

Beeckman's engagement of mechanics and philosophy

Klaas van Berkel: Isaac Beeckman on matter and motion: Mechanical philosophy in the making. Baltimore: Johns Hopkins University Press, 2013, viii+265pp, \$39.95 PB

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Isaac Beeckman (1588–1637) was a master craftsman from the Zeeland town Middelburg who studied to become schoolmaster in the Holland towns of Rotterdam and Dordrecht. He was a strict Calvinist and a tireless observer and contemplator of natural phenomena. Foremost, he was the first mechanical philosopher in Europe who played a key role in the intellectual development of René Descartes (1596–1650) and inspired pioneers of mechanistic thinking Marin Mersenne (1588–1648) and Pierre Gassendi (1592–1655). We know this because Beeckman kept a journal throughout his life in which he recorded his observations and ideas. The journal is a treasure trove of early modern knowing. Beeckman had a keen eye for the world around him and responded to what he saw, as well as the reflections of others, with a highly original mind. The journal was discovered in 1905 by Cornelis de Waard (1879–1963), who subsequently edited and published it between 1939 and 1953 (Beeckman 1939–1953). Although some acquaintances and visitors saw the journal and a selection of his notes was published by his brother in 1644, the significance of Beeckman's ideas and his decisive role in the development of early modern philosophy have largely remained unknown. De Waard's edition did not truly change this: only with the new Descartes studies of the 1980s did the significance of Beeckman for the new philosophy become wider known (Gaukroger 1995). At that moment also the first monograph on Beeckman finally appeared: a study of his life and work in the form of the 1983 Utrecht dissertation of Klaas van Berkel (van Berkel 1983). It suffered, however, a similar fate as John Schuster's 1977 meticulous study of Descartes's intellectual development (Schuster 1977): both remained largely inaccessible for an international audience. Few could read the Dutch of van Berkel's dissertation, whereas Schuster's was only available via microfilm.

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Last year, both works have finally come available to the academic community. Schuster, *Descartes-Agonistes* (2013), was reviewed previously in *Metascience* (Dijksterhuis 2014). *Isaac Beeckman on Matter and Motion: Mechanical Philosophy in the Making* is a translation and revision of van Berkel's 1983 dissertation. The first three chapters contain a biography of Beeckman, tracing his origins, education, and career, and the gradual rise of his intellectual stature, and carefully placing it in the social, political, and religious turmoil that marked the young Dutch Republic in the first decades of the seventeenth century. Van Berkel may be relied upon for this: shortly after his dissertation, he wrote a history of Dutch science that is still authoritative and was translated in 1999 (van Berkel 1985).

The next two chapters contain a reconstruction of Beeckman's natural philosophy from the notes in his journal. Although Beeckman never elaborated his ideas systematically they provide a coherent and highly original philosophy of nature. Van Berkel focuses on Beeckman's conceptions regarding matter and motion, the cornerstones of a mechanical philosophy, explicating his pioneering insights into inertia, fall, and atmospheric pressure, among other things. Beeckman developed his mechanistic understanding of nature largely autonomously, and the next chapter is devoted to the possible sources of his ideas: ancient atomism, his artisanal expertise, his Calvinist conviction, and his Ramism.

The final chapter brings together all these elements in a reflection upon the historical significance of Beeckman, intended to identify the roots and essence of mechanical philosophy as the key to the Scientific Revolution. Basically, this is an exchange with E. J. Dijksterhuis's classic *Mechanization of the World Picture* (1950) that van Berkel and other members of the Utrecht institute for history of science engaged in around 1980. Van Berkel now greatly enhances his account with a discussion of the role of "picturability" in mechanistic thinking, employing insights from the history of early modern visual culture. The demand for visually comprehensible explanations of natural phenomena was rooted in Beeckman's artisanal background and legitimated by Ramus's philosophy. The significance of this picturability is that it provides the necessary precondition for a mechanization of the world picture. In this quasi-Husserlian conclusion, van Berkel uncovers a notable blind spot in Dijksterhuis's as well as Koyré's Platonist understanding of the rise of modern science: for a mathematical science of nature to be possible at all the world needs mathematical structuring. Although he takes the argument important steps further, van Berkel remains largely wedded to the historiographical perspective of his dissertation: the budding science of mechanics is key to the Scientific Revolution and thus central to his discussion of Beeckman. Although Schuster has shown the importance of hydrostatics in the pre-Galilean understandings of force and motion, Beeckman's engagement with Stevin is only being paid lip service.

Likewise, van Berkel engages in the classic debate about the relationship between the scholar and the craftsman in the Scientific Revolution but maintains the implied categorical distinction. He is right in saying that such distinctions cannot be dismissed out of hand (188) but fails to offer a well-considered assessment of such categories. Instead of attempting an integral reading of Beeckman's journal, he tends to separate his philosophical and artisanal pursuits. As a result, he maintains

that Beekman did not employ purposeful experiment and systematic “research” (77) and does not recognize the possibility that artisanal expertise offers an alternative way of acquiring empirical knowledge. In this regard, a comparison between Beekman and Galileo could have been useful, along lines such as Matteo Valleriani’s recent *Galileo Engineer*. Both were hybrid in a comparable way, combining expertise and recognition of the crafts with philosophical training and ambitions. It cannot be coincidence that both came up with the concept of inertia independently: it is a reflection upon a new kind of natural phenomenon. Still, if *Isaac Beekman on Matter and Motion* does not reap such historiographical fruits itself, it certainly has grown them for us to harvest. Van Berkel has uncovered the rich content and historical significance of Beekman and his journal.

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