


Key passages hint at a still deeper, more reflexive, engagement with the ‘geopolitics of knowledge’, which would scrutinize the extractivism of alien adventurers like Humboldt alongside a corresponding cast of the European-descended colonial elite. In part, the book’s explicit aim is to reposition these ‘towering figures’ of Ibero-American science at the heart of the first global modernity (p. 229). Yet in some of its most compelling contributions, *The Invention of Humboldt* suggests a complex layering of power relations in the making and breaking of Spain’s colonial empire, whose prodigious scientific culture was critically linked to the subordination of Indigenous populations and mobilization of coercive, racialized labour systems to exploit resources. The implicit claim of the Humboldt cult is a kind of intellectual regime change, which asserts new modes of domination (e.g. free-trade global capitalism) over the old imperial forms.

Notable in this vein is Cañizares-Esguerra’s closing chapter, a vivid account of the global physics that Humboldt ignored. Here was a ‘planetary’ science of wind and tide, precise instrumentation and hemispheric cartographies. This model was crafted by Spanish luminaries Juan Bautista Muñoz and Martín Fernández de Navarrete, drawn from the archives of an ‘Iberian maritime modernity’ that was itself generated through centuries of mercantile capitalism, slaving and mineral plunder (pp. 306–15). Humboldt manipulated the works of Muñoz and Navarrete to sculpt his own image of romantic discovery in the figure of Columbus, radically decontextualizing Iberian conquest as an enlightened enterprise of the sort he wished to replicate. Thus the so-called ‘second Columbus’ scouted the commercial potential of the Americas for the predatory markets of the North Atlantic. That he did so in collaboration with Creole patriots reveals a broad anti-Hispanist coalition (p. 8). The invention of Humboldt and the erasure of Ibero-American enlightenments were one and the same process. This ingenious book sets both within the extraordinarily complex and fractured political geography of the Iberian Atlantic.

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## **Anna Marie Roos and Vera Keller (eds), *Collective Wisdom: Collecting in the Early Modern Academy***

**Turnhout: Brepols, 2022. Pp. 325. ISBN 978-2-503-58806-3. €85.00 (hardback).**

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*Collective Wisdom: Collecting in the Early Modern Academy* is at once historical and contemporary. An output from a series of three AHRC-funded Collective Wisdom: Collecting in the Academy conferences, this edited volume explores the motivations, practices and debates around collecting at a time when learned societies were coalescing as vehicles for knowledge production. What makes this absorbing volume much more than a reflection on the way in which collecting was carried out between 1660 and 1760 is the distinctive lens employed to grapple with the notions of public and private: who is doing the collecting and why, the nature of the collections and the nature of the anticipated public

being considered to engage with the collections – the very themes that museums are, yet again, immersed in centuries later.

The strongest chapter is the introduction, which comprehensively contextualizes early modernity in the academy as a period of immense change. Using the theories of philosophers such as Jürgen Habermas, it argues that museums' moving from private to public echoes the late seventeenth-century shift from 'representational culture', centring the monarch, to the 'bourgeois public sphere', centring on the private individual. It states that this book will be relevant to contemporary museologists and historians of science alike, providing a much-needed consideration of 'how the collection was transformed in this period into a research vehicle that could bring objects and learned study ever closer together' (p. 19). This is an enticing and ambitious promise and a few of the chapters that follow are a little uneven as they rise to the challenge.

Kelly J. Whitmer's chapter, 'Putting play to work', ably picks up the threads laid out in the introduction, unpacking the educational reform that took place in Central Europe in the seventeenth century to highlight the way in which collections of *realia* were mobilized in a new pedagogic approach. Collections of objects made by artisans were used as tools for learning through play, enabling children to develop their wisdom by doing and making. Although not within Whitmer's remit to state, the legacy of these reforms is easily traceable to the materials-based approach used in workshops with young people delivered by museums across Europe today.

Chantal Grell follows a more traditional pattern, examining the work of 'a relatively understudied early modern polymath' (p. 69), Tito Livio Burattini (1617–81). Although a fascinating account, which includes details of an encounter between Burattini and the English astronomer and mathematician John Greaves in Egypt, the chapter does not fully engage with the ideas of transformation of the ways in which collections were then used.

In common with the most successful chapters in this volume, Georgiana D. Hedesan examines the ways collections were deployed in education reform. Taking the Danish professor and physician Ole Worm's Museum Wormarium as a case study, Hedesan analyses Worm's instrumentalization of his natural-history collection in the development of pragmatic medical alchemy knowledge. Like Whitmer, Hedesan casts Worm's attempts at university reform in the context of prevailing and competing philosophies of Paracelsianism and Rosicrucianism.

The medical theme continues in Fabian Kraemer's chapter on the publications of the Academia Naturae Curiosorum (Leopoldina) and provides a refreshing addition, moving to considering journals instead of objects. Kraemer extends questions of classification to the members of the learned society, identifying what it is about their recording and writing practices that made them variously authors or collectors. This definition hinges on the manner they engaged with their own collections. Kraemer argues that by working with observations, and separating their own experience from the literature, they became not only collectors but authors as well.

The chapter that follows stays with the Leopoldina, scrutinizing the vernacular knowledge that made its way into their published journals. Working with social technologies as a tool, Vera Keller investigates questions of inclusivity and asks which knowledges were privileged. Through case studies of sirens and dragons, Keller unravels the interwoven connections between Leopoldina members, apothecaries, merchants and vernacular collectors. She uses the metaphor of winnowing to describe the way vernacular knowledge was sifted to decide what was worthy of publication and dissemination and what should be discarded.

This question of value segues into Philip Beeley's chapter on the Buda manuscript. Beeley highlights the fragilities within the knowledge economies that determine whether

or not written works enter renowned collections or institutions. Beeley traces the ways these decisions are ultimately built on networks of relationships. And, as Julia A. Schmidt-Funke explores in 'Urban fabric and knowledge of nature', these relationships can be fraught. Schmidt-Funke looks at learned societies that emerged in Danzig and Frankfurt: cities that were thriving commercial centres with their own hierarchies and structures that learned societies by turns courted and counterpointed by offering alternatives.

The questions of enquiry and categorization within learned societies as their collecting practices moved to a more 'scientific' approach are captured in the next trio of chapters, by Kim Sloan, Dustin Frazier Wood and Roos. They unpick the work of individual collectors, such as Hans Sloane (Sloan), while tracing the ideas about knowledge production and the shift from antiquarianism to natural philosophy and science (Wood). That shift would not have been possible without the consideration taken by learned societies, such as the Egyptian Society, to position themselves within wider scholarship (Roos).

Overall, this volume skilfully maps out a history that remains directly relevant to contemporary questions in the use of history-of-science collections specifically and museum collections in general. It is therefore fitting that the final chapter addresses fragmentation in the digitization of early modern collections. Examining the Royal Society's digital collections, Louisiane Ferlier gives a balanced account of both the potential and the hazards of digital collections in making collective wisdoms accessible to the public. She notes that the basic work of sorting and categorizing has not changed in centuries, whether dealing with material or digital objects. Ferlier reminds readers that much like in the early modern academy, contemporary collection practices are also going through a period of transformation. Whether or not we choose to learn from the useful insights contained in this volume remains to be seen.

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## **Mackenzie Cooley, *The Perfection of Nature: Animals, Breeding, and Race in the Renaissance***

**Chicago: University of Chicago Press, 2022. Pp. 334. ISBN 978-0-226-82228-0. \$112.50 (cloth).**

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In this study, Mackenzie Cooley traces one of the strands of thought that has informed modern thinking about race. She does this by offering a detailed study of both contemporaries' practice of, and the theoretical knowledge that they produced and possessed relating to, the breeding of plants, animals and humans. As the title suggests, the book deals with the Renaissance period, with the majority of the source material deriving from the sixteenth century. Geographically, Cooley's study centres on Spain and its empire, whether in the Americas or parts of Europe such as the Kingdom of Naples, offering possibilities for exploring how the relationship between metropole and colonies mediated the creation of new knowledge.