Communicating Observations in Early Modern Letters (1500–1675)
Epistolography and Epistemology in the Age of the Scientific Revolution
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Edited by Dirk van Miert

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In Latin passages quoted in the footnotes, the punctuation, capitalization and orthography have been standardized. Punctuation follows, more or less, modern English rules; capitals within sentences are used for geographical and proper names and their derivatives, for the first word in book titles, and for titles such as 'Tua Celsitudo' and 'Princeps'; j is always rendered as i; the consonant v is distinguished from the vowel u; abbreviations have been silently expanded, except 'etc.' and 'D.' for Dominus. Diacritical marks have not been maintained. Original quotations from vernacular languages have remained unaltered, unless otherwise specified.

Dirk van Miert
The Hague, March 2012
Introduction*

Dirk van Miert

The practice of ‘observation’ has been regarded as one of the characteristic elements of the emergence of modern science in the seventeenth century. The paradigmatic shift from ‘book knowledge’ to the book of nature has governed modern discourse on the ‘scientific revolution’.¹ Thomas Kuhn’s *The Structure of Scientific Revolutions* (1962) marked the first of many attempts to contextualize the self-aggrandizing claims of historians of science and even to reject the revolutionary claims of science in the seventeenth century altogether. As a result, cultural historians have seized the scientific revolution as an area of research, some of whom were undeterred by their lack of experience with or knowledge of the technicalities of scientific practice.

Since many historians of science, in different measures inspired by Kuhn (although not actively encouraged by him), have come to appreciate socio-historical approaches, it has become increasingly common for non-scientists to focus on the production and reception of scientific knowledge.² Moreover, while most attention was formerly given to cosmology and astronomy, scholars have increasingly turned to natural history.³ A volume on *Natural Particulars* was published in 1999, which combined a dialectical view of the history of ideas with a sociological approach.⁴

In astronomy and natural history, the methods associated with later pioneers can be discerned in their predecessors. More specifically, botany and medicine have been identified as fields in which early modern scholars made use of empirical methods, in the broad sense – description, collection and critical comparison of data, as Florike Egmond demonstrates in her contribution to this volume.⁵ But the ‘scientific revolution’ of the Renaissance encompassed far more than ‘science’ in its present sense: *scientia* comprised not only the natural sciences (as part of philosophy in general), but also, and

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¹ I thank Eric Jorink (Huygens ING, The Hague) for many fruitful conversations about the subject and am indebted to Floris Cohen (University of Utrecht) for a discussion on the 20th-century historiography of the scientific revolution. I am further grateful to Anthony Ossa-Richardson, whose critical remarks regarding style and content were invaluable.


⁴ This field of research was already raised to a new, historically-aware level in R. Hooykaas, *Natural Law and Divine Miracle: a Historical-Critical Study of the Principle of Uniformity in Geology, Biology and Theology*, Leiden, 1959.


perhaps even primarily, logic, metaphysics, ethics, history and philology. More generally, one recent analysis of the scientific revolution discerns three fundamental modes of acquiring natural knowledge: a mathematical mode, adopted by Galileo and Kepler and turned towards the study of natural phenomena; a philosophical mode, including Aristotelianism, atomism and other schools; and an empirical mode, grounded in accurate description and practical application, and developed already by the fifteenth century, but culminating in Francis Bacon’s programme for the study of nature based on the finding of facts.6

**OBSERVATION AND AUTHORITY**

The empirical mode of acquiring and producing knowledge has recently attracted the attention of a number of intellectual historians. A volume on the empirical connotations involved in the early modern notion of *historia* was published in 2005 by Gianna Pomata and Nancy Siraisi.7 Lorraine Daston and Elizabeth Lunbeck have recently published a volume on *Histories of Scientific Observation*, which develops some of the notions treated in the articles of this volume, but is wider-ranging in its scope, time frame and fields of contextualization.8 Our volume is rather more focused on the medium by which the observations were recorded and transmitted: the letter. The scope of the volume, moreover, extends beyond the investigation of nature, to the study of historical, social and philological phenomena. If one seeks to identify similarities between the attitudes in such diverse branches of knowledge, one should study methods, rather than particulars. Only on a methodological level can one venture to draw comparisons and identify disparities and similarities.9 It is because of the combination of the broad scope on the one hand, cutting through disciplinary boundaries, and, on the other, the precise focus on the *locus* of the recorded observation, the letter, that this volume offers a new look at scientific practices and argues for the synchronic and diachronic continuity of those practices.

It was precisely the *practice* of observation that was common to such fields as philology and astronomy: the scholar turned his senses to a particular object or phenomenon, be it a manuscript, a planet or a person. Chorographers like Peiresc described distances, explorers like Angleria worked from eyewitness reports from exotic cultures, botanists like Clusius studied plants, chronologers like Ussher sifted through layers of recorded history, antiquarians like Scaliger collected incised gemstones, physicians like Gessner...
examined the symptoms of disease – some scholars, such as Henry Oldenburg, even acted as intelligencers reporting on other scholars.

The scholars of the sixteenth and early seventeenth centuries discussed in this volume relied heavily on the evidence of their senses in acquiring all sorts of information – from astronomy (Brahe and others), botany (Clusius) and medicine (Gessner), to epigraphy (Paolo and Aldo Manuzio, Scaliger), chorography (Peiresc) and the early modern anticipation of ‘anthropology’ (Angleria, Oldenburg). Even Descartes, that great anti-Aristotelian iconoclast, regarded the senses as a useful source of true knowledge, as Erik-Jan Bos and Theo Verbeek argue below.

Several articles in this volume show that the word ‘observation’ applied not only to the act of perceiving but also to the result of such an act, that is, to its verbal record or description. As Peter N. Miller in his contribution points out with regard to Gassendi: description seemed to be used as a way of recording an observation.10 As the result of a perception, observation has of course always involved some degree of interpretation: the two acts are difficult to separate. In my own contribution, I have attempted to demonstrate that in the case of philology, an observatio could be everything from a transcription of a text to an interpretation of it.11 No philologist read passively; the process was always in dialogue with the dead, during which the reader confronted the texts before him with experiential knowledge, whether first- or second-hand. Descartes concluded that observation is always influenced by theoretical presuppositions, but he nevertheless saw value in personal observation under certain conditions, as Erik-Jan Bos and Theo Verbeek show in their contribution.12 Every observation is affected by spatial, temporal and social circumstances, and the psychological and intellectual background of the observer. The question, then, is to what extent early modern scholars understood the problems inherent in the act of observation. How confidently did they rely on their own or their colleagues’ observations? What made them trust certain observations more than others? How detailed did a description have to be? Did scholars establish grades of specification? How did early modern scholars and scientists invest observations with authority?

COMMUNICATING OBSERVATIONS

Long before ‘scientists’ called for standardized experimental settings, whose data could be formally manipulated, Aristotle had already grappled with the problem of turning individual observations into general conclusions.13 One way was to create research

11. Van Miert, this volume, p. 93.
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environments in which observations could be made in a controlled setting. Hence the rise of the anatomical theatre, the botanical garden, the laboratory and the observatory. But even here, scientists remained dependent on the observations described by others: systematization was made possible only by a comparison of disparate materials and observations. The acquisition of such knowledge could not be the project of a single scholar. A sense of individuals’ reliability and authority enabled researchers to share and collect each other’s data. James Ussher, for instance, was content to rely almost completely on the astronomical observations of others, as Elizabethanne Boran shows below. Communication was hence one of the vital elements of the structuring of knowledge, as is underscored in all of the articles in this volume. Communication of knowledge led to the creation of networks of knowledgeable people, long before such communities were formalized into scholarly journals and academies in the mid-seventeenth century. Communicating data to colleagues could be done orally or written; but in printed works, raw data had often been already organized into a coherent argument or narrative. Even unpublished drafts involved some reworking from the observations first recorded in notebooks – to which increasing attention is being turned by today’s historians. Quite rightly, William Stenhouse and Adam Mosley end their contributions by stressing the importance of these sources. The low level of systematization in many notebooks makes them difficult to navigate, but at the same time essential to understand, for they reveal the gap between the initial description and the final, published result. To be sure, some were better than others at organizing notebook data. Just as today we all file our documents differently on our computers, so the early modern researchers had an endless variety of means to organize their data. Some systematic notes already indicate the aim of communication.

THE LETTER: BREVITY AND SCHEDIA

Does there, then, exist a stage between the notebook and the printed text? Yes – we find just such a stage in the correspondence among scholars and scientists, communicating both observations and first interpretations.


INTRODUCTION

The letter has always been one of the most difficult forms of literature to grasp theoretically as a genre. Depending on the intentions with which a letter was composed and the use to which it was put, numerous classifications have been found, each with its own requirements on style and structure. Early modern theorists of epistolography had trouble falling back on antiquity, as no self-contained formal treatise on the art of letter-writing had survived from the Greeks or Romans. Erasmus’s *Opus de scribendis epistolis*, like other works before it, attempted to map out the genre by having recourse to the classical theory of rhetoric, which adopted three genres: juridical, epideictic and deliberative. Erasmus added the ‘familiar letter’ as a fourth genre and admitted that many letters shared the characteristics of several different types. Other theorists were more straightforward and concise, such as Juan Luis Vives and Justus Lipsius. Vives pointed out that the rules set forth in his manual applied not only to Latin letters, but also to letters written in the vernacular, which in Italy became dominant in the second half of the sixteenth century. He thus foreshadowed the shift to the vernacular which occurred in Northern Europe in the course of the seventeenth century. Lipsius stressed the need for a well-considered style, both colloquial and apparently spontaneous.

Since antiquity, letters have been understood as part of a conversation between absent friends. They are therefore likely to contain not only observations themselves, but also the first assessments of new observations. Adam Mosley, for instance, offers us many examples of this duality in the correspondence of astronomers. However, epistolographical theory stipulated that letters be short. Demetrius of Phalerum in his treatise *On Style* had dictated that the letter was not the appropriate medium for discussions of any length. A letter should deal with simple matters in plain words and should not evolve into treatises, as most early modern scholars knew all too well. Many writers resorted to the commonplace that they had exceeded the length of a letter. Not all writers obeyed the rule of brevity, especially if they were communicating factual reports without concern for style, as with the fascinating letters which Peter Martyr de Angleria addressed to the high and mighty, discussed in this volume by Gerhard Holk.

But Angleria was untypical. Most letter writers relegated longer pieces of evidence to an appendix or attachment, rather than integrating them into the body of the letter. This was especially the case with non-textual evidence, such as drawings, tables, diagrams, or notebook extracts, often added on a separate piece of paper, usually designated as a *charta*, a *sc(h)eda* or a *sc(h)edium/schedion*. In a way, these *schedae* or *schedia* were handled as self-contained pieces of knowledge, which could be moved around freely because they

18. See also below, Mosley, pp. 116–17.
20. I give a number of examples in my own contribution; see pp. 110–11.
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maintained their value even if taken out of their original context. More often than not, the recipients separated these attachments from the original letters and organized them separately, as Candice Delisle, Florike Egmond, William Stenhouse, Adam Mosley and I myself demonstrate below.21 As a consequence, the modern researcher is often confronted with letters containing references to sources now missing. On the other hand, printed works occasionally contain fragments of texts copied out, sometimes silently, from letters addressed to the author.

Letters, in short, constitute an excellent source of early modern ideas on the authority and value of sense-perception.

THE REPUBLIC OF LETTERS AND THE SCIENTIFIC REVOLUTION

This volume draws on case-studies from the scholarly correspondences of the period 1500–1675, a span preceding and encompassing the time-frame traditionally assigned to the ‘scientific revolution’. This period, however, also comprises the first phase of the history of the Republic of Letters: from its explicit conceptualization as a Latin Respublica by Francesco Barbaro in 1417 and by Erasmus in his Antibarbari (written in 1494),22 to its transformation into a vernacular, and specifically French community, which started to develop infrastructural elements such as journals. The Republic of Letters has still been the prerequisite of historians involved in the history of literature and scholarship, such as Hans Bots and Françoise Waquet. The ‘scientific’ side of its citizens was hardly acknowledged until the appearance of Anthony Grafton’s seminal intellectual biography of Scaliger and his Defenders of the Text, which opened up the field of literary history to the historian of science – a process of integration which still appears to be in its initial phases, and to which this volume aims to contribute.

The long history of the Republic of Letters still awaits a general treatment, although a number of studies have appeared, notably in the past two decades, which deal with its essential aspects.23 The ‘Republic of Letters’ as a term was already in use in the early

21. See this volume, pp. 38, 61, 64, 76, 121 and 110.
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sixteenth century and it remained a vital concept in the self-conceptualization of the learned world until the beginning of the nineteenth century. The term itself a very stable one, but the reality behind it is described in different ways, depending on chronology and geography. In fact, the stability of the term obfuscates that this community of scholars changed over time, in their practices as well as in their ideals.

We have limited ourselves to the period preceding the advent of the scholarly journal, the foundation of the academies, the vernacularization of the Respublica litterarum into the République des Lettres, and, philosophically speaking, the early Enlightenment. In the period up to 1670, the letter was the sole means of long-distance communication and therefore the only carrier of reports not yet fully developed and not ready to appear in print.

We have also restricted ourselves to discussing the observations of particular phenomena, juxtaposing cases across disciplines too often studied in isolation. In this way, we hope to demonstrate the historical continuity and the synchronic parallels between various early modern practices of observation in the fields of scholarship, anthropology and natural science. Because of this diachronic perspective, the articles below have been put in chronological order.

This volume, then, has a threefold aim. First, it investigates the epistemologies which underlay the communication of observations and how they were invested with authority. Secondly, it looks at the effects of letters and correspondence networks on the communication of observations. Lastly, we will contribute to a discussion of the concept of the ‘scientific revolution’ and its historiography.