in 1754 proved the crucial circuit-breaker in France and Catholic Europe, leading to a number of show-case inoculations in Paris in 1755 and, in the wake of La Condamine's visit to Florence, Dr Tozzetti's experimental inoculation of six orphans at the Ospedale degli Innocenti in 1756.