WALLIS, PETER (ED.), *ADELARD OF BATH: THE FIRST ENGLISH SCIENTIST BY LOUISE COCHRANE WITH ADDITIONAL MATERIAL BY CHARLES BURNETT*, BATH ROYAL LITERARY AND SCIENTIFIC INSTITUTION, 2013, 171 PP., ISBN 978-0-9544941-3-1 (PBK)

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The volume edited by Peter Wallis not only republishes a facsimile of Louise Cochrane's original (first published in 1994 and out of print for years),[1] it also represents a very successful attempt to include new material providing the reader with a broader historical context of Adelard of Bath and his times. As Wallis notes in the preface: 'additional new material brings the story of Adelard scholarship up to date with an account of achievements since Cochrane's book was written' (p. xi).

The book starts with a foreword by Prof. Jim Al-Khalili's, which is followed by an acknowledgements section and a chapter devoted to picture credits. Bracketed by Peter Wallis's preface, the opening pages consist of a general introduction by Peter and Edith Walllis and a prologue to Cochrane's volume, 'Louise Cochrane and her Book on Adelard', by Prof. Charles Burnett. Julian Vicent's map, which shows most of the places mentioned in Louise Cochrane's book, is followed by Cochrane's facsimile *Adelard of Bath: The First English Scientist*. In 'Epilogue to Adelard of Bath' introduced below, Charles Burnett offers insight into the new editions of several Adelard's Latin works released after the publication of Louise Cochrane's book in 1994. The edition is supplemented by two appendices: 'Adelard Time Line' by Michael Davis and Cochrane family's 'Louise Cochrane Biography'.

In the original preface (pp. 21-22), Cochrane explained her interest in Adelard of Bath, stressing his fundamental influence on the development of scientific thought: 'Adelard's work influenced the development of architecture and even made a contribution to the processes of simple arithmetic' (p. 21). Evoking her first visit to Bath City Reference Library, Cochrane underlined that in those days

[1] Louise Cochrane, *Adelard of Bath: The First English Scientist*, London: British Museum, 1994.

'only one book devoted to Adelard's life was available, in German, published in 1935' (p. 21) – not without mentioning the seminal volume edited by Charles Burnett's (1987).[2]

Casting light on the transmission of scientific knowledge in Adelard's times, Prof. Jim Al-Khalili's foreword gives a short description of the Golden Age of Arabic Science. Al-Khalili refers to the translation into Arabic of the great texts of the Ancient Greeks, emphasizing the original works that 'was added to humankind's body of science by Arab and Persian giants like Avicenna, Alhazen, al-Khwārizmī and Bīrūni, to name but a few' (p. vii). Focusing on Adelard of Bath's achievements, Al-Khalili concludes that he was one of the most influential scholars of medieval Europe, highlighting his translations of some of the most important Greek and Arabic texts into Latin as well as his works on meteorology, astronomy, botany and zoology.

The volume continues with an introductory section, 'Adelard, his World and his Legacy' (pp. 1-10), in which Peter and Edith Wallis introduces the reader to late eleventh and early twelfth century historical and city planning of Bath. The chapter represents a detailed summary of the educational and learning context in late eleventh century England, underling that French cathedral schools were setting for intellectual exchanges: 'we know of several tenth century Englishmen who, like Adelard a century later, completed their education in France' (p. 6). This 'General Introduction' ends with a broad overview of Adelard's legacy, stressing Adelard's significant collection of scholarly works – original contributions and translation from the Arabic. It focusing on Adelard's translation of Euclid's *Elements*, by specifying that it 'brought to Western scholarship for the first time the use of theorems and proof to develop mathematical arguments' (p. 7). It is worth bearing in mind that in this section, the authors not only refer to Cochrane's 1994 biography, but also use different essays published after Cochrane's original, 'providing ample further reading on the subjects considered' (p. 1).

The opening pages continue with an introduction to Cochrane's volume 'Louise Cochrane and her Book on Adelard' (pp. 2-14), in which Charles Burnett takes us into a different setting, as he deeply looks into the structure of Cochrane's volume. With the aim of providing the reader a full picture of Cochrane's interest in Adelard of Bath, Burnett explains how '*Adelard of Bath: The First English Scientist* marks the culmination of the interests of Louise Cochrane in mathematics, local history, the Middle Ages and (more generally) in communication' (p. II). He also notes that Cochrane 'started collecting copies on manuscripts and printed works on Adelard' (p. II), clarifying that she became

[2] Charles Burnett (ed.), *Adelard of Bath : an English Scientist and Arabist of the Early Twelfth Century*, London: Warburg Institute, 1987.

involved in Adelard after his Conference on Adelard of Bath – in fact, Cochrane's article on *Mappae clavicula* was published on the basis on her contribution to the Conference. Thorough an overall perspective on the republished volume Burnett places a particular emphasis on the structure of Cochrane's work.

Cochrane's facsimile, '*Adelard of Bath: The First English Scientist*' (pp. 17-158), begins with the 'Preface' (pp. 21-22), and continues with the sections devoted to 'Abbreviations' (p. 23) and 'List of Illustrations' (p. 24), which are bracketed by the ten chapters that comprise the book. The first chapter of Cochrane's volume, 'Early Background' (pp. 25-34), emphasizes that in the twelfth century, Adelard's works marked a decisive stage in the history of ideas. Both Adelard's translations and original works are detailed below, stressing his translation of Euclid's *Elements* and al-Khwārizmī's *Zij*, as well as Adelard's reintroduction to Europe 'the full corpus of Euclid's geometry as a logical deductive method' (p. 25). 'Concerning the Same and the Different' (pp. 35-45) is the second chapter of Cochrane's volume in which a thorough description of Adelard's *De eodem et diverso* is provided to the reader. 'Tutor al Laon' (pp. 46-55) delves into Adelard's career in which he accompanied his nephew and other pupils to Laon. Cochrane explains that in this period of time 'universities were not formally established in Europe, but popular masters would draw students from many places and cathedral schools developed reputations based on the work of particular men' (p. 46). The next chapter of Cochrane's volume, 'Journey to Syria' (pp. 56-64), attempts to explain Adelard's way to Syria after leaving Laon, stating how it is likely that he traveled via southern Italy, Sicily and Greece. In the fifth chapter, 'Return to England-*Quaestiones naturales*' (pp. 65-76), Cochrane focuses on Adelard's thinking by referring that this text 'marks a transition in Adelard's thinking with its emphasis on generalisations to his increased interest in natural philosophy and the application of 'reason' to scientific method in arriving at his conclusions' (p. 66).

'Falconry' (pp. 77-93) highlights insights into Adelard's treatise *De cura accipitrum* ('On the Care of Falcons'), describing it as the earliest western European treatise on falconry, explaining that 'the format is again dialogue between Adelard and his nephew. The following chapter, 'Adelard's translation of Euclid's *Elements*' (pp. 94-104), focuses on the three versions of Euclid's Elements attributed to Adelard from the Arabic differentiated by Marshall Clagett. In 'Adelard and al-Hhwārizmī's Zij' (pp. 105-116), Cochrane starts describing the importance of Adelard's translation of al-Hhwārizmī's *Zij*, by recognizing that 'there are those who consider it to have been the more contribution to Western scientific thought' (p. 105). 'Adelard and Astrology' (pp. 117-128), offers insights into the growing interest in astrology in the twelfth century as a result of the translations from the Arabic originated in Spain. In 'The Astrolabe Treatise' (pp. 129-138), Cochrane goes into *De opera astrolapsus*: 'like his *Regule abaci*, this work is

intended to instruct on the method of using a particular piece of apparatus, and it is assumed that an astrolabe is at hand' (p. 129). Cochrane devotes the section 'Conclusion' (pp. 139-140) to make a general reflection of Adelard's intellectual development which 'reflects trends now we established as representative of the history of ideas in the twelfth century (p. 139).

Focusing on the additional material by Charles Burnett we find an 'Epilogue to Adelard of Bath. Recent Adelard Scholarship' (pp. 159-166) with a detailed introduction to the new editions of several Adelard's Latin works released after the publication of Louise Cochrane's book in 1994. For the purpose of gathering the recent Adelard scholarship, Professor Burnett begins by discussing new publications associated with Adelard's natural science works, mathematics and astrology, keeping up with an overview on his contemporary influence; these sections are followed by a chapter in which the studies on Adelard's doctrine and philosophy are explained.

Burnett's 'Natural Science Works' (p. 159) starts with a reference to Peter Dronke's editing work, and explains that he commissioned the edition and translation of some of Adelard's original Latin texts in the *Cambridge Medieval Classics* series, which resulted in the highly regarded Burnett's volume *Adelard of Bath, Conversation with his Nephew*. A book consisted of the edition and translation of Adelard's *De eodem el diverso*, *Quaestiones naturales* and *De cura acciptrum* – the volume includes a preliminary study on Adelard's life and works.[3]

Burnett's chapter 'Mathematical Works' (pp. 160-161) not only provides deep insights into the editing work related to Adelard's texts in the field of geometry and arithmetic, but also revises some conclusions raised in Cochrane's facsimile. Burnett deepen into Busard's edition of the three versions of Euclid's *Elements* attributed to Adelard as discussed in the Cochrane facsimile (p. 62).[4] Contrasting Busard's edition with Burnett's study, we note that when Busard's preface to *Adelard II* assumes that Robert of Chester may has been its author 'because we know that he revised another translation of Adelard (the Zij of al-Khwārizmī), and that he had stated that he had worked on the Elements' (p. 160), Burnett suggests that the authorship corresponds to Adelard according to the high number of manuscripts 'that preserve the work and argues that, while Adelard I is a literal translation of an Arabic text whose emphasis is on 'demonstration', Adelard II is a Latin redaction for students' (p. 160).

[3] Adelard of Bath, *Conversations with his Nephew : On the Same and the Different, Questions on Natural Science, and On birds*, ed. Charles Burnett et al., Cambridge: Cambridge University Pres, 1998.

[4] There are three versions known as Adelard I, Adelard II, Adelard III, see H.L.L. Busard (ed.), *The first Latin translation of Euclid's Elements commonly ascribed to Adelard of Bath*, Toronto: Pontifical Institute of Mediaeval Studies, 1983; H. L. L. Busard and M. Folkerts (eds.), *Robert 's (?) Redaction of Euclid's Elements, the so-called Adelard II Version*, 2 vols, Basel – Boston – Berlin: Birkhäuser, 1992; H.L.L. Bursand (ed.), *Johannes de Tinemues's Redaction of Euclid's Elements, the So-Called Adelard III Versions*, 2 vols., Stuttgart: F. Steiner, 2001.

In 'Adelard's Astrology and Magic' (p. 162), Charles Burnett focuses on editions and versions of Adelard's translations of the *Centiloquium* attributed to Ptolemy, and of Thabit ibn Qurra's *Liber prestigiorum*; comparing Adelard's translation of Thabit ibn Qurra's work on making talismans and the later translation by John of Seville, Burnett elucidates that prayers to planetary spirits and other magical ceremonies are included in Adelard's translation of Thabit ibn Qurra's work, yet they are absented from John's version.

As a way of clarifying Adelard's contemporary influence, Burnett's analysis attempts to explain how his leverage was beyond Bath, which had been considered as the main centre for his activities. The author points out that Prince Henry, (later King Henry II), was probably tutored by Adelard. Burnett also notes how 'it is very likely that he was tutoring the sons of Geoffrey Plantagenet, the Duke of Normandy, on the other side of the English Channel in the late 1140s at the same time as the French humanist scholar William of Conches' (p. 162). Throughout his 'Studies of Adelard's Doctrine and Philosophy' (pp. 162-164), Burnett delves into the study of the aspects belonging to Adelard's thought, placing major emphasis on modern scholarship. In his insightful analysis, Adelard's doctrine on universals is considered as the 'first aspect of Adelard's thought to attract the attention of modern scholarship' (p. 162). And after explaining that Adelard's doctrine on universals forms the major part of his *De eodem et diverso*, Burnett clarifies that it 'is also the only text by Adelard to include poetry, which is used to characterize the two protagonist in the work – Philocosmia, the lover of secular world, and Philosophia, the lover of wisdom' (p. 162). Burnett's study provides the reader with a detailed comparative analysis that brings to light some differences in interpretation between his interpretation and those held by Cochrane and Jean Jolivet. It also highlights how Adelard followed Boethius in regard to perception: while Boethius uses the three levels of perception to point out the difference between the Divine mind and the human mind, the argument is understood by Adelard 'as being capabilities of the human mind' (p. 164). Finally, in his 'Adelard's Personal Comments' (pp. 164-165), Burnett focuses on commentaries or glosses in which Adelard expressed his own views on different subjects; commentaries that come along with his translations of works on astronomy, astrology and magic: 'it is only in respect to the abacus, geometry, and the astrolabe that we have this original comments' (p. 164).

The volume is a highly recommend work that not only republishes in facsimile Louise Cochrane's book but indeed represents a very successful approach; it invites the reader to delve into new material that provides a broader historical context and reflection on Adelard of Bath's great intellectual achievements.