

Collections, Machines and Knowing the World

Theatrum machinarum: Automaták és mechanikus játékok a kora újkori gyűjteményekben [Theatrum Machinarum: Automats and Mechanical Toys in Early Modern Collections]. By Dalma Bódai. Budapest: L'Harmattan, 2021. 207 pp.

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The desire to artificially reproduce the world and its creation has always been present in history. Today, we are creating artificial intelligence that is able to imitate the acts of Descartes' *res cogitans*, and artificial bodies i.e. machines imitating the *res extensa* have been with us since the early modern period. Dalma Bódai's *Theatrum machinarum: Automaták és mechanikus játékok a kora újkori gyűjteményekben* [Theatrum Machinarum: Automats and Mechanical Toys in Early Modern Collections] presents these early machines and their twofold aim: on the one hand, to bring the whole nature, the whole macro- and microcosmos (or at least a model of it) into one room; on the other hand, to be an artistically and aesthetically outstanding piece of “cabinets of curiosities”. The author lists and describes the most important collections (*Kunstkammer*; *Wunderkammer*) of the period, and the automats they contained, but beyond the mere listing, she also presents the theoretical, cultural and historical background. Hence, the theme of the book is a very interesting one and its questions have indeed relevance in our days: examining how did people in the early modern period try to get to know, own and recreate nature can teach us something about our present relation to the world, too.

The book consists of two main parts: in the first half of the work, the author presents early modern *Kunstkammers*. She describes the characteristics of such collections (what kind of pieces did they consist of, how were they stored, where did they stem from etc.) and the cultural and historical motivation behind collecting curiosities. Humanist erudition and desire for knowledge provided the framework for curiosity, and thus the intention to aggregate as much information (and their material manifestation) as possible. On the other hand, new trade lines and maritime

transport provided an opportunity to discover new, unknown, and exotic objects. These objects were then arranged in *Kunstkammern* as an act of aggregating knowledge, and soon these “knowledge collections” started to function as proto-museums, so that the wonderful curiosities of the world became accessible to a broader audience.

The first chapters of *Theatrum machinarum* give the reader an idea of what the *Kunstkammern* of the early modern period looked like. The first chapter introduces the sources available on the *Kunstkammern* and through them the *Kunstkammer* themselves. In this way, the introductory chapter provides both a picture of what curiosity collections were like and how they were seen by contemporaries. The chapter features travellers’ descriptions, listing the exotica they have seen in European *Kunstkammern* and marvelling at their uniqueness. The chapter quotes mainly from the descriptions of Hungarian noblemen Imre Thurzó, Márton Szepesi Csombor, Gábor Haller, Kristóf Batthyány, Mihály Bethlen, but also includes Latin and German travelogues by Hieronymus Turler, Justus Lipsius, Johann David Köhler and Georg Christian Raff.

In the following chapters, the *Kunstkammern* themselves take centre stage. The author first introduces some exemplary collections of rarities belonging to patronage monarchs. The chapter briefly describes the late medieval roots of the creation of these collections, before moving on to a longer or shorter presentation of each collection, including the *Kunstkammern* of the Medici and Prince Albrecht V of Bavaria, the collections of Frederick William Elector of Brandenburg and of Archduke William Leopold of Habsburg, as well as the *Kunstkabinet* of Archduke Ferdinand II of Tyrol and the *Kunstkammer* of Rudolf II of Austria, too. The author describes in detail what curiosities were to be found in the collections, and describes some of them in more detail, sometimes illustrated with photographs of the items. The chapter guides the reader through Ferdinand II’s armoury and the *Kunstkammer*’s cabinets, grouped by type of object. The natural and man-made exotica of Rudolf II’s *Kunstkammer* in Prague are then discussed.

The chapter also gives an insight into the organisation of the collections. In the collections of rarities, a distinction is made between *artificialia* and *naturalia*. The *artificialia* consisted of human works, the *naturalia* of works of nature. On this basis, a distinction could be made between the *Kunstkammer* and the *Wunderkammer*: *Kunstkammern* had a collection of *artificialia*, while *Wunderkammern* had a collection of *naturalia*. However, the two cannot be sharply separated: the wonders of nature could form the basis of human works of art, while natural rarities could be considered artistic in themselves. Perhaps it is the interplay of the natural and the artificial that makes the curiosities special: the ability to imitate nature in human creations is admirable, and the beauty of nature is fascinating in its seeming refinement and perfection, which is reminiscent of engineering. In the collections presented in this book, *Wunderkammer* and *Kunstkammer* are also inseparable. Human-made

works of art are either an attempt to represent nature artistically or to imitate nature. And the collection is itself an artificial, human act organising and arranging the wonders of nature as a human-made microcosm.

By the seventeenth century, royal *Kunstkammers* had become a model for many people with scholarly interests. The next chapter discusses the collections of the seventeenth century. In these cases, the accumulation of exotic objects was no longer for representational purposes, but to satisfy scientific curiosity. The collection of curiosities from all over the world, the macrocosm condensed into a single room, made it possible to gain scientific knowledge of the world. The exotic objects in these collections are not only a source of admiration, but also of knowledge and scientific study. This shift in approach has also led to a demand for greater publicity for the collections. The collection of knowledge had to be made available to all those with a scholarly interest. Thus, the chapter also emphasises the need to present not only the collections but also the attempts to make them public. It mentions the printed descriptions of the rare collections, which made it possible to learn about their specialities for those who did not have the opportunity to see them in person. The chapter also describes the scholarly work of the holders of collections and briefly describes how some private collections were offered to the public by their owners, and how modern museums have evolved.

The chapter presents in detail the collections of Ferrante Imperato, Francesco Calzolari, Ulisse Aldrovandi, Manfredo Settala, Athanasius Kircher, Ole Worm, as well as John Tradescant Jr. and Sr. In addition to the pieces in the *Kunst-* and *Wunderkammer*, the author also describes the owners of the collections. He briefly describes their approach to science, their scholarly work and the network of contacts through which they acquired the items in their collections. In addition to the owners, the chapter also describes the visitors to the collections: the accumulated material was visited by students and scholars alike. The author also highlights the Hungarian aspects of the collections' visitors or the owner's network of contacts, thus indicating which European collections may have been known to Hungarian collectors and scholars.

The next chapter focuses on collections from Hungary (and Transylvania). It briefly reviews the history of collecting in Hungary from the 15th to the 18th century and describes how Hungarian collecting differs from Western-European practices and how Western-European influence can be seen in the collection. The chapter points out as a difference that Hungarian collections were often not (or not only) the result of purposeful collecting, but were made up of material handed down through generations in aristocratic families. Accordingly, these collections are often more personal than *Kunstkammers* mentioned above. They are not only a repository of beauty and knowledge, but also of family history. At the same time, it is interesting to see how, as the history of the family evolves, the objects accumulated lose their personal

significance, as the author illustrates with the cups of the Thurzó family. In the inventory of the Thurzós, the description of the cups includes personal details (how they came to be owned by the family and what symbolism they carry for the family). Later, however, the cups came into the possession of the Esterházy family through marriage. In the Esterházy inventory, the cups are described in an objective, impersonal way.

Another peculiarity of Hungarian collections is that the scientific approach has been slower to emerge and the aim of representation has remained more in the foreground. This is illustrated by the collection of the Transylvanian governor Samuel von Bruckenthal (1721–1803). The aim of the collection, according to the book, was clearly to accumulate the most astonishing rarities and exotica possible, regardless of their authenticity. This is how items such as the tongue of Lot's wife, the pipe of Attila the Hun or the key to the castle of Nineveh came to be in the collection. By the eighteenth century, however, the scientific approach and the appreciation of authenticity over extravagant exotica had also returned to Hungary.

The chapter on Hungarian collections presents several collections from the Middle Ages to the eighteenth century. The first is the humanist collection of King Matthias I (1443–1490), which served as a model for later Hungarian collections. From the sixteenth century, the collections of humanists who sought to accumulate knowledge are mentioned. These are the collections of Archbishop Antal Verancsics (1504–1573) and the humanist scholar János Zsámboky (1531–1584). From the early seventeenth century, we read about the collecting activities of several generations of the Thurzó family. The Thurzós had a modern, Western European approach to collecting, but at the same time, their collections were also very personal. The same is true of the rich collection of the governor Ferenc Nádasdy (1623–1671), which unfortunately was dispersed after Nádasdy was executed for political reasons (he was involved in an anti-Habsburg conspiracy). Nevertheless, the collection had a great influence on later collectors, including the influential Pál Esterházy (1635–1713), who also looked to the collection of Archduke William Leopold of Habsburg as a model. The chapter also describes the extravagant collection of Samuel von Bruckenthal and the more scientific collection of Count Gedeon Ráday (1713–1792).

After a discussion of Western European and Hungarian collections, a short chapter discusses collection guidelines. The growing interest in the creation of collections has led to the publication of books on the theoretical background of collecting. These have described how a collection should be organised, what should be included in it, and what literature a professional collector should be familiar with. Interestingly, these guides present collecting as a natural human quality, which is directed towards getting to know the world. The chapter briefly presents and summarises three guides: Samuel Quiccheberg's *Inscriptiones vel tituli theatri amplissimi* (1565), Johann Daniel Major's *Unvorgreiffliches Bedencken von*

Kunst- und Naturalien-Kammern insgesamt (1674) and Caspar Friedrich Neickelius's *Museographia Oder Anleitung Zum Begriff und nützlicher Anlegung der Museorum oder Raritäten-Kammern [...]* (1727). In the latter case, the guide also highlights the Hungarian-related collections that appear in it.

The second half of *Theatrum machinarum* focuses on automatons and mechanical toys in early modern collections. The introductory chapter of the second part presents the history of automata and clockwork, while also focusing on outlining the intellectual context in which they were created. The author presents chapters on the history of automata and describes how they influenced early modern mechanical devices. She mentions ancient timepieces, Ismail al-Jazari's work on mechanical devices (1206) and the mechanical devices of the Renaissance. He also refers to the symbolic meaning of clockwork: he points out that the clock represents the passing of time and the passing of life. She also mentions a version of the teleological argument that represents God as a clockmaker and the world as clockwork. It also follows from this idea that mechanical devices became the means of knowing the world. "The clockwork in automata implied an understanding of the workings of the world, and the movement its describability" (p 95). It is for this reason, the author argues, that the automaton best embodies the spirit of the *Kunstkammer*: it is the quest for cognition, the mapping and compression of the world, and the fusion of natural and artificial.

After outlining the intellectual background, the book presents the mechanical structures of *Kunstkammern*, grouped according to what they represent. The next chapter presents special clockworks. Popular items in the collections were portable clocks and table clocks, which were used for representational purposes and often appear in paintings of nobles and rulers. They also represent the spirit of collecting: a mixture of *artificialia*, *naturalia* and the quest for scientific knowledge appears in them. The chapter describes the types of these clocks. One is the planetarium clock, which represents the orderliness of the world, the mechanical view of the world. Besides planetarium clocks, clocks depicting various figures were also popular. There were clocks in the form of a book, a cross and crucifix, a palm tree, a lion, a camel and a pelican. The figures, of course, usually had a symbolic meaning: they appeared in accordance with the iconography of the time or as symbols associated with rulers. The chapter gives several examples of each type from both Western European and Hungarian collections.

The next chapter describes the ship-shaped devices found in the collections. Ships were meant to represent the political power of their owners. Their function could be that of timekeeping devices or table ornaments. The author describes the history of how a boat was placed on the table of an influential family. Table ornaments in the form of vessels have existed since the Middle Ages to represent the power of the family. And the mechanical early modern versions used movement to

further demonstrate the power of the host. The author also mentions the frequent use of Ottoman figures on ships and discusses at length the issue of Ottoman depictions of the period. She shows how the Turks were transformed from a feared enemy into an exotic figure in contemporary (mainly Austrian) discourse and how this is reflected in early modern depictions of the Turks.

The next chapter is entitled ‘Court toys’ and describes the mechanical devices that entertained the court of nobles and monarchs. These include games of chariots on swings. Two sub-types of chariots are described in this chapter: one is the type of chariot for Bacchus, and the other is the chariot of war, often driven by figures from Greek mythology. The hunting Diana was also a popular type of courtly toy, as were mechanical structures representing horsemen. In addition, elephants and camels were also popular court toys. The author also points out that court toys were often a representation of court life. Carriages not only appeared in mechanical form but also in court parades; hunting and riding were also part of court life. Camels and elephants were also kept as exotic animals in wealthier courts.

The last two chapters focus on automatons imitating living creatures. What mechanical devices representing animals and humans have in common is that they attempt to imitate nature. In this way, the automaton becomes an instrument of cognition, which seeks not only to represent but also to know nature and man through modelling. This is the result of the (Cartesian) philosophical view that the human soul and body are two separate substances and that the bodily substance can be imagined as a kind of machine; animals, likewise, are machines. The modelling of nature as a machine thus models creation, too: the cognitive process involves a repetition of God’s activity. However, it is not only the gesture of cognition and creation but also the gesture of possession, that is represented in the imitation of living beings. Mechanical models give the illusion that living nature is part of the collections, and that the collector keeps nature in his room.

The *Theatrum machinarum* presents the collecting movements of the sixteenth and eighteenth centuries in a detailed and logical way, as well as a particularly interesting group of objects from these collections: mechanical devices and automata. The presentation of the objects is illustrated by pictures, photographs and engravings from the period. In addition, the author uses illustrations from (mainly Hungarian) literature and cultural history to provide an intellectual background, thus enriching the description.

