

Erudition and Empiricism: The Intertwining of the Humanities and the Sciences in Early Modern Europe

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Organizers

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Panel Description

This panel aims to explore the impact of the humanities in Early Modern Europe (in particular philology, grammar, logic and history) and to understand the mutual interaction between the humanities and the natural sciences. Such a comparative approach has rarely been investigated.

Questions that will be addressed are: What were the major discoveries and inventions in the humanities? What was the role of the humanities in the development of the natural sciences and the scientific revolution? Was there a (historical) revolution in the humanities? The papers of this panel show how closely intertwined the practices of the humanities and natural sciences were, and how the same scholar could combine both practices in the same piece of work. The papers highlight through a rich set of examples one of the most intriguing features of the early modern sciences: the interlocking of philological learning and observational skills -- the connection between erudition and empiricism.

Participants

Chair:

David Cram (U. of Oxford)

Presenters:

Rens Bod (U. of Amsterdam/U. of St Andrews):

Discoveries in the Humanities that Changed the World

Jaap Maat (U. of Amsterdam/U. of Oxford):

Early Language Technologies: The Invention of Languages in the Seventeenth Century

Dirk van Miert (U. of London):

Philology and the Roots of Empiricism: Textual Criticism and the Observation of the World

Philip Beeley (U. of Oxford):

Moral Inducements and Physical Arguments.

History and the Growth of Knowledge in the Early Royal Society

Paper Abstracts and Full Contact Details

Discoveries in the Humanities that Changed the World

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Abstract:

Almost every scientific discipline has nowadays its canonized set of “discoveries that changed the world”. In this paper I will argue that there have also been world-changing discoveries in the humanities, and that the methods underlying these discoveries have had a significant impact on the development of the sciences.

I will focus on two such discoveries: Lorenzo Valla’s analysis (1440) of the *Donatio Constantini* showing that it was a forgery, and Joseph Scaliger’s chronology of world history (1583) showing that some Egyptian kings had to be dated before the Flood. The historical methods employed by Valla and Scaliger significantly influenced the style of reasoning and discovery in the natural sciences. Valla’s method of combining historical text analysis with indirect and counterfactual reasoning became a model not

only for humanists but also for Galileo in his argument against the Ptolemaic system in his *Dialogue Concerning the Two Chief World Systems*. Scaliger's revision of world chronology, which integrated historically founded text analysis with astronomical computations, was used by Isaac Vossius and others to show that the presumed age of the Earth could not be correct.

In both cases, methods and discoveries in the humanities contributed to the development of the natural sciences. The historical criticism developed by Valla and formalized into a rational procedure by Scaliger resulted in a widely used methodology across disciplines. I conclude by posing the question as to whether there has been a "historical revolution" which not only preceded the scientific revolution but even helped to shape it.

Early Language Technologies: the Invention of Languages in the Seventeenth Century

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Abstract:

This paper explores the connections between the *artes sermocinales* (grammar, logic and rhetoric) and the natural sciences that were present in the many and diverse schemes for universal and philosophical languages emerging in the seventeenth century. While the subject matter of traditional grammar, logic and rhetoric was often unfavourably contrasted with knowledge acquired by empirical research of nature, these schemes for artificial languages arose, among other things, from a fresh appreciation of what tasks language as a symbolic system can be put to use for. Apart from communicational ones, these tasks included knowledge representation, information retrieval and the facilitation of scientific discoveries. As texts, diagrams and other symbolic means were increasingly recognized as an indispensable tool both for the dissemination and the advancement of knowledge, issues of notation and representation became intricately linked with scientific concerns. For example, progress in mathematics was perceived to be connected with the invention of new notational techniques, such as those used in algebra. And the abundance of data amassed in natural history prompted a concern with nomenclature. The paper focuses on a central aspect of these connections: the classificatory methods that were used by inventors of artificial languages, such as Dalgarno, Wilkins, and Leibniz, in classifying both linguistic and natural items, showing that the results and methods of the traditional *artes sermocinales*, especially logic, still played an important part in this.

Philology and the Roots of Empiricism: Textual Criticism and the Observation of the World

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Abstract:

This paper will link the methods of classical philology to the development of observational methods. The exponents of the scientific revolution charged humanism for putting too much confidence in the veracity of written works of antiquity. By their rhetorical approach to ancient sources, which were often used merely as a treasure trove for authoritative arguments, humanists seem to have hampered the development of the exploration of the world and the natural phenomena. Moreover, the invention of the printing press, the opening up of the Americas and the building of the nation states, which empowered structures of communication, could have led to a much earlier development of methods of investigating the world not by looking at the past, but by exploring the present. However, in spite of humanist attacks on scholasticism, many humanists were Aristotelians, and because Aristotle himself had been an observer of natural phenomena as much as a theoretician, humanism never contradicted the idea that sense perception could lead to true knowledge. In fact, it was a particular brand of humanists, the classical scholars, who developed methods of textual criticism on the basis of observing the physical remains of antiquity. This paper will argue that classical philology was underlain by observational methods and that there was no theoretical opposition between philology and scientific observation.

***Moral Inducements and Physical Arguments.
History and the Growth of Knowledge in the Early Royal Society***

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Abstract:

When Thomas Sprat in his *History of the Royal Society* summarized the design of that institution, he expressed it not surprisingly in Baconian terms. The purpose of its members he describes as being “to make faithful Records of all the Works of Nature, or

Art, which can come within their reach”. The general tone of this description would without doubt have been accepted by the majority of the advocates of the new science who assembled there. Programmatically the Royal Society clearly set itself apart from much of what was taught in the universities, just as it rejected the scholarly dispute as means to developing scientific enquiry. In no way was this alternative approach better expressed than in the empiricism of Francis Bacon.

However, the scientific practice of the Royal Society was notably different. Not only was there considerable input from the mathematical sciences, but also knowledge was adduced and employed which more properly belonged to history and philology – traditional preserves of the universities. In discussions among the members at the regular meetings, we find that on numerous occasions historical and philological evidence is called upon to support scientific findings and the conclusions drawn from them.

Focusing in particular on John Wallis, one of the most prolific contributors to debate in the Royal Society, the paper seeks to show that contrary to widespread opinion the humanities, represented through the fields of history and philology, played a significant role in the growth of knowledge in the context of the scientific revolution.

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