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Book reviews

Joyce van Leeuwen, **The Aristotelian Mechanics: Text and Diagrams**. Berlin: Springer, 2016. Pp. 258. ISBN 978-3-3192-5925-3. $119.00 (hardcover).
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Philological reconstructions based on a genealogy between all available manuscripts are a relatively rare genre in the history of philosophy. Looking at similar endeavours, three examples stand out: Tiziano Dorandi's work on Diogenes Laertius (2013), Gijsbert Jonkers's masterful reassembly of Plato's *Timaeus* and *Critias* (2017) (which at 566 pages is probably the most detailed study of an individual textual tradition written recently), and the Aristotelian efforts of Marwan Rashed, who first looked at *De generatione et corruptione* (2001) and then restored

the lost commentary to the *Physics* by Alexander of Aphrodisias (2011) through an analysis of the Byzantine scholia that preserve traces of it.

Joyce van Leeuwen ideally joins these pre-eminent philological histories, particularly the aforementioned Rashed, Dieter Harlfinger and Mohammed Abattouy, who studied the diffusion of Greek mechanics in the Arabic context, and defines her primary goal as the need to re-establish on sounder grounds the transmission of a spurious section of the Aristotelian corpus known as the *Mechanical Problems* (but always cited in her book simply as *Mechanics*). While the negative opinion on Aristotle's authorship was of limited import – Girolamo Cardano being an isolated sceptic in the Renaissance – and it never affected doctrinal consideration for the text, the similarities with other textual and scientific afterlives are evident. First, as the author clearly states, 'the manuscript tradition of the Aristotelian *Mechanics* is an exclusively Byzantine affair' (p. 2). Second, and perhaps most importantly, we are still largely dependent on nineteenth-century editions, namely by Johannes van Cappelle (1812), Immanuel Bekker (1831) and Otto Apelt (1888), which appear to be, on sustained scrutiny, equally unsatisfactory. Moreover, as Van Leeuwen demonstrates, Maria Elisabetta Bottecchia's edition (1982) is not an improvement either. Third, and in rich counterpoint with the post-Euclidean tradition, at some juncture after the late fourth century BCE the diagrams stopped being a mere illustration meant to simplify a mechanical demonstration and started to function as an independent performative platform, so to speak. In fact, contrary to their marginal position in the manuscripts and despite their 'indifference to metrical accuracy' (p. 96), it is quite clear from Van Leeuwen's exposition that diagrams became the operative knowledge and the actual driving force in the scribal history of the *Mechanical Problems*, at least in the hands of the humanist Niccolò Leonico Tomeo, who copied and owned a codex now housed in Bern, and for other scribes who worked in Cardinal Bessarion's larger orbit.

Van Leeuwen is persuasive on the first set of questions summarized above – that is, on the unreliability of our critical editions – and her success can be measured by many important achievements. One is the insistence on the dangerous influence of an emendation of the MSS at 849a14–16, introduced by Van Cappelle, which blurred the readers' perception of what Aristotle meant by a movement 'against nature'; here, the author cleverly refers to Mark Schiefsky's analysis of Aristotle's demonstrative logic in the *Mechanical Problems* (2009). For sure, the topic would still require a longer treatment to clarify whether a new edition would make a cogent case for a kinematic account (where the highest explanatory power derives from the geometrical part) or a dynamic argument (which hinges on concepts of force and constraint). The other accomplishments consist in corrections of the manuscripts' chronology (pp. 47, 49 and *passim*); a new definition of the 'family c' (p. 53), which is remarkable for its contamination and the presence of scholia; and a complete reversal of Bottecchia's opinion of how the Aldine imprint fits within the tradition (p. 60). More in general, it is reassuring to see descendants being linked to one another by a rigorous estimation of errors in common, but the strict application of neo-Lachmannian theory in a tradition that is so innovative and active in the early modern period should have warranted a more sustained justification. For instance, Van Leeuwen is adamant that a new edition should excise all materials that were added to the original Aristotelian treatise by accretion, including, most notably, the Byzantine paraphrase by Georgius Pachymeres, but is also well aware of the prime research value of non-authentic diagrams (p. 74). Why should we accept the criterion of the *lectio difficilior potior* (p. 103) in a tradition which, by the author's own admission, shines for its 'variety and interchangeability' (p. 11)? Likewise, her comment on Tomeo's Latin translation ('diagrams have lost their significance as proofs and are now reduced to pictures merely illustrating the text' (p. 178)) is dismissive just when it could serve as a springboard to study how many humanists, practitioners and engineers became interested in Aristotle's diagrammatic reasoning.

Lachmannian methods aside, the book is loosely organized. Chapters 3 and 4 represent an independent monograph, reprising a stemma previously defended by the author ('The text of the

Aristotelian *Mechanics*', *Classical Quarterly* (2013) 63(1), pp. 183–198) and culminating in a brilliant reconstruction of the archetype. Chapters 5 and 6 break up another earlier contribution ('Thinking and learning from diagrams in the Aristotelian Mechanics', *Nuncius* (2014) 29(1), pp. 53–87) on levels of cognition in diagram studies and mechanics as an early modern discipline, with which she might have wanted to start the book. Chapter 2 lists the testimonies, with some bizarre choices (e.g. the Ambrosian MS should have an A before 174 sup., and the Phill. 1507 is a note of possession of what is known as Beinecke MS 245), whereas Chapter 1 treats both authenticity and history of the text exhaustively, but is quite cursory as to why the mechanical set should be kept aside from the rest of the pseudo-Aristotelian *Problems* (p. 7). Finally, it is not clear why the bibliography is fragmented at the end of each unit, instead of being given in full at the end, with a proper index. Among the omissions, De Groot's works on the modes of explanation in Aristotle and Mayhew's edited collection (*The Aristotelian Problemata Physica: Philosophical and Scientific Investigations* (2014)) would have strengthened the isolated references to Netz as to how proofs worked out, and Wilson's extensive treatment of diagrams in Aristotelian meteorology (*Structure and Method in Aristotle's Meteorologica: A More Disorderly Nature* (2013)) would have naturally complemented the significance of geometrical rainbows (invoked at p. 91). In short, this book is always sustained by impressive and painstaking scholarship, and it functions very well as prolegomena to a future edition – whether or not the author herself (as I would wish) intends to fulfill that programme – but paradoxically it fails to fully capitalize on what it shows out best: the vibrancy of diagrams vis-à-vis text in a demonstrative science.

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Pietro Daniel Omodeo (ed.), in collaboration with Karin Friedrich, **Duncan Liddel (1561–1613): Networks of Polymathy and the Northern European Renaissance**. Leiden and Boston: Brill, 2016. Pp. xii + 322. ISBN 978-9-0043-1065-0, €135.00, $175.00 (hardback).
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Kuni Sakamoto, **Julius Caesar Scaliger, Renaissance Reformer of Aristotelianism: A Study of His Exotericae Exercitationes**. Leiden and Boston: Brill, 2016. Pp. viii + 213. ISBN 978-9-0043-1009-4, €104.00, $135.00 (paperback).
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At the beginning of the seventeenth century, the Scottish polymath Duncan Liddel (1561–1613), professor at several Lutheran universities of northern Germany, relied on the Italian philosopher and physician Julius Caesar Scaliger's (1484–1558) *Exotericae Exercitationes* (1557), which he praised highly, to argue, in his *Ars Medica* (1608), that neither previous forms nor qualities remain in the mixture. Once a very popular book (reprinted ten times from 1576 to 1665), *Exotericae Exercitationes* has recently been rediscovered by historians of early modern science, who acknowledge, among other topics, the fact that Scaliger's theory of mixtures likely paved the way for the rise of early modern corpuscularianism. *Exotericae Exercitationes* was among the books that Liddel brought to Scotland when he returned to his native Aberdeen and which he bequeathed, together with his library, to the Marischal College (nowadays preserved at the University of Aberdeen Library). The two books under review here, covering different facets of this history, are instrumental to understanding the complex and multidimensional processes through which the circulation of ideas, individuals and models of scholarship shaped the emergence of early modern science, as well as the institutional and social networks that made such cultural exchanges possible.

Duncan Liddel (1561–1613): Networks of Polymathy and the Northern European Renaissance, edited by Pietro Daniel Omodeo in collaboration with Karin Friedrich, offers a collection of studies on the life, scientific works and scholarly networks of Duncan Liddel and his time. Despite being