

“A Perfect Catalogue of all the Rarities”: Nehemiah Grew's *Musæum Regalis Societatis*  
and Cataloguing Culture in Late Seventeenth-Century England

by

Emma Hughes  
B.A., University of Manitoba, 2012

A Thesis Submitted in Partial Fulfillment  
of the Requirements for the Degree of

MASTER OF ARTS

in the Department of History

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University of Victoria

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## **Supervisory Committee**

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## Abstract

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The late seventeenth century was the golden age of the printed descriptive catalogue. Nehemiah Grew's 1681 catalogue, *Musæum Regalis Societatis*, printed for London's Royal Society, exemplifies this elaborate published genre of early museum literature during a particular moment in time when collecting and ordering were methods of understanding the world. This thesis explores the importance of ephemeral texts in historical study by analyzing the prose used in Grew's catalogue. *Musæum Regalis Societatis* opens a window onto late seventeenth-century English culture, providing insight into Grew's opinions about contemporary religious and political debates and illustrating trends within scientific thought; most notably, the influence of Francis Bacon's new empirical methods on Grew's object descriptions. This results in a densely descriptive catalogue with vivid object descriptions, creating a virtual guide to the Repository. However, with the eighteenth-century development of museums as sites of leisure and the rise of experts and professionals in the burgeoning scientific disciplines, there is a noticeable decline in this genre of descriptive catalogue. Thus, Grew's catalogue exemplifies a critical moment in the late seventeenth century in which scientific catalogues were published for a broad general public.

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## **Dedication**

I dedicate this thesis to my sisters, friends and loved ones who have endured my many rants, rages, and rambles about cabinets. I love you all. I also dedicate this thesis to my amazing parents for their unwavering love and support throughout my studies.

## Introduction - The Rise of Catalogues

The combined art and natural history collections provided the original impetus for numerous printed catalogues. They are a visible sign that the aforementioned “curious little men” perceived the need to sort out and endow their collections with some semblance of order and classification. No matter how vague and confused the initial effort might be, it was an attempt to bring method to chaos—the same effort to which the new natural sciences were committed.<sup>1</sup>

Print culture flourished in early modern England; books and pamphlets were printed *en masse* and as a result, the literate few began accumulating collections of text. The influx of various books and pamphlets required individuals and vendors to organize, catalogue and annotate vast collections of text. In short, there was a need for information management. Catalogues proliferated, providing a sense of hierarchy and order to both owner and audience. Many types of catalogues emerged throughout the early modern period, organizing a variety of collections—from books, art, to plants—but the most relevant for the purpose of this thesis was that of the curiosity catalogue, detailing the wondrous and rare objects collected from near and far. These catalogues provide a unique window into the seventeenth-century culture of authors and readers. One such example is the Royal Society’s *Musæum Regalis Societatis*, written by Nehemiah Grew and published in 1681, as a catalogue for the Society’s Repository of natural and artificial rarities. The catalogue draws heavily from Grew’s professional life as a physician and his personal life, highlighting his Protestant religious views. By examining Grew’s vivid objects descriptions in *Musæum Regalis Societatis*, one can gain insight into the workings and perceptions of the Royal Society, the Repository and its author alike.

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<sup>1</sup> Adalgisa Lulgi, “Inquiry as Collection: The Athanasius Kircher Museum in Rome,” *RES: Anthropology and Aesthetics* 12 (1986), 112.

## Catalogues and Collecting

The culture of cataloguing is linked with print culture and the rise of collecting in early modern Europe. As printing became readily available across Europe in the seventeenth century, the audience for both traditional and religious and secular publications grew by leaps and bounds.<sup>2</sup> In England up to the mid-seventeenth century, news and political events and upheavals, specifically the English Civil War, the execution of Charles I, Cromwell's Protectorate and the Restoration, were recorded daily through a variety of printed materials.<sup>3</sup> Despite the influx of print, Margaret Schotte notes that "between 1557 and 1662 English book publishing was essentially limited to London, Oxford, and Cambridge, and further constrained by the 1643 Licensing Order."<sup>4</sup> Additionally, the Stationer's Company, alongside Parliamentary legislations created guidelines for those involved in the urban book trade.<sup>5</sup>

However, near the end of the seventeenth century, these epicentres began to expand across the country, in part due to distribution networks and catalogues.<sup>6</sup> The increasing production of text called for a method to manage the copious amounts of information. Book catalogues began to emerge, whether in the form of bibliographies or personal library inventories/lists. Peter Lindenbaum emphasizes the distinction between book catalogues and book lists during this period: "[catalogues] tended to be longer and more organized, often by format or subject or literary genre, and were more likely to include works other than those for which a given publisher bore primary responsibility. Booklists often look hastily compiled and are likely to

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<sup>2</sup> John Barnard, "London Publishing, 1640-1660: Crisis, Continuity, and Innovation," *Book History*, 4 (2001): 1-16; Roger Chartier, *Order of Books: Readers, Authors, and Libraries in Europe Between the Fourteenth and Eighteenth Centuries*, trans. Lydia G. Cochrane (Stanford: Stanford University Press, 1994) 61-88.

<sup>3</sup> Barnard, "London Publishing, 1640-1660," 1-2.

<sup>4</sup> Margaret E. Schotte, "'Books for the Use of the Learned and Studious': William London's *Catalogue of Most Vendible Books*" *Book History* 11 (2008), 34.

<sup>5</sup> Joad Raymond, *Pamphlets and Pamphleteering in Early Modern Britain* (New York: Cambridge University Press, 2003), 55.

<sup>6</sup> Schotte, "Books for the Use of the Learned and Studious," 34-35.

highlight works that are ‘Now in the Press’ or ‘Lately Printed’.’<sup>7</sup> The printed catalogue was a standalone text, valued for its descriptions and organization of information. This is exhibited in the preface of Robert Clavell’s book catalogue, where he notes: “I have with some industry and trouble made the following collection of books.”<sup>8</sup>

Catalogues of all the books printed in English, such as Andrew Maunsell’s *Catalogue of English Printed Books* (1595), and William Jaggard’s *Catalogue of Such English Bookes, as Lately Haue Bene, and Now are in Printing for Publication* (1618) appeared as aids to the collector.<sup>9</sup> Looking as far north as Newcastle, William London’s *A Catalogue of the Most Vendible Books in England* (1657-1660) attempted to compile a list of all known printed English books and managed to list 3, 284 titles.<sup>10</sup> He divided the books into seven categories based on content, and alphabetized the authors.<sup>11</sup> London and others were attempting to systematize the complete body of knowledge produced within the book trade. Their efforts provided readers with a new kind of publication and encouraged the notion of book collecting.

It was during this time that the notion of the personal library emerged. People started to collect, display and order their vast collections of texts.<sup>12</sup> Types of print found in these collections included books, plays, poetry, instructional manuals, theological works, sermons, newspapers, and proclamations. Such texts existed in a variety of formats ranging from manuscripts, broadsheets, pamphlet and books in a variety of sizes (e.g. folio, quarto, octavo). As

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<sup>7</sup> Peter Lindenbaum, “Late Seventeenth-Century Publishers’ Booklists,” *The Library: The Transactions of the Bibliographical Society* 11, no. 4, (December 2010), 381.

<sup>8</sup> Robert Clavell, *A Catalogue of Books Printed in England Since the Dreadful Fire of London in 1666 to the End of Michaelmas Term, 1672* (London, 1673), preface.

<sup>9</sup> Andrew Maunsell, *The Catalogue of English Printed Books* (London: printed by John Windet for Andrew Maunsell, 1595); William Jaggard, *A Catalogue of Such English Bookes, as lately have bene, and now are in Printing for Publication. From the ninth day of October, 1618. untill Easter Terme, next ensuing* (London: Printed by W. Jaggard, 1618).

<sup>10</sup> Schotte, “Books for the Use of the Learned and Studious,” 33-35.

<sup>11</sup> Schotte, “Books for the Use of the Learned and Studious,” 36-37.

<sup>12</sup> Much like cabinets of curiosities, early monastic libraries emerged from the medieval period. The early libraries housed collections of manuscripts, however the structure and function changed with the change in printing.

libraries became more widespread, treatises soon emerged dictating the ideal method of ordering and physical arrangements of libraries.<sup>13</sup> According to Hüllen, creating order expanded beyond collections, and into day to day activities, including

arranging in mind objects side by side, comparing such items, and breaking them down into classes. In doing so, one moves such items, after isolating them out of their natural context, into a new and ideal one. Such was the famous Great Chain of Being, as it was the Aristotelian system of Genus, species, classes, etc.<sup>14</sup>

A prominent example of creating order among libraries is found in Gabriel Naudé's *Advis pour dresser une bibliothèque* (1627), where he not only addresses how libraries should be used, but also how books should be managed and catalogued.<sup>15</sup>

Besides the organization of the library's physical space, the library catalogues also developed as an ordering tool. These catalogues created order by dividing the texts into categories based on genre and size. Extant catalogues from personal libraries, such as those of John Evelyn, Sir Hans Sloane, Robert Hooke, and La Croix du Maine, provide insight into reading habits of their patrons, and also demonstrates a desire to manage an increase of texts.<sup>16</sup> Often, notations appeared on personal catalogues noting small descriptions of a text, or personal anecdotes surrounding a purchase. For example, in Narcissus Luttrell's *A Compleat Catalogue* (1680), a text dedicated to the publications on the Popish Plot, brief annotations are provided, alongside summaries or opinions for several of the listed texts.<sup>17</sup> Moreover, the abundance of

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<sup>13</sup> Eric Gaberson, "Libraries, Memory and the Space of Knowledge," *Journal of the History of Collections* 18, no. 2 (2006), 107.

<sup>14</sup> Werner Hüllen, "Reality, the Museum, and the catalogue: A Semiotic Interpretation of early German texts of Museology" *Semiotica* 80 no 3/4 (1990), 271.

<sup>15</sup> Gabrielle Naudé, *Advice on Establishing a Library*, ed. Archer Taylor, trans. W.H. Alexander et al. (Berkeley, University of California Press, 1950).

<sup>16</sup> John Evelyn, "John Evelyn's Plan for a Library," *Notes Records of the Royal Society of London* 7, no.2 (1950): 193-194; Roger Chartier, *The Order of Books* (Stanford: Stanford University Press, 1994). Private libraries, however, did not necessarily demonstrate a well-read collector. Books often functioned as status symbols, or were purchased to complete a set of an author's work. Whether or not owners read the books does not concern the argument of this study; rather it is the catalogue and its use to manage the large amounts of books.

<sup>17</sup> Narcissus Luttrell, *The Compleat Catalogue of Stitch'd Books and Single Sheets, &c. Printed Since the First Discovery of the Popish Plot* (London, 1680). See also, Robert V. Williams and Robert A. McCown, "Vignettes in

library catalogues attest to the importance of ordering and organizing collections of text. These texts provided records of books purchased or available and aided the collector in finding specific texts. The Royal Society and many other learned societies and academies were part of this book consuming culture; indeed the Society library was catalogued and inventoried alongside the Repository on numerous occasions.<sup>18</sup> The statutes for the Library Keeper include “The Library Keeper shall make affect Catalogue of the Printed and Manuscript Books, after the most usual method.”<sup>19</sup> As a result, the seventeenth and eighteenth centuries can be viewed as a golden age of cataloguing: various factors—including an influx of printed material, a desire to create order in society and a burgeoning scientific culture—combined to allow people to produce complex catalogues to be purchased by a broad audience.

In addition to collections of books, individuals began to collect natural history items, antiquities and art in what would become the cabinet of curiosity. Collecting was a longstanding European tradition with its origins dating back to the Renaissance. Princely collections, known as *Kunstammern*, contained vast assemblages of art, jewels and relics from across Europe.<sup>20</sup> *Kunstammern* first appeared in Central Europe and were associated with such figures as Archduke Ferdinand II, Emperor Rudolf II, Duke Albrecht V and William IV Landgrave of Hesse-Kassel. Objects commonly found in a *Kunstammern* included “unicorn” (narwhal) horns, jewels, gold encrusted coconuts, and relics. These objects served as symbols of the power and wealth of the owner. Visitors observed these objects in elaborate settings, often only by

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Library History: No. 10: Luttrell and Bentley: Historical Sketches,” *The Journal of Library History* 6, no. 2 (1971): 156-162.

<sup>18</sup> Alan J. Clark, “The History of the Royal Society: A Chronological Checklist of Books in English.” *Notes and Records of the Royal Society of London* 46, no.2 (1992): 335-345 provides a list of numerous cataloguing projects for the library that have continued up into the twentieth century.

<sup>19</sup> Royal Society Archives (hereafter RS) *Original Council Minutes*, vol.1, 27 February 1678/9: 292.

<sup>20</sup> German: art chamber. Variations exist including *Schatzkammer* (treasure chamber), and *Wunderkammer* (wonder chamber). For an overview on *Kunstammern* and their contents, see Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150-1750* (Cambridge, Mass: MIT Press, 1998).

invitation; Adalgisa Lulgi notes that “the awe inspired in the visitor by the princely collection is the result of a very real aesthetic experience, one closely associated with the marvels of the Baroque.”<sup>21</sup>

Collectors went to extraordinary lengths to obtain highly sought after pieces for their collections— many going as far as to dispatch agents across countries and continents to seek curios.<sup>22</sup> Other collectors were able to secure pieces via bequeathals, inheritance, and diplomatic gifts. The assemblage of items can be referred to as a microcosmic collection, as the collector was attempting to recreate the world within his home. Much like the explosion of print culture, the sudden influx of new objects required a catalogue to organize and order the items in these cabinets.

By the sixteenth century, collecting in Europe was no longer confined to the social elites. Extensive collections of plants, shells and animals were amassed by interested parties who sought to explore their surroundings. There was a growing interest in natural history that saw scholars, but predominantly amateurs, converging on a shared topic. As Brian Ogilvie points out, “most collectors of natural objects were not themselves naturalists, but they were increasingly drawn to naturalists’ publications.”<sup>23</sup> Scholars, and men who desired to be scholars, used collections of *naturalia* to pursue knowledge; as Ogilvie continues, “the use of collections for power, in whatever sense, was by the mid-sixteenth century predicated on the existence of natural history as knowledge.”<sup>24</sup> Owners sought to exhibit their knowledge of the world by collecting and displaying groups of objects, local and foreign, creating a microcosm of their

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<sup>21</sup> Lulgi, “Inquiry as Collection,” 111.

<sup>22</sup> Wilma George, “Alive or Dead: Zoological Collections in the Seventeenth Century,” in *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, eds. Oliver Impey and Arthur MacGregor (Oxford: Oxford University Press, 1985), 184.

<sup>23</sup> Brian Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: University of Chicago Press, 2006), 13.

<sup>24</sup> Ogilvie, *The Science of Describing*, 13.

known universe.<sup>25</sup> As the known world of scholars was expanding, ethnographic objects entered collections as both novel attractions and tools of study.<sup>26</sup> Over time, collections became associated with the pursuit of knowledge and many scholars possessed a collection.

The early modern period was not only the golden age of the scholar collector, but also the virtuoso—the amateur scholar. In universities, collections of *naturalia* enabled students and scholars to incorporate a range of topics into their studies. Renowned men of letters, such as Ferrante Imperato, Ulisse Aldrovandi and Athanasius Kircher, compiled objects to aid in their academic pursuits. John Thornton emphasizes the broad spectrum of topics studied during this period: “most of the early scientists contributed to several branches of science, and any classification into groups of biologists, mathematicians, physicists, chemists and astronomers must be arbitrary. Several eminent contributors to these subjects were medical men, and it was possible for a man to hold simultaneously chairs devoted to several sciences.”<sup>27</sup> For example at medical schools, physic gardens housed plants that were used for pharmacy education in the warm summer months, while anatomical education and dissections occurred in the cold winter months allowing for better preservation of cadavers.<sup>28</sup> In many cases, collections of antiquities and statues were placed in physic gardens, creating a multifunctional space in which students

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<sup>25</sup> Paula Findlen, “The Museum: Its Classical Etymology and Renaissance Genealogy,” *Journal of the History of Collections* 1, no. 1 (1989), 64.

<sup>26</sup> J. C.H. King, “North American Ethnography in the Collection of Sir Hans Sloane,” In *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, edited by Oliver Impey and Arthur MacGregor (Oxford: Oxford University Press, 1985): 232-236. Objects from Canada, India, Greenland and Virginia were highly valued in Continental cabinets and in England.

<sup>27</sup> John Thornton and Robert Tully, *Scientific Books, Libraries and Collectors: A Study of Bibliography and the Book Trade in Relation to Science* (London : Library Association, 1971), 86. See also Anna Marie Roos, “Naturalia: the History of Natural History and Medicine in the Seventeenth Century,” *Notes and Records of the Royal Society* 66, no.4 (2012),314. Roos’ article is summarizing a conference on the life of Martin Lister that took place on 27 April, 2012.

<sup>28</sup> William Schubach, “Some Cabinets of Curiosities in European Academic Institutions,” in *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, eds. Oliver Impey and Arthur MacGregor (Oxford: Oxford University Press, 1985), 169. See also Andrew Cunningham “The Culture of Gardens,” in *Cultures of Natural History*, eds. Nicholas Jardine et al. (London: Cambridge University Press, 1996), 47-50.

were taught and art displayed. Catalogues emerged seemingly out of the desire to organize and manage the wealth of objects owned by collectors.

A predecessor to the natural history catalogue that arises from physic gardens was the herbaria. Their texts chronicled, and frequently preserved, the plants from a private or academic garden collection of *naturalia*.<sup>29</sup> Collectors described, and often attached dried plants, in a personal catalogue for the experience of others and themselves.<sup>30</sup> These herbals allowed the owner of the collection to provide full records of their observations, and to recall their collecting experiences.<sup>31</sup> Brian Ogilvie notes that the particular order and classification of the objects was not of major concern for Renaissance naturalists, but would develop in later centuries.<sup>32</sup> These herbaria developed into *local flora*, functional lists consisting of plants found in local gardens.<sup>33</sup> Like the descriptive catalogues, these *local flora* were published in towns across Europe and each conformed to a specified format regarding classification and style.<sup>34</sup> Similar to early modern catalogues, these *local flora* were centred on a strict ordering system.<sup>35</sup>

The advent of scholarly collectors resulted in a marked change in the content of collections. Objects such as birds' eggs, fishes, tree bark, butterflies and flowers replaced the treasures of gold and silver which were once considered the pinnacle of a cabinet. Display methods also shifted over time; while the Renaissance curios were often displayed in personal libraries or studies, the early modern cabinets for the newer collections frequently appeared in

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<sup>29</sup> John Dixon Hunt, "Curiosities to Adorn Cabinets and Gardens," in *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, eds. Oliver Impey and Arthur MacGregor (Oxford: Oxford University Press, 1985), 194. See also Alix Cooper, *Inventing the Indigenous, Local Knowledge and Natural History in Early Modern Europe* (New York: Cambridge University Press, 2007), 55.

<sup>30</sup> Ogilvie, *Science of Describing*, 210.

<sup>31</sup> Cooper, *Inventing the Indigenous*, 75.

<sup>32</sup> Ogilvie, *Science of Describing*, 215.

<sup>33</sup> A notable local flora includes the work of Edente Ludovico with his 1635 publication of *Catalogus plantarum, quae in horto Medico Altdorphino reperiuntur* (1635). See Alix Cooper, *Inventing the Indigenous*.

<sup>34</sup> Cooper, *Inventing the Indigenous*, 73.

<sup>35</sup> Cooper, *Inventing the Indigenous*, 80.

designated show rooms.<sup>36</sup> Elaborate tables, cases, chests and cabinets stored the items in the collector's home.<sup>37</sup> Certain collectors and craftsmen even commissioned furniture to be built for prized objects. Visitor reports— for example, those of Phillip Hainhoffer— provide detail of the physical arrangement used in many famed collections.<sup>38</sup> A craftsmen himself, Hainhoffer also built several cabinets for royal collectors, including Gustavus Adolphus of Sweden.<sup>39</sup> The Repository of the Royal Society employed similar methods, storing its items on shelves and in cabinets, and hanging animals on walls in the North Gallery of Gresham College.<sup>40</sup>

### London's Royal Society and the Repository

It was this desire to chronicle and order natural objects that led to the emergence of the cataloguing culture of the seventeenth century. Cooper has noted how these printed descriptive catalogues emerged at a moment in time when, “the relationship between nature, text, museum, and science in the early modern period” collided, creating the ideal climate for these texts to be produced.<sup>41</sup> The Royal Society, and its Repository, emerged under these same conditions. These printed stand-alone texts were valued by their collectors, but more importantly by their broad learned audience comprising, both local and foreign individuals. Thomas notes “Grew's

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<sup>36</sup> Findlen, “The Museum: Its Classical Etymology and Renaissance Genealogy,” 69-70.

<sup>37</sup> For details on practical display methods in cabinets of curiosities, see Arthur MacGregor's *Curiosity and Enlightenment: Collectors and Collections from the Sixteenth to the Nineteenth Century* (New Haven: Yale University Press, 2008).

<sup>38</sup> Hans-Olaf Böstrom, “Philipp Hainhoffer and Gustavus Adolphus's Kunstschränk in Uppsala,” in *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, eds. Oliver Impey and Arthur MacGregor (Oxford: Oxford University Press, 1985), 90-96. Hainhoffer travelled as far as England and reports on the arrangement of Thomas Arundel's cabinet

<sup>39</sup> Böstrom, “Philipp Hainhoffer and Gustavus Adolphus's Kunstschränk in Uppsala,” 94; Krzysztof Pomian, *Collectors and Curiosities: Paris and Venice, 1500-1800*, trans. Elizabeth Wiles-Portier (Cambridge: Polity Press, 1990), 93.

<sup>40</sup> RS *Original Council Minutes*, vol. 1, 25 February (1674/5): 257-259.

<sup>41</sup> Alix Cooper, “The Museum and the Book: The Metallotheca and the History of an Encyclopedic Natural History in Early Modern Italy,” *Journal of the History of Collections* 7, no. 1 (1995), 20.

catalogue did much to promote the repository to external parties” emphasizing the influence Royal Society’s catalogue held beyond the confines of its London Fellows.<sup>42</sup>

The Repository represents the early phase of scholarly British collecting. Collecting in the British Isles, compared to the rest of Europe, was a new activity emerging in the seventeenth century and perhaps for that reason there was a lack of princely collections.<sup>43</sup> Middle class English collectors compiled a series of cabinets that were used for personal entertainment and scholarly inquiry. London based collectors who used their collections for learned purposes include John Tradescant, Elias Ashmole, and William Courten.<sup>44</sup> English Collectors tended to be predominantly male, middle class, and drawn from academic and mercantile backgrounds rather than their Italian counterparts from very wealthy backgrounds, and who benefitted from influential patronage and religious connections.<sup>45</sup> The Repository represented the collecting efforts of a wide social spectrum of scholars, merchants, and churchmen and thus is an exceptional collection for study. It should be noted that these collections, both British and European, were owned predominantly by men; few cabinets were owned by females. The women who had the ability to compile their own cabinets were from the princely elite, rather than the middle class. Notable British examples include the sculpture and antiquities collection of Aletheia Howard, Countess of Arundel (d.1654), and natural history and glassware collection

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<sup>42</sup> Thomas, “A Philosophical Storehouse,” 20.

<sup>43</sup> King Charles I possessed a lavish collection of predominantly art. Arthur MacGregor, *Late King's Goods: Collections, Possessions and Patronage of Charles I in the Light of the Commonwealth Sale Inventories* (London: Oxford University Press, 1989).

<sup>44</sup> While these collections are representative of seventeenth century London, it should be noted that there were many collectors scattered throughout the country including John Bargrave, Richard Green and Ralph Thorseby. For a detailed survey of English collectors throughout the country see Arthur MacGregor’s *Curiosity and Enlightenment: Collectors and Collections from the Sixteenth to the Nineteenth Century* (New Haven: Yale University Press, 2008).

<sup>45</sup> MacGregor, “Seventeenth Century British Cabinets,” 147.

of Margaret Cavendish Bentinck, Duchess of Portland (1715-1785).<sup>46</sup> There is little mention of female involvement in the Royal Society or the Repository.

The Royal Society of London was one of the first scientific academies of the early modern era.<sup>47</sup> Founded on 28 November 1660, the Royal Society was comprised of gentlemen meeting weekly to discuss natural philosophy and conduct experiments. In accordance with its dedication to improving knowledge, it also exemplified scholarly collecting in England.<sup>48</sup> One issue that arose as a result of the growing association with scholarly collecting was the problem of the *virtuosi*. The Royal Society claimed to be founded on Francis Bacon's theory of natural history, described in his *Novum organum* (1620), which promoted inductive reasoning based on sensory data.<sup>49</sup> However, among the Royal Fellows there was still the ever-present conflict between its trained men of science and *virtuosi*.<sup>50</sup> Walter Houghton characterizes the *virtuosi* as men "never devoted to utilitarian ends, no more to political or professional success than to commercial gain."<sup>51</sup> Some Fellows desired to perform experiments and develop instruments for the betterment of mankind, while others, deemed as amateurs and *virtuosi*, conducted experiments out of sheer curiosity. John Wilkins and Henry Oldenburg witnessed the beginnings of this

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<sup>46</sup> See Juliet Claxton "The Countess of Arundel's Dutch Pranketing Room 'An Inventory of all the Parcell or Purselin, glasses and other Goods now remaying in the Pranketing Room at Tart Hall, 8th Sept 1641,'" *Journal of the History of Collections* 22, no. 2 (2010): 187–196; Stacey Sloboda, "Displaying Materials: Porcelain and Natural History in the Duchess of Portland's Museum," *Eighteenth-Century Studies* 43, No. 4 (2010):455-472.

<sup>47</sup> Shortly after the establishment of the Royal Society, Gottfried Leibniz helped to establish similar academic societies on the continent in Berlin, Hanover, Brandenburg and St. Petersburg.

<sup>48</sup> In the third Royal Charter of 1663, the Society's full name is disclosed as "The Royal Society of London for Improving Natural Knowledge."

<sup>49</sup> For further examinations of Bacon's natural history and its influence on the Royal Society, see Peter Anstey and Michael Hunter, "Robert Boyle's 'Designe about Natural History,'" *Early Science and Medicine* 13, no. 2 (2008): 83-126 and Peter Antsey, "Francis Bacon and the Classification of Natural History," *Early Science and Medicine* 17, no. 1 (2012): 11-31.

<sup>50</sup> Walter Houghton, "The English Virtuoso in the Seventeenth Century: Part I," *Journal of the History of Ideas* 3, no.1 (1942), 72. This division was not new, as the Society's origins can be traced to Oxford Group during the *Interregnum*, where members were ideologically divided between Baconian philosophers, and those who had less altruistic intentions for its projects. See also Houghton, "The English Virtuoso in the Seventeenth Century: Part II," *Journal of the History of Ideas* 3, no. 2 (1942): 190-219.

<sup>51</sup> Houghton, "The English Virtuoso in the Seventeenth Century: Part I," 54.

philosophical conflict in the Society which filtered its way down into the management of the Repository.

The first reference to the Repository occurs shortly after the Royal Society's foundation, with the term 'Repository' appearing in council minutes from 1663.<sup>52</sup> The work of Michael Hunter and Jennifer Thomas chronicles the life of the Repository from its foundation to its purchase by the British Museum and documents the fortunes of the Society's collection in relation to the policies of successive Presidents and the activities of the Society.<sup>53</sup> Specifically, Thomas' recent research shows that the Repository was always an afterthought for experiments and expeditions; Fellows requested items from foreign voyages, added items from new experiments, and accepted new donations from generous patrons.<sup>54</sup> An excerpt from the first edition of the Royal Society's journal, *Philosophical Transactions*, highlights the Royal Society's early intention for the Repository:

Whatsoever is presented as rare and curious, will be with great care, together with the Donor's names and their Beneficence recorded, and the things preserved for After-ages, (probably much better and safer, than in their own private Cabinets;) and in progress of Time will be employed for considerable Philosophical and Usefull purposes.<sup>55</sup>

It was the Society's goal to store rare and curious items in the Repository and use them aid in the pursuit of knowledge. Grew's descriptive catalogue is an extension of this philosophical pursuit.

Objects typically entered the Repository as private donations or as the by-product of a Society venture. Objects were collected and stored in an allocated room of the Society's

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<sup>52</sup> Jennifer Thomas, "Compiling 'God's Great Book [of] Universal Nature:' The Royal Society's Collecting Strategies," *Journal of the History of Collections* 23, no. 1 (2011), 1.

<sup>53</sup> Jennifer Thomas, "A Philosophical Storehouse, the Life and Afterlife of the Royal Society's Repository" (PhD diss., Queen Mary, University of London, 2009); and Thomas, "'Compiling 'God's Great Book [of] Universal Nature:' The Royal Society's Collecting Strategies," *Journal of the History of Collections* 23, no. 1 (2011): 1-13.

<sup>54</sup> Daniel E. Clinkman, "Civil-Military Enlightenment in Britain: Links between the Royal Society of London and the British Military, 1761-1790," in *Scientists and Scholars in the Field: Studies in the History of Fieldwork and Expeditions* eds. Kristian H. Nielsen, et al. (Aarhus: Aarhus Universitetsforlag, 2012), 123-146.

<sup>55</sup> Anonymous, *Philosophical Transactions* 1 (1665/6), 321.

headquarters, Gresham College, and watched over by a Keeper of the Repository. The keeper's duties included organizing, demonstrating, and most importantly maintaining an inventory of the collection. Many instruments, for example Robert Boyle's air pump, were kept in the collection and taken out for public or Society demonstrations.<sup>56</sup> This combined act of collecting and display was not a novel practice in the late seventeenth century. The Repository's contents resembled the many cabinets owned by the English middle class; indeed, the Society received objects from renowned collectors such as Robert Hubert, John Evelyn and Robert Moray. However, the Society wanted to distance itself from curiosity cabinets by maintaining its motto for the pursuit of knowledge and the desire for its Repository to "be employed for considerable Philosophical and Usefull purposes."<sup>57</sup> Thus, the collection required a scholarly catalogue to manage its inventory.

Although new donations were received, active collecting was not a priority for the Society. A combination of neglect, curatorial corruption, and general lack of interest amongst members contributed to the Society's decision to sell the Repository to the British Museum in 1781. The subsequent centuries saw the dispersal of the objects as the British Museum divvied up its ever increasing collection.<sup>58</sup> A handful of the Repository's objects are now scattered amongst London's museums, including the Natural History Museum at South Kensington and the Hunterian Museum at the Royal College of Surgeons. Due to the loss of the collection and the dispersal of the items, Grew's Repository catalogue is an especially important document because it provides a window into the Repository at the height of its popularity in the 1670s—

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<sup>56</sup> A.D.C. Simpson, "Newton's Telescope and the Cataloguing of the Royal Society's Repository," *Notes and Records of the Royal Society of London* 38, no. 2 (Mar., 1984), 188.

<sup>57</sup> Anonymous, *Philosophical Transactions* 1 (1665/6), 321.

<sup>58</sup> For a survey of the Repository's influence on the British Museum see A.E. Gunther, "The Royal Society and the Foundation of the British Museum," *Notes and Records of the Royal Society of London* 33, no. 2 (1979): 207-216.

prior to its decline in the eighteenth century.<sup>59</sup> As with many catalogues of no longer existing collections, Grew's catalogue serves as one of the few remaining links to the once renowned contents of the Repository.

Despite the textual link to the collection, this thesis argues that Grew's catalogue, and indeed those of other cabinets, is not only valuable in itself as an inventory of wondrous and fantastical objects, but also functions as a window into attitudes and beliefs about the natural world. As Paula Findlen notes: "the language used to describe museum catalogues best illustrates the flexible relationship between text and context."<sup>60</sup> The diverse language used by collectors to describe museum texts—inventory, list, catalogue—demonstrates the core desire to organize knowledge in collections. This desire stems from a larger yearning to understand and make sense of the world. Moreover, placing the catalogue in context of its creator and collection allows the text to be treated not just as a list, but as an independent publication which commanded a wider general audience. Using a comprehensive textual analysis of Grew's *Musæum Regalis Societatis*, this thesis seeks to draw further attention to catalogues as documentary tools for historical scrutiny. These texts provide the opportunity to peer into the world of collecting culture, beyond the described objects, and thus deserve careful scholarly attention.

Early studies of cabinets of curiosities used catalogues as tools to understand the collections, rather than as cultural windows to study the author and his world. The objects and collecting methods were the topic of interest, rather than the information management of the collection. One of the first, and arguably most ground-breaking, work in the scholarship on

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<sup>59</sup> The Repository flourished in the 1670s. There was an influx of donations, the Royal Society had recently moved back into Gresham College calling for a new storage of its collections. In later decades, few donations and corruption became an issue in maintaining the Repository. See Michael Hunter *Establishing New Science* Chapter 4. And Jennifer Thomas "Compiling God's Cabinet"

<sup>60</sup> Paula Findlen, "The Museum: Its Classical Etymology and Renaissance Genealogy," 64.

cataloguing was published by Rotraud Bauer and Herbert Haupt in 1976.<sup>61</sup> The two scholars produced a complete translation of Emperor Rudolf II's *Kunstammer* catalogue which subsequently opened up new areas of research into the contents and organization of Rudolf's cabinet. As a result of this publication, scholars were able to compare the contents with other well-known cabinets, such as the University of Leiden's Anatomical Cabinet, Ole Worm's collection and the Royal Society's Repository. These comparisons led scholars to pose new research questions regarding the previously overlooked relationship between princely cabinets and academic collections. The following decade saw the publication of several royal art collection catalogues, including those of King Charles I, Rudolf II and the seventeenth-century Spanish Court.<sup>62</sup> However, there is a strong material focus in these publications, with attention drawn to prized objects in the collections rather than on the significance of the catalogues as a whole. Most scholars have followed Bauer and Haupt in neglecting the study of catalogues as separate documents requiring further scholarly analysis.

Publication of these famed catalogues served to incite academic interest in the objects of the collections rather than the use and function of catalogues. Scholars became increasingly interested in the classification methods used to organize the objects, producing several studies of princely cabinets.<sup>63</sup> Slowly, interest in microcosmic collections, which included the Royal

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<sup>61</sup> Rotraud Bauer and Herbert Haupt, "Das Kunstammerinventar Kaiser Rudolfs II, 1607-11," *Jahrbuch der Kunsthistorischen Sammlungen in Wien*, 72 (1976).

<sup>62</sup> For instance, Arthur MacGregor ed., *Late King's Goods: Collections, Possessions and Patronage of Charles I in the Light of the Commonwealth Sale Inventories* (London: Oxford University Press, 1989); Thomas DaCosta Kaufmann, *The School of Prague: Painting at the Court of Rudolf II* (Chicago: University of Chicago Press, 1988); and Gervase Jackson-Stops, *The Treasure Houses of Britain: Five Hundred Years of Private Patronage and Art Collecting* (New Haven: Yale University Press, 1985).

<sup>63</sup> Arthur MacGregor ed., *Tradescant's Rarities: Essay's on the Foundation of the Ashmolean Museum* (Oxford: Clarendon Press, 1983); and *Late King's Goods: Collections, Possessions and Patronage of Charles I in the Light of the Commonwealth Sale Inventories* (London: Oxford University Press, 1989); Oliver Impey and Arthur MacGregor eds., *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe* (Oxford: Oxford University Press, 1985). While Oliver Impey was a prominent scholar in the field of collecting, his area of expertise was Japanese art. Thus, while being listed as one of the chief editors for this group of essays and one of the founders of the field of history of collecting, he is not included in this group of scholars as he is not known as a

Society's Repository, began to appear in the early 1980s. Scholars such as Arthur MacGregor, Thomas DaCosta Kaufmann and Michael Hunter established the groundwork for the field of collecting by providing detailed accounts of specific collections in their historical contexts.<sup>64</sup> These scholars approached cabinets from a narrative perspective, chronicling the establishment, use and longevity of the collections.<sup>65</sup> Notable collections gaining individual attention in monographs included the cabinets of Emperor Rudolf II, Ole Worm, Elias Ashmole, the University of Leiden and London's Royal Society.<sup>66</sup> Nevertheless, despite the strides these authors made in this field, they still treated catalogues as a means of studying the contents of the collections rather than as sources to investigate an independent genre.

The latter half of the 1980s saw the appearance of several works which explained the exhibition trends of these early modern collections. Scholars examined catalogues to discover how collectors arranged rooms, the types of furniture used for display and even appropriate visitor etiquette. Krzysztof Pomian's seminal work *Collecting and Curiosities* not only explores the seventeenth- and eighteenth-century cabinets of Paris and Venice, but also adds a theoretical layer to the study of collecting traditions. Pomian identifies trends of collecting which spanned from the Renaissance to the specialized collections of the eighteenth century. He postulates that

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scholar of scientific collections; see Thomas DaCosta Kaufmann's, "Remarks on the Collections of Rudolf II: The *Kunstammer* as a Form of Representatio," *Art Journal* 38, 1 (1978): 22-28; and *Variations on the Imperial Theme in the Age of Maximilian II and Rudolf II* (New York: Garland Outstanding Dissertations in the Fine Arts, 1978). See also Michael Hunter, *John Aubrey and the Realm of Learning* (New York: Science History Publications, 1975); and *The Royal Society and Its Fellows, 1660-1700: The Morphology of an Early Scientific Institution* (Chalfont St. Giles, Bucks: British Society for the History of Science, 1982).

<sup>64</sup> For essays devoted to the origins of the Habsburgs, Russian, Danish and British collections, see Impey and MacGregor's collection *The Origins of Museums*.

<sup>65</sup> For early monographs devoted to origins of specific English cabinets as well as their display methods see David Howarth, *Lord Arundel and His Circle* (New Haven: Yale University Press, 1985); John Brooks, *Hans Sloane, the Great Collector and His Circle* (London: Batchworth Press, 1954); Michael Hunter, *Elias Ashmole, 1617-1692: The Founder of the Ashmolean Museum and His World* (Oxford: Ashmolean Press, 1983); and Joseph Levine *Dr. Woodward's Shield: History, Science, and Satire in Augustan England* (Berkeley: University of California Press, 1977).

<sup>66</sup> Many other types of collections, predominantly art, have been featured in their own publications during the 1980s including the cabinets of John Soane, George III, as well as the British Museum.

collections were inherently tied to the diversification of the sciences.<sup>67</sup> Shortly after Pomian's publication, Paula Findlen's *Possessing Nature* focused on the early Italian cabinets and the relationship between the objects, the spaces of display, and the visitors.<sup>68</sup> Central European cabinets and the relationship of space and people were also examined with notable studies from William Schupbach, Eliška Fučíková, and Lorenz Seelig, focusing particularly on the collections of the Habsburgs.<sup>69</sup> Each of these studies required research using catalogues from the collections. Thus, the catalogue remained an intermediary between the scholar and the collection, once more relegated to the background in the study of collecting.

It was not until the publication of Eva Schulz's article, "Notes on the History of Collecting and Museums," that cataloguing and information management was pushed to the forefront of scholarly investigation. Schulz surveys four influential scholarly collectors and their catalogues spanning the sixteenth to the eighteenth century: Samuel Quiccheberg (1529-1567), Johann Daniel Major (1636-1693), Michael Bernhard Valentini (1657-1729) and C.F. Neikelius (1679-1729).<sup>70</sup> Schulz uses these individuals to demonstrate the observable catalogue changes which occur over the course of the early modern period. She surmises that "a catalogue no longer merely listed the objects in collections, but extended to form a reference-book with explanations of the importance, origin, cosmological significance and miraculous power of the individual

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<sup>67</sup> See Krzysztof Pomian, *Collectors and Curiosities: Paris and Venice, 1500-1800*, trans. Elizabeth Wiles-Portier (Cambridge: Polity Press, 1990).

<sup>68</sup> Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley: University of California Press, 1996), 101-154.

<sup>69</sup> The following essays on Habsburg collectors appear in *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, eds. Oliver Impey and Arthur MacGregor (Oxford: Oxford University Press, 1985): Schupbach, "Some Cabinets of Curiosities in European Academic Institutions," 169-178; Eliška Fučíková, "The Collection of Rudolf II at Prague: Cabinet of Curiosities or Scientific Museum?" 47-53; Lorenz Seelig, "The Munich *Kunstammer*, 1565-1807" in *Origins of Museums*, 76-89.

<sup>70</sup> C.F. Neikelius was the pseudonym, Kaspar Friedrich Jencquel.

natural products.”<sup>71</sup> Werner Hüllen addresses the issue of catalogues as reference texts in his article “Reality, the Museum, and the catalogue: A Semiotic Interpretation of early German texts of Museology.” He notes that “we are entitled to speak of museum catalogues in the 16th and 17th centuries as an independent and efficient text genre.”<sup>72</sup> Hüllen’s statement inspired several studies which focused on catalogues, rather than the collections they represented. By claiming that all catalogues were part of the same genre, Hüllen implied that a set of expectations existed for both the author and the reader.

The idea of catalogues as independent texts, rather than mere lists, was explored by Alix Cooper’s article entitled “The Museum and the Book: *The Metallotheca* and the History of an Encyclopedic Natural History in Early Modern Italy.” Cooper delves into the conception of the catalogue as an extension of the cabinet and investigates the print history of Michele Mercati’s catalogue. Additionally, she notes that Mercati intended the catalogue to complement the collection, rather than act as a separate entity.<sup>73</sup> More recently, scholars have begun to adopt a literary approach towards the study of catalogues. This method involves studying the rhetorical construction of the text as well as examining the value of a catalogue as measured against other natural history texts. Marjorie Swann’s pivotal 2001 publication *Curiosities and Texts* provides an example of this innovative method of studying collections. Not only does Swann subject multiple types of collections (text, curio, natural history) to literary analysis, but she also surveys a multitude of collections across England.<sup>74</sup> Swann’s text demonstrated that multiple collections could be compared in terms of more than their objects; instead the texts and collectors could also

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<sup>71</sup> Eva Schulz, “Notes on the History of Collecting and Museums,” *Journal of the History of Collections* 2, no. 2 (1990) 211-212.

<sup>72</sup> Hüllen, “Reality, the Museum, and the Catalogue” 270.

<sup>73</sup> Cooper, “The Museum and the Book,” 5.

<sup>74</sup> See Marjorie Swann, “The Author as Collector” in *Curiosities and Texts*, 149-193. Additional studies that survey multiple collections with a more literary approach include Marco Beretta ed., *From Private to Public: Natural Collections and Museums* (Sagamore Beach, MA: Science History Publications, 2005); Paul Grinke, *From Wunderkammer to Museum* (London: Quaritch, 2006).

be used for the purpose of comparison. She concludes that “the interpenetration of concepts of text and artifacts so characteristic of early modern collecting gave rise to innovative literary forms;” for instance, the printed described catalogue.<sup>75</sup>

Brian Ogilvie takes Swann’s methods one step further and incorporates a thorough examination of the history of science into his research. In his 2006 study, *The Science of Describing*, Ogilvie discusses the composition and implementation of texts within the practice of Renaissance and early modern natural history.<sup>76</sup> It is the printed catalogues that enable collectors and naturalists to “preserve their experiences and render them accessible to others.”<sup>77</sup>

Furthermore, Alexander Wragge-Morley exemplifies this tradition of writing one’s experience with his recent publication “‘Vividness’ in English Natural History and Anatomy 1650-1700,” in which he examines the literary techniques used in the natural history works of Nehemiah Grew and John Ray.<sup>78</sup> He treats Grew’s catalogue as a stand-alone text, dissecting the vivid prose and content just as he does the rest of Grew’s natural history writings. He posits that “Grew had honed the skill of provoking in his readers’ imaginations images of morphology that could enable readers accurately to distinguish species, and gain ‘true’ knowledge of them,” emphasizing the interchangeable language used in natural history publications and printed catalogues.<sup>79</sup> The attention Wragge-Morely gives to *Musæum Regalis Societatis* demonstrates a growing respect for ephemeral works in historical studies.

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<sup>75</sup> Swann, *Curiosities and Texts*, 195.

<sup>76</sup> See Brian Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: University of Chicago Press, 2006).

<sup>77</sup> Ogilvie, *The Science of Describing*, 174.

<sup>78</sup> Alexander Wragge-Morley, “‘Vividness’ in English Natural History and Anatomy 1650-1700,” *Notes Records of the Royal Society* 66, no.4 (2012): 341-356. See also, Alexander Wragge-Morley, “The Work of Verbal Picturing for John Ray and Some of His Contemporaries,” *Intellectual History Review* 20, no.1 (2010): 165-179; and Brian Ogilvie, “Attending to Insects: Francis Willughby and John Ray,” *Notes Records of the Royal Society* 66, no.4 (2012): 357–372.

<sup>79</sup> Wragge-Morely, “Verbal Picturing,” 15.

Although inventories and sales catalogues continue to be published in the eighteenth and nineteenth centuries (and indeed are found amongst present-day private collections and museums), it is the descriptive natural history catalogues of the early modern period that truly reflect the diverse scholarly practices of the collectors and their associates. These natural history texts, in particular Nehemiah Grew's *Musæum Regalis Societatis*, will be the focus of the following study. The discursive prose detailing observations of the objects appealed to a broad learned audience. Authors, including Grew, relied on their senses to describe objects utilizing *observatio*, a practice linked to the seventeenth century. As a result, the descriptive catalogue produced for the Royal Society's Repository is reflective of the complex genre of early modern catalogue which requires further examination.

The following chapters explore the Repository catalogue and its function as a window into late seventeenth-century collecting culture. Chapter 1 focuses on Grew's catalogue, *Musæum Regalis Societatis*, highlighting the various literary components that create the complex text. These components include a dedicatory letter, preface, *errata*, table of contents, indices, figures, tables and various form of citations. The official writing process saw Royal Fellow Nehemiah Grew compiling the catalogue not only by studying all of the objects in great detail, but also by referring to catalogues by such renowned collectors as Ole Worm, Ulisse Aldrovandi, Giorgio de Sepi, Ludovico Moscardo and John Jonston.<sup>80</sup> Drawing on descriptive examples from the catalogue entries, this chapter emphasizes Grew's intention to maintain his authority throughout the catalogue. References in the catalogue assert Grew's scientific and religious—distinctly Protestant—attitudes. He provides important critiques of Catholic superstition via his in-depth scientific observation and his careful selection of texts to reference.

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<sup>80</sup> Hunter, *Establishing New Science*, 144.

In Chapter 2, Grew's rich prose is mined to obtain insight into the practical aspects of seventeenth-century collecting, such as storage, display, and preservation techniques. Particular focus will be paid to glass jars, preservative spirits and wax injections, as used by collectors in the display of their specimens. The majority of the techniques mentioned in passing by Grew originated in the medical community. Many of the Fellows of the Royal Society worked as physicians; indeed, some of the most curious of objects in Grew's catalogue are listed in the human specimens section. These items, often obtained via surgery or dissection, required special preservation in order to be displayed in a collection. Grew's detailed descriptions in *Musæum Regalis Societatis* include specifics on how such items were shelved, stored, and preserved. These details offer insight into the practical side of collecting as practiced by prominent European physicians and collectors alike.

The final chapter notes a decline in published printed descriptive catalogues over the course of the eighteenth century, thereby situating *Musæum Regalis Societatis* as a text unique to the seventeenth century. The Royal Society received donations for the Repository until the collection was dispersed in 1781, resulting in several remaining manuscript catalogues (Ms. 414-417). The multiple catalogues of the Repository allows for comparisons of the changing cataloguing methods for Royal Society, and other collections. Three factors are highlighted as causing the shift away from the printed descriptive genre: the demand of the museum expert, the division of the sciences, and the catalogues gradual shift from a discursive scholarly text to a more functional inventory. The authors of the seventeenth-century descriptive catalogues addressed a general audience of educated non-specialists. Moving into the eighteenth century, new organizational catalogues were produced, influenced by the growing body of scientific literature and newly formed museums serving as centres of leisure and educational pursuits.

I have briefly touched upon early modern collecting habits that necessitated for catalogues, such as the Royal Society's *Musæum Regalis Societatis* to create order amongst hordes of objects. These texts that organized and managed information, ranging from collections of books to jewels, flourished in the seventeenth century. For the Royal Society, Grew's catalogue provided readers with the opportunity to learn about the collection and visualize the objects. It is moreover possible to glean further information regarding readership, printing techniques and the anatomical drawings. Above all, this thesis aims to demonstrate that *Musæum Regalis Societatis* functions not only as a tool to order a collection, but also provides a window into late seventeenth-century collecting culture.

## Chapter 1 - *Musæum Regalis Societatis*: Authority and Information Management in the late Seventeenth Century

Whereas a *Book* Entitled, *Musæum Regalis Societatis*, being not only a perfect *Catalogue* of all the *Rarities* Natural and Arti|ficial, belonging to the *Royal Society*, and preserved at *Gresham Colledge*.

But containing moreover large and full Descriptions of those Particulars, which are either not at all, or falsely, or very defectively described in the *Musæum's* of *Calceolarius*, *Septalius*, *Wormius*, the *Colledge* of the *Jesuites* at *Rome*, of *Monsieur Ferdinand Cospy*, or by *Aldrovandus*, *Rondeletius*, *Gesnerus*, *Salvianus*, or other *Authors*.<sup>1</sup>

### Introduction

Descriptive catalogues of natural history collections flourished in the seventeenth century, arguably the golden age of published catalogues. The increasing demand to create systems of order within nature, and the ability to textually represent order, allowed collectors to easily represent their collections via catalogues to a broader audience. These texts were produced by scholarly communities who sought to inform readers about objects by means of vivid descriptions. The descriptive catalogue is most frequently affiliated with academic institutions and scholars, with the descriptions resulting from meticulous observation. Nehemiah Grew's *Musæum Regalis Societatis*, published for London's Royal Society in 1681, exemplifies this seventeenth-century catalogue genre. The catalogue was created by observation and experimentation with the objects from the collection. The text provides details on the physical descriptions of the objects, but also their origins and use. By examining the prose it elucidates how the objects were used by the Royal Society and early modern scientific endeavors.

In the political climate of the late seventeenth century religion and truth claims were closely linked. Nehemiah Grew's catalogue was published during the era of the so-called Popish

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<sup>1</sup> The above quote is an excerpt from an advertisement promoting the sale of the catalogue. Nehemiah Grew, "Whereas a book entitled, *Musæum Regalis Societatis* being not only a perfect catalogue of all the rarities," (London, 1680), 1.

Plot (1678-1681), a moral panic about the dangers of a Catholic conspiracy against English Protestants, which resulted in the trials and the execution of over thirty individuals.<sup>2</sup> The seventeenth century was marked by both antipopery and tensions between English Protestants; notably, between Episcopalian Anglicans on the one hand and Presbyterians and other Calvinists (often termed Puritans before the Restoration and dissenters or nonconformists afterwards). Nehemiah Grew's grandfather, Francis, and his father, Obadiah, were vocal non-conformists who lost their livings due to the various legal restrictions against dissenters; Grew was also a non-conformist, however, his career in medicine enabled him to maintain his practice.<sup>3</sup> In this era of political and religious division and "rival truth-claims" authors of pamphlets had to situate themselves within the context of polarized Whig-Tory politics.<sup>4</sup> Pamphlets did not shy away from controversial religious and political topics, nor did Grew's catalogue.<sup>5</sup> The *Musæum Regalis Societatis* explicitly advertised itself as disproving objects "falsly, or very defectively described in the *Musæum's* of *Calceolarius*, *Septalius*, *Wormius*, the *Colledge* of the *Jesuites* at *Rome*, of *Monsieur Ferdinand Cospy*, or by *Aldrovandus*, *Rondeletius*, *Gesnerus*, *Salvianus*, or other *Authors*,"<sup>6</sup> claiming to offer a corrective to the magical and superstitious beliefs propounded by Catholic authorities. For Grew, as for most Protestants, Catholic traditions were tantamount to superstition and idolatry. In his catalogue, he privileges Protestant authorities and methods rooted in the practices of Francis Bacon.

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<sup>2</sup> For a detailed look at the Popish plot, see John Kenyon, *The Popish Plot* (London: Heinemann, 1972).

<sup>3</sup> Jeanne Bolam, "Botanical Works of Nehemiah Grew, F.R.S. (1641-1712)," *Notes and Records of the Royal Society of London* 27, no. 2 (February 1973), 220. Obadiah Grew was a vicar, with the 1662 Act of Uniformity he was unable to hold office as a non-conformist.

<sup>4</sup> Mark Knights, *Representation and Misrepresentation in Later Stuart Britain: Partisanship and Political Culture* (Oxford: Oxford University Press, 2005), 6.

<sup>5</sup> Joad Raymond, *Pamphlets and Pamphleteering in Early Modern Britain* (New York: Cambridge University Press, 2003), 1-26.

<sup>6</sup> Grew, "Whereas a book entitled, *Musæum Regalis Societatis*," 1. Grew is referring to the collections of Francesco Calzolari, Ludovicus Septalius, Olaus/Ole Worm, The College of the Jesuits at Rome (Athanasius Kircher), Ferdinando Copsi, Ulisse Aldrovandi, Guillaume Rondelet, Conrad Gesner and Ippolito Salviani. The majority of these collections were owned by Catholics, hence his desire to disprove their catalogues.

## Cataloguing the Royal Society's Repository

London's Royal Society produced *Musæum Regalis Societatis* out of the need to order and organize the Society's chaotic Repository. In 1667 the Society had briefly relocated to Arundel house due to the Great Fire of London. Gresham College had been converted into a temporary Exchange; however, the objects from the Repository stayed in Gresham College.<sup>7</sup> The Fellows continued to meet at Arundel house until 1673, without the contents of their Repository.<sup>8</sup> The inevitable return to the College was heavily influenced by the practical aspect the Repository played in the Society's meetings and lectures. The Curator of Experiments, then Robert Hooke, provided demonstrations, dissections or experiments with objects that were either housed in or were destined for the Repository.<sup>9</sup> Remarking on the return to Gresham, Simpson notes it was about "the conveniency of making their experiments in the place where their Curator dwells, and the apparatuses at hand", further emphasizing the practical use of the Repository.<sup>10</sup> Upon the return to Gresham, the Fellows needed to rearrange the new rooms, sparking a new organizational project that included newly elected Fellow Nehemiah Grew's cataloging endeavor.

The first reference to organizing the Repository appears in Council Minutes from 1674. Orders are given for the Repository to be moved, and a catalogue to be commenced. An entry from February 25 1674/5 "Ordered, that Mr Hook doe as soon he can— remove the Societys

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<sup>7</sup> A.D.C. Simpson, "Newton's Telescope and the Cataloguing of the Royal Society's Repository," *Notes and Records of the Royal Society of London* 38, no. 2 (Mar., 1984), 189.

<sup>8</sup> Simpson, "Newton's Telescope," 189. For information on Gresham College and its connection with the Royal Exchange see Trevor Sibbet, "Early insurance in and around the Royal Exchange" in *Sir Thomas Gresham and Gresham College: Studies in the Intellectual History of London in the Sixteenth and Seventeenth Centuries*, ed. Francis Ames-Lewis (London: Ashgate, 2001): 62-76; Katherine Gibson, "Sculpture at the Royal Exchange in the seventeenth century," in *Sir Thomas Gresham and Gresham College: Studies in the Intellectual History of London in the Sixteenth and Seventeenth Centuries*, ed. Francis Ames-Lewis (London: Ashgate, 2001): 77-87.

<sup>9</sup> Steven Shapin, "Who Was Robert Hooke?" in *Robert Hooke: New Studies*, eds. Michael Hunter and Simon Schaffer (London: Boydell Press, 1989), 255.

<sup>10</sup> Simpson, "Newton's Telescope," 189.

Repository and Library to the North Gallery of Gresham Colledge; and that done to perfect the Catalogue of both according to a former.”<sup>11</sup> Hooke, with help from others, completed the move but not the inventory. The following March the Council produced official orders sparking the beginning of the catalogue:

After this the committee for managing the businesse of the Repository made a report to the Council of what they had done in that affair, viz. that they had removed particulars thereof out of the rooms where they had hitherto been into the gallery at the west end of Gresham Colledge and there ranged in order and now it remained for the Council to order and inventory or Catalogue to be made book of those curiosities and the Books and the appoint persons to have the custody of the same.<sup>12</sup>

A committee was established to begin considering who would be a suitable candidate to create a catalogue for the collection. There was some delay and it was not until 1678 that Grew officially began to catalogue the collection.<sup>13</sup> Grew was a methodical cataloguer, observing each object individually and researching its origins and uses.<sup>14</sup> The process lasted several years and took Grew away from his own research, resulting in a lavish folio published by W. Rawlins entitled *Musæum Regalis Societatis: Or, a catalogue and description of the natural and artificial rarities belonging to the Royal Society, and preserved at Gresham Colledge. Made by Nehemiah Grew, M. D. fellow of the Royal Society, and of the Colledge of Physitians. Whereunto is subjoyned the comparative anatomy of stomachs and guts* (Figure 1).

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<sup>11</sup> RS *Original Council Minutes*, vol. 1, 25 February 1674/5: 257-259.

<sup>12</sup> RS *Original Council Minutes*, vol. 1, 6 March 1675/6: 268-271.

<sup>13</sup> RS *Original Council Minutes*, vol. 1, 26 December 1678: 288-290.

<sup>14</sup> RS *Original Council Minutes*, vol. 1, 6 March 1675-6:268-271. Abraham Hill shortly dropped out of the project.

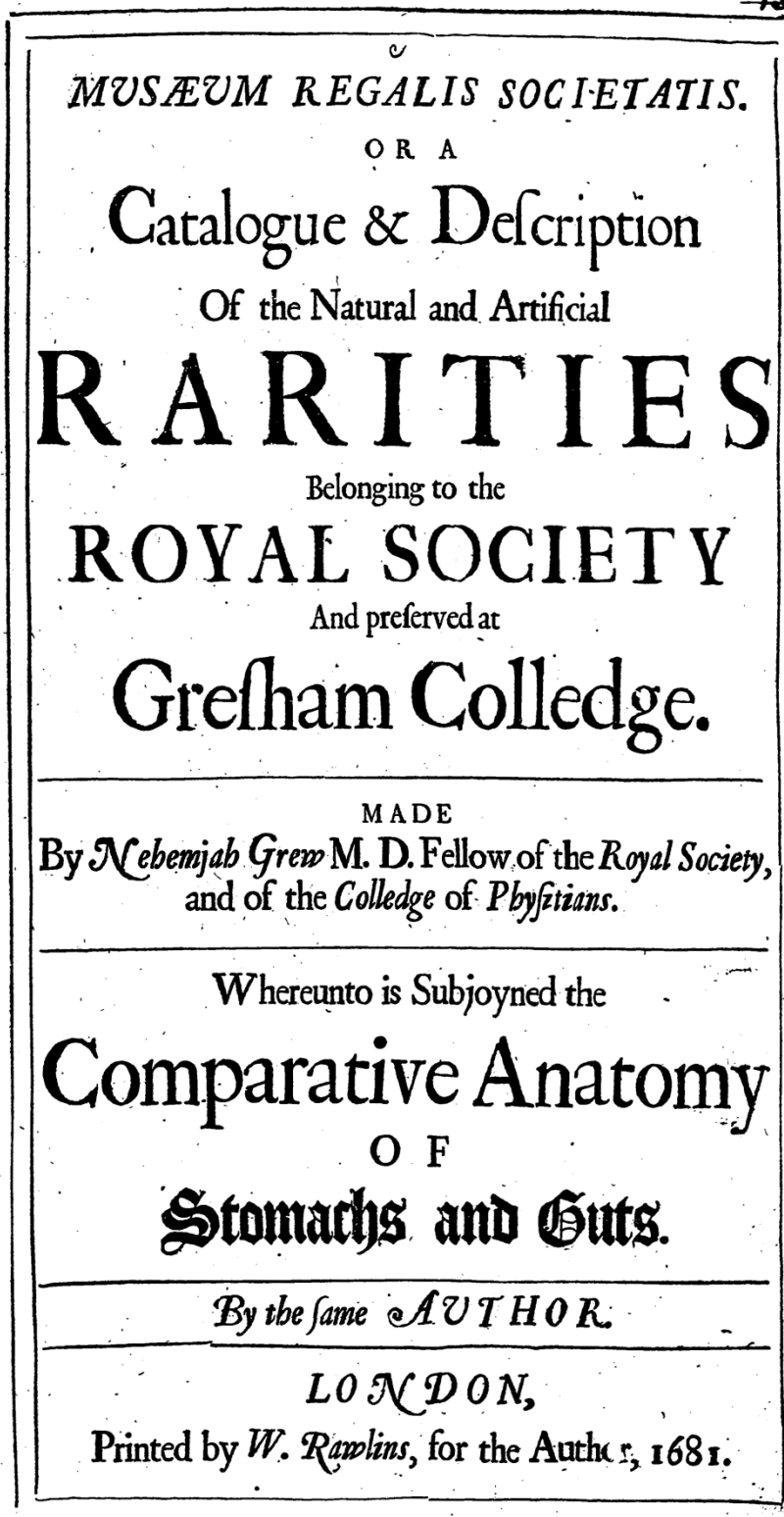


Figure 1: Title Page to Nehemiah Grew's 1681 edition of *Museum Regalis Societatis*. Reproduced courtesy of EEBO.

The catalogue, as noted in its title, surpasses its original function as an organizational aid for the Keeper of the Repository, acting also as a visual guide targeted at curious readers.

Grew's catalogue was sold by subscription and was distributed amongst a broad audience. The subscription list was included in the Council Minutes from 26 February 1679/80.<sup>15</sup> This initial list included Royal Fellows (such as Robert Boyle, Daniel Colwall, Abraham Hill, Sir Christopher Wren), gentlemen scholars of England, as well as many European subscribers. This was the list for readers of the first edition; however, additional copies could be purchased after printing.<sup>16</sup> By April 1680, it received over 1000 subscribers and an ad was put in the *London Gazette* informing interested patrons there was still time to subscribe.<sup>17</sup> Grew's catalogue proved so popular that it was reprinted in 1686 and 1694.

Evidence for a broad readership can be found among the varying bookplates and annotations made in the margins.<sup>18</sup> For instance, in the margins of John Evelyn's copy of *Musæum Regalis Societatis*, notes are found in the margins beside each item that he donated, detailing information regarding their bequest. The *Musæum Regalis Societatis* catalogue created a reputation for the Royal Society among contemporary European collectors, many of whom Grew had used as references in the making of the catalogue.<sup>19</sup> Both naturalists and collectors

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<sup>15</sup> RS *Original Council Minutes*, 26 February, 1679/1680.

<sup>16</sup> Michael Hunter, "Early Problems in Professionalizing Scientific Research: Nehemiah Grew and the Royal Society, with an Unpublished Letter to Henry Oldenburg," *Notes and Records of the Royal Society of London* 36, no. 2 (Feb., 1982), 193. A portion of Grew's payment for *Musæum Regalis Societatis* and his earlier *Anatomy of Plants* (1671) was derived from payment made upon subscriptions. The subscription list for the catalogue was included in the Council Minutes on 26 February 1679/80.

<sup>17</sup> *London Gazette*, no. 1508 (29 April-May 3 1680).

<sup>18</sup> William Sherman, "Dirty Books," *Used Books: Marking Readers in Renaissance England* (Philadelphia: University of Pennsylvania Press, 2008), 151-178. Sherman argues that annotations in books are evidence for active readership amongst the audience of a text.

<sup>19</sup> Ken Arnold, *Cabinets for the Curious: Looking Back at Early English Museums* (Aldershot, Burlington, VT: Ashgate, 2005), 218.

referenced the catalogue, purchasing the text not only as a reference for the Repository's contents, but also to understand its wondrous objects.<sup>20</sup>

The primary reason for the catalogue's creation was to impose order on the physical contents of the Royal Society's collection; however, as a printed descriptive catalogue it provided more than an ordering system for its readers. Grew provided physical descriptions of the contents, acting as a virtual guide to the collection. Thus, the catalogue acted as a proxy for the collection, enabling readers to mentally picture the objects without visiting the collection. Grew includes commentary on many of the objects as well as up-to-date anatomical observations. Furthermore, Grew's use of marginal references engages with his readers by substantiating his own research and encouraging further investigation. By the late seventeenth century, this format provided information management for creators and readers.<sup>21</sup> What Grew's text fails to convey is the physical space of Gresham College. The text does not provide item numbers, a tracking system or dates of donation. Regarding the catalogue's usefulness as an organizational tool, Jennifer Thomas notes that "from a practical point of view, Grew's printed catalogue failed to provide a way of finding objects."<sup>22</sup> The physical location of the objects was of no interest to the readers as many would never visit the Repository.

During the catalogue's composition, Grew sought advice from private collectors who had produced catalogues detailing the contents of their cabinets. As such, members of the Royal Society (many of whom were collectors themselves) deemed it suitable to purchase several

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<sup>20</sup> See e.g. Zacharias Conrad von Uffenbach, *London in 1710 From the Travels of Zacharias Conrad von Uffenbach*, trans. W. H. Quarrell and Margaret Mare (London: Faber and Faber Limited, 1934), 98-102. Uffenbach writes of his visits to multiple cabinets during his sojourn to London. On recollection of his visit to the Royal Society, he referred to his own copy of *Musæum Regalis Societatis* which he used to research the objects prior to his visit.

<sup>21</sup> Werner Hüllen, "Reality, the Museum, and the Catalogue: A Semiotic Interpretation of Early German Texts of Museology," *Semiotica* 80, no. 3 (1990), 270.

<sup>22</sup> Jennifer Thomas, "A Philosophical Storehouse, the Life and Afterlife of the Royal Society's Repository," PhD diss. (Queen Mary University of London, 2009), 20.

prominent printed works to act as templates for Grew's cataloguing project.<sup>23</sup> Texts included the catalogues of Ludovico Moscardo, Lorenzo Legati, and Athanasius Kircher, whose catalogues were circulated widely and purchased by collectors and enthusiasts across England and Europe.<sup>24</sup> As England had yet to emerge fully on the collecting stage, the majority of the catalogues purchased came from Italy.<sup>25</sup> Other referenced works included the Danish Ole Worm, the German Conrad Gesner, and, one of the few Englishmen, John Tradescant.<sup>26</sup> These texts, which were frequently referenced in *Musæum Regalis Societatis*, acted as authorities for Grew and served as a template for his work. Perhaps, even more importantly, the object descriptions from this collection of catalogues formed the basis of Grew's initial research into many of the items in the Repository.

Not only does Grew's *Musæum Regalis Societatis* refer to other catalogues, it shares striking similarities with natural history texts of the seventeenth century, including an *errata* page, preface, and table of contents, figures, charts, and indexes. The catalogue opens with a portrait of the project's benefactor, Daniel Colwall, followed by an Epistle Dedicatory, also addressed to Colwall, thanking him for funding the project. Following this address is one of the key features of this text: the preface. The preface provides a skeletal framework for the catalogue as well as the individual descriptive entries. In this brief preamble, Grew outlines his methods

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<sup>23</sup> See RS *Original Council Minutes*, vol. 1, 6 March 1675-6: 271. The Repository's cataloguing project took Grew five years with completion and first editions printed in 1681.

<sup>24</sup> Ludovico Moscardo, *Note ovvere Memorie del suo Museo* (Verona, 1656), Lorenzo Legati, *Museo Cospiano* (Bologna, 1677) regarding Athanasius Kircher's collection, a large portion was donated to Rome's Jesuit College and subsequently catalogued by Giorgio de Sepi in 1678.

<sup>25</sup> Arthur MacGregor, "Seventeenth Century British Cabinets," *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, eds. Oliver Impey and Arthur MacGregor (Oxford: Oxford University Press, 1985), 147.

<sup>26</sup> Ole Worm, *Museum Wormianum* (Copenhagen, 1665); Conrad Gesner, *Historiae animalium* (Zurich, 1551-1558); and John Tradescant's *Museum Tradescantium* (London, 1656).

and goals for the cataloguing project.<sup>27</sup> After the preface is an insert of the *errata*, a common feature of early modern printed material, used to inform readers of known errors found within the catalogue.<sup>28</sup> In the subsequent reprints of 1686 and 1694 the text remains the same, with the exceptions of the frontispiece alterations.<sup>29</sup> Various illustrations and supplements noting the commonplace use of the objects flank the descriptive text, thereby catering to the catalogue's audience of learned gentlemen. Combined, these sections ensured *Musæum Regalis Societatis* conformed to the typical conventions of early modern genre of natural history catalogues. This catalogue was part of a broader genre which sought to order and manage vast amounts of information.

The greater part of the catalogue consists of Grew's written descriptions for the Repository's objects. Excerpts range from brief paragraphs to three-page long entries. In each case Grew opens with remarks on the object's appearance and size, followed by details on the provenance and use of the object. These descriptions provide the greatest avenue for analysis into the seventeenth-century culture associated with the Repository and the Royal Society. The illustrated plates are placed at the end of the text, along with a table of benefactors.<sup>30</sup> The catalogue also includes the dissections reports and illustrations of thirteen quadrupeds appended at the end of the catalogue. The section, entitled *stomach and guts*, is the result of various experimental dissections completed by Grew's in 1678. All of these individual components are

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<sup>27</sup> Grew makes this clear in the preface stating, "As to the following Catalogue, I have some things to say, of the Order, Names, Descriptions, Figures, and Uses of Particulars, and the Quotations I have made therein," Grew, *Musæum Regalis Societatis*, preface.

<sup>28</sup> Ann Blair, "Errata lists and the Reader as corrector," *Agent of Change: Print Culture Studies after Elizabeth L. Eisenstein*, eds. Sabrina Alcorn Baron, et al. (Boston: University of Massachusetts Press In association with the Center for the Book, Library of Congress, 2007) 21-23.

<sup>29</sup> Editorial corrections to the catalogue remain consistent in all three editions. See Chp. 3 n. 11.

<sup>30</sup> As Grew notes, not all objects have illustrations, only items not previously depicted in a printed work will be sketched. The result is 31 plates mostly depicting seeds, shells, and mechanical instruments.

assembled together to create *Musæum Regalis Societatis*, a descriptive catalogue of the Repository.

The function of this catalogue, as with others in its genre, was to inform its broad readership about the contents of the collection while acting as a reference text for other collectors. Grew was building upon the knowledge that others before him had tirelessly researched in the hopes that future publications might reference his own text. He critiques the arguments of previous authors and in many instances directly addresses the reader.

### **Use of Order and Hierarchy**

The specific order Grew used in the catalogue is revealed in several sections at the beginning of the text; namely, the prefatory letter, the preface, and the table of contents. For example, the preface highlights Grew's system of ordering the catalogue.

As to the first [order], I like not the reason which Aldrovandus gives for his beginning the History of Quadrupeds with the Horse; *Quòd praecipuam nobis utilitatem praebeat*. Being better placed according to the degrees of their Approximation, to Humane Shape, and one to another: and so other Things, according to their Nature. Much less should I choose, with Gesner, to go by the Alphabet. The very Scale of the Creatures, is a matter of high speculation.<sup>31</sup>

In the above passage, Grew directly references two prominent catalogues and their classification methods. The first is the Italian Naturalist Ulisse Aldrovandi's *Opera omnia Volume 7* (1648), regarding his classification of four footed mammals.<sup>32</sup> Aldrovandi's descriptive text adopted a version of Aristotelian method of classification based upon physical qualities of the objects. Grew notes that Aldrovandi's hierarchical classification method based solely upon physical qualities; for example, dividing the quadrupeds by the types of hooves (single, cloven) is undesirable for a descriptive catalogue. The other catalogue critiqued by Grew is *Historiae*

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<sup>31</sup> Grew, *Musæum Regalis Societatis*, preface. "Which may be taken first from its noble uses."

<sup>32</sup> Grew also references Ulisse Aldrovandi's publication *Musaeum metallicum* (Bologna: 1648) numerous times.

*animalium* (1558) by the Swiss naturalist Conrad Gesner. Gesner employs alphabetization for the plethora of objects, abandoning any notion of natural hierarchy among physical traits.<sup>33</sup> His catalogue does not attempt to create a hierarchical order to the objects; rather, it aids the reader in reading and finding objects within the text. Grew notes his suspicions and critiques these authors' earlier works regarding their ordering choices.<sup>34</sup> The resulting catalogue for the Repository is a text that shares more similarities with Aldrovandi's classical hierarchical structure than with Gesner's alphabetical divisions, demonstrating the brand of natural theology Grew desired to impose on the world.<sup>35</sup>

Despite being a practicing Baconian, Grew's ordering system is based on the principle of Aristotelian classification. The objects of *Musæum Regalis Societatis* are initially divided into four sections: "Of Animals, Of Plants, Of Minerals, and finally Of Artificial Matters."<sup>36</sup> There is a specific order to these categories that follows an early modern hierarchical belief loosely resembling the Aristotelian Great Chain of Being, a classification scheme which used physical traits as the distinctive factors differentiating between genus.<sup>37</sup> Sub-categories continue to use Aristotelian terminology to group objects based on characteristics; for example, viviparous quadrupeds (four legged animals bearing live young) and oviparous quadrupeds (four legged animals that lay eggs).<sup>38</sup> Aristotelian classification translated into many forms in the Renaissance and early modern period— collectors had the option of arranging their cabinets and catalogues

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<sup>33</sup> Maclean, "Aristotelian Logic and Biology from Pomponazzi to Bacon," 164-165.

<sup>34</sup> The two works noted represent a small sample of the two author's writings on natural history. Nevertheless, they are the two works cited most often in Grew's catalogue, and are the most relevant to seventeenth century collecting culture.

<sup>35</sup> In the "Prospect of the whole Work," Grew provides four broad categories (Of Animals, Of Plants, Of Minerals, and Of Artificial Matters), each with sections and the sections are further divided into chapters.

<sup>36</sup> Grew, *Musæum Regalis Societatis*, "A Prospect of the whole work of the Museum," n.p.

<sup>37</sup> Ian Maclean, "White Crows, Graying Hair, and Eyelashes: Problems for Natural Historians in the Reception of Aristotelian Logic and Biology from Pomponazzi to Bacon," *Historia: Empiricism and Erudition in Early Modern Europe*, eds. Gianna Pomata and Nancy Sirasi (Cambridge: MIT Press, 2005), 152. Maclean notes that this contradicts with Plato's method, however the majority of naturalists subscribed to Aristotle's natural philosophy.

<sup>38</sup> Londa Schiebinger, *Nature's Body: Gender in the Making of Modern Science* (Boston: Beacon Press, 1993), 42-47.

by alphabet, by habitat, by use or by form;<sup>39</sup> however, there was no set form and differences were based on the author's personal preferences.

Grew's scheme, shared by other collectors such as John Ray, Martin Lister and John Woodward, ordered specimens in a hierarchy: God at the top, followed man and other genera in descending order.<sup>40</sup> Ken Arnold writes that it was popular for men who believed themselves to practice the Baconian method to use Aristotelian categories when cataloguing: "it was not so much that natural historians of a taxonomic bent, like Ray, Lister, Grew and Woodward ignored the deeper questions of function, but rather that they relied on a single omnipotent, ubiquitous and divine final cause." Arnold adds that "natural theology provided a crucial philosophical foundation for museum-based exercises in classification, both lending legitimacy to the ideas and providing a source of moral encouragement to those who pursued them."<sup>41</sup> This particular classification structures enabled more rigorous organization for the Repository's contents.

Among Grew's four sections are categories and subdivisions that classify items based on similar properties. This hierarchy is demonstrated in the table of contents with Grew dividing *Animals* into the categories:

Section 4

*Of Birds*

Chap. 1. Of Land Fowls

Chap. 2. Of Water Fowles, particularly of the Cloven Footed

Chap. 3. Of Palmipeds or Web Footed

Chap. 4. Of their Eggs and Nests<sup>42</sup>

Grew places creatures dwelling on land first, followed by aquatic birds, misshaped birds and then fragments of birds. Grew's catalogue was a representation of his personal principles of natural

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<sup>39</sup> Maclean, "Aristotelian Logic and Biology from Pomponazzi to Bacon," 165.

<sup>40</sup> Maclean, "Aristotelian Logic and Biology from Pomponazzi to Bacon," 151.

<sup>41</sup> Ken Arnold, *Cabinets for the Curious*, 215-216.

<sup>42</sup> Grew, *Musæum Regalis Societatis*, "A Prospect of the whole work of the Museum."

philosophy which was strongly influenced by Bacon. Aristotelian categories of classification were widely used in the scholarly community to classify the natural world.<sup>43</sup> Despite these influences, Grew's Baconian methods are apparent via his observation and interpretation technique used to compile the descriptions in the catalogue.<sup>44</sup> The contents of the Repository appear in *Musæum Regalis Societatis* in an order selected by Grew; however, this was not reflective of the physical arrangement of the space in Gresham College. Instead, the catalogue acts as a substitute to visiting the collection by offering visually stimulating descriptions of each object.

### **Vivid Object Descriptions**

The object descriptions for the Repository's contents comprise the bulk of *Musæum Regalis Societatis*. The entries showcase Grew's dedicated research on the cataloguing project and demonstrate his consistency in descriptive techniques. The vivid descriptions in Grew's catalogue are consistent with contemporary scholarly works; as Peter Miller points out, "much early modern historical scholarship takes the form of description."<sup>45</sup> Within the catalogue, each object entry is composed of two main parts: name and physical description. In the 1670-1680s, neither the Royal Society nor its European counterparts had an accepted standard for naming or classifying objects in natural history. This absence of an official taxonomic system and binomial nomenclature would not be addressed until the following century.<sup>46</sup> As a result, collectors, including Grew, were free to select whichever name they desired for objects in their catalogues.

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<sup>43</sup> Hüllen, "Reality, the Museum, and the Catalogue," 271.

<sup>44</sup> Bolam, "Botanical Works of Nehemiah Grew," 223.

<sup>45</sup> Peter Miller, "Description Terminable and Interminable: Looking at the Past Nature and Peoples in Peirescs Archive," In *Historia: Empiricism and Erudition in Early Modern Europe*, edited by Gianna Pomata and Nancy Sirasi (Cambridge: MIT Press, 2005), 355

<sup>46</sup> For an overview of collections and their catalogues see Eva Schulz, "Notes on the History of Collecting and Museums," *Journal of the History of Collections* 2, no. 2 (1990), 205-18. For an extensive study of early modern European collections, see Paula Findlen's *Possessing Nature* (1996).

In Grew's text, plants and animals receive a brief English entry followed by its Latin counterpart. For instance, "The little SEA-UNICORNE. *Monoceros minor*" or "The PRICKLE-NOS'D BEETLE. *Scarabæus Naso aculeato*."<sup>47</sup> Certain man-made materials, such as coins, were listed in English but accompanied by Latin, Greek or Hebrew inscriptions, to provide a more comprehensive description.<sup>48</sup> The catalogue's intended audience of educated gentlemen would be expected to read all, or most of, these languages. Indeed, many popular European catalogues circulating amongst collectors were printed in Italian, Latin, and German. Grew's choice to rename objects using concise English descriptors was a conscious effort to cater to a broad audience.

In fact, Grew renamed many objects for *Musæum Regalis Societatis* that had once been in the possession of other collectors. Grew used his own method of naming, noting in the preface, "for so, every Name were a short Definition."<sup>49</sup> As such, the object names are based on his rigorous method of individual object observation, rather than the given names upon donation that often relied on urban legends and myths. Items and entire collections, donated by patrons, listed in the meeting minutes with names specifically referencing the place of origin were renamed.<sup>50</sup> Grew was following Francis Bacon's empirical method that sought "the first hand study of

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<sup>47</sup> Grew, *Musæum Regalis Societatis*, 104; 162.

<sup>48</sup> Grew, *Musæum Regalis Societatis*, 381-384. Grew includes the inscriptions (mostly Latin) found on 67 different types of coins; there were in fact several hundred coins as the Repository had many duplicates. Coins were valued as collectibles and as research tools for studying the classical past. Grew described the text on the coin, and in some cases the central motif, to give the reader a complete understanding of the physical appearance of each. In certain instances, antiquarians used their collections of coins for historical investigation rather than the traditional method that employed manuscripts. For instance, many Roman coins were analyzed to determine the frequency of Emperor names. Although the results are questionable, since only the writing on the coins was analyzed, their methods nevertheless demonstrate how objects of a collection could be used for scholarly inquiry and indeed early historical research. See William Arnaldo Momigliano, "Ancient History and the Antiquarian," *Journal of the Warburg and Courtauld Institutes* 13, no.3 (1950): 285-315; Anthony Grafton, "Jean Hardouin: The Antiquary as Pariah," *Journal of the Warburg and Courtauld Institutes* 62 (1999): 241-267.

<sup>49</sup> Grew, *Musæum Regalis Societatis*, preface.

<sup>50</sup> One example of the exotic local being favoured during the initial reports is seen when, "Mr Povey presented the society with an East Indian Fan of Tamarinds, restrain with is Aromatical smell after having been kept by him for 6 months..." *RS Journal Book* Vol. 2, 3 February 1663:37.

Nature” using empirical knowledge.<sup>51</sup> This new method of inquiry appealed to Grew on a scientific and religious level; as Charles Webster notes, it was a departure from the humanist tradition of education that enticed “intellectuals into idolatrous worship of the linguistic arts (grammar, rhetoric, logic).”<sup>52</sup> By observing the objects and changing the names, Grew was attempting to showcase the Royal Society as a reputable and learned institution of science, dispelling notions that its Repository was a curiosity cabinet filled with trivial exotics and relics.

One of the more notable collections whose items can be traced prior to its donation to the Repository belongs to Robert Hubert.<sup>53</sup> Grew changed the names for most of Hubert’s objects that entered the Repository in order to “realign the collection from the focus on the extraordinary evident in Hubert’s catalogue to be more scientific.”<sup>54</sup> Thomas notes that Grew succeeded in this task “by providing more detail on each specimen by emphasising the scientific rather than curious qualities of the objects, and via the language used to describe the specimens.”<sup>55</sup> Hubert’s collection was from his own famous cabinet of curiosities, located near St. Paul’s church, a popular tourist destination in London. He produced a catalogue for his collection in 1664, and the Royal Society purchased its contents shortly thereafter to serve as the foundation for the Repository.<sup>56</sup> Despite being a less elaborate work (it was short in length, containing no

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<sup>51</sup> Charles Webster, *The Great Instauration: Science, Medicine and Reform, 1626-1660* (London: Duckworth, 1975), 105 and James Delbourgo, “Listing People,” *Isis* 103, no. 4 (December 2012), 737.

<sup>52</sup> Webster, *The Great Instauration: Science, Medicine and Reform, 1626-1660*, 105

<sup>53</sup> Robert Hubert also appears with the last name Hubbard, however, he also went by the alias of Forges. In the Council Meeting Minutes of the Royal Society he is listed as “Mr. Hubbard.”

<sup>54</sup> Thomas, “A Philosophical Storehouse,” 23.

<sup>55</sup> Thomas, “A Philosophical Storehouse,” 23.

<sup>56</sup> Hubert’s catalogue was published with the title: *A Catalogue of Many Natural Rarities, with Great Industry, Cost, and thirty Years travel in Foreign Countries, Collected by Robert Hubert, alias Forges, Gent. and sworn Servant to His Majesty. And dayly to be seen, at the place called the Musick House, at the MITER, near the West end of St. Pauls Church*. The Royal Society Council purchased Hubert’s entire collection for fifty pounds, as ordered by the minutes, “Ordered that the fifty pounds in cash that were formerly presented by Mr Colwall be delivered out to be added to another fifty pounds presented by the same, to pay for the Collection of Rarities, formerly belonging to Mr Hubbard.” *RS Original Council Minutes*, 21 February 1665/6: 96. This occurred after the publication of Hubert’s catalogue in 1664; however, there were additional reprints in 1665 and 1669 that included additional data and reorganization objects. Despite Hubert’s decision to reorganize, he no longer possessed his objects.

illustrations) Hubert's catalogue shares many characteristics with Grew's *Musæum Regalis Societatis*. Each author organizes the objects within the broad categories of *humana*, *naturalia*, and *artificialia* before proceeding within their own personal classification system. This grouping places all human specimens— such as mummies and miscellaneous body parts— together, while quadrupeds are grouped separately, as are man-made objects and tools. The two authors also share the technique of using comparisons of common everyday items to describe the exotic contents. A comparison of items in Hubert's 1664 catalogue with those in *Musæum Regalis Societatis* reinforces Grew's prefatory remarks regarding his decision to rename the objects based on physical traits rather than place of origin.

Hubert's names include the exotic origins, often with little or no physical description. For instance, he describes "A great *Lizzard of Africa*," "A Branch of a Palme tree of the Jews land," "A *Rose of Jerico*," and "A Prickle-Apple of *India*."<sup>57</sup> In contrast, Grew's names are concise while his descriptions provide the physical details; "The HORN of the UNICORNE BIRD," "A WILLOW BRANCH," "The MODEL of an EYE," and "The true METHEL or the VOMITING-NUT".<sup>58</sup> This final example demonstrates Grew's presentation of the factual name of the object alongside its colloquial label. The simplistic name makes the item more accessible and removes any superstitious or mystical associations, emphasizing a simple— plain speaking Protestant— item for academic purposes.<sup>59</sup>

The second half of Grew's descriptions consists of his observations and his comments on the physical appearance and use of the objects. A standard entry includes a name, followed by several paragraphs of descriptive prose (at times descriptions comprise two to three pages). The

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<sup>57</sup> Robert Hubert, *A Catalogue of Many Natural Rarities*, (London, 1664):30; 36; 37; 39.

<sup>58</sup> Grew, *Musæum Regalis Societatis*, 65; 183; 359; 210.

<sup>59</sup> Many of these objects were believed to possess healing or antidotal properties, such as the Unicorn horn and willow branch.

length is a result of the detailed descriptions, but also reflected Grew's desire to correct previous knowledge and research conducted on these objects. In the preface, Grew notes his method for creating the object descriptions.

In the Descriptions, I have taken care; First, to rectifie the mistakes of such as are given us by other Hands. Secondly, not to Transcribe any; as is too commonly done: but having noted something more especial therein, to refer to the Author. Thirdly, where there is no Description at all, or that is too short, or the faults therein many, to give one at large. For the doing of all which, what the trouble of comparing Books together hath been, I say with Sleydan in another Case, *Post Deum Immortalem Ipse novi*.<sup>60</sup>

Grew seeks to correct any previous mistakes regarding information on the Repository's contents and take his place as a new authority on the subjects described, be it name, colour, origin or function. However, he wanted to give contemporary writers due credit for their work in the field. During the cataloguing project, Grew was able to trace developments in the field of natural history; more notably, he was able to find errors in the research. As a result, the finished product includes countless references to contemporary texts by doctors and other collectors noting both correct and incorrect data. In the absence of Grew's own scholarly publications the catalogue served to demonstrate his expertise in the field of research. The descriptions are the heart of this catalogue and Grew's rhetorical devices combined with the quotations create an accessible text that allowed readers to experience the objects without having to physically visit the Repository.

Looking back once more at Hubert's catalogue, there is also a difference in the descriptions of the objects common to both collections. Grew seeks to create a type of encyclopedic entry for the objects, noting the origin, appearance, and use, of each object. A notable example of this is seen with his entry for the thigh bone of an elephant. Hubert's 1664 publication describes this item as "*A Giants Thigh-bone*" and additionally notes that it came

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<sup>60</sup> Grew, *Musæum Regalis Societatis*, "preface." The Latin translates as "After all this, I know how Immortal God felt."

from Syria. In contrast, Grew's 1681 work in concise fashion notes, "The LEG BONE of an ELEPHANT."<sup>61</sup> In his description of the elephant's bone, he notes that this item, found in Syria, is often confused with a giant's thigh bone.<sup>62</sup> The majority of Grew's items had altered names, specifically with the removal of the geographic location. This change of names occurred with other collections and donations gathered into the Repository, such as items from John Tradescant, John Evelyn and Sir Robert Moray.<sup>63</sup> The change exemplifies Grew's desire to correct erroneous information, predominantly of a mystical or occult variety, previously circulated in learned communities, thereby asserting himself as the foremost authority on such items.

Grew's vivid descriptive style is typical of the natural history genre of the early modern period. Miller emphasizes how rich description was common among naturalists: "the historiography of the New Science has been of course written in terms of 'observation' rather than 'description.' But observations lived—and live—only in their description. Description is how most early moderns learned of observations that were conducted elsewhere."<sup>64</sup> One particular influence for Grew's prose was natural philosopher John Wilkins's *An Essay Towards a Real Character and a Philosophical Language* (1668). In his text, Wilkins emphasizes the importance of language for categorizing ideas and objects.<sup>65</sup> Wragge-Morely points out that Grew's descriptive style, in the catalogue and his other natural history writings, "seems to be coherent with the notion of visual or imaginative intelligibility that will be familiar to readers of

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<sup>61</sup> Grew, *Musæum Regalis Societatis*, "Of Quadrupeds," 32.

<sup>62</sup> Grew, *Musæum Regalis Societatis*, "Of Quadrupeds," 32.

<sup>63</sup> Records from the Royal Society Journal Book Minutes and Council Minutes note a variety of donations from private collections and Fellows or from returning from expeditions. The names appearing in the records are different than Grew's final choice for the catalogue. For example those items donated by Sir Robert Moray, see *RS Journal Book* vol. 1, 6 April 1664: 307.

<sup>64</sup> Peter Miller, "Looking at the Past Nature and Peoples in Peirescs Archive," 359.

<sup>65</sup> Susan M. Pearce and Ken Arnold, *The Collector's Voice: Critical Readings in the Practice of Collecting. Volume 2. Early Voices* (Ashgate: Aldershot; Burlington, VT, 2000), 63-66.

John Wilkins's universal language scheme."<sup>66</sup> This emphasis on description is a trait unique to the early modern period, resulting from the emergence of new scientific techniques seeking to correct prior knowledge.

In *Musæum Regalis Societatis*, Grew creates a visual aid for the readers through a variety of rhetorical devices used to describe the objects in the Repository. The example below of a human fetus, located in "Section 1: Human Rarities," exemplifies the rhetorical devices Grew used to describe objects. He employed sensory descriptions and comparisons, as well as the inclusion of external sources:

The SKELETON of an Abortive Humane Fœtus. 'Tis not above two Inches long. The parts of the Head, Chest, and Limbs are all entire, but not perfect. For the extremities of the Bones of the Arms and Leggs, are at both ends plainly cartilagineous. They are in thickness like a Taylors stitching Thread. Given by Thomas Povey Esq;. See *Kirckringius de Fœtûs Ossibus*.

It may possibly be conceived by some, That the Bones, at least some of them, are hard at the first; as Salts and other like Crystallizing Bodies are as hard upon the very first instant of their shooting, as they are when grown into great Crystals. But it is so far evident, that all the Bones are soft at the first, that I am of opinion, That originally they are a Congeries of Fibers or fibrous Vessels, as true as any other in the Body; which by degrees harden into Bones: even as the inmost Vessels in a Plant, do in time harden into Wood. See *the Authors Anatomy of Plants*. And that as in a Plant, there are successive additions of Rings or Tubes of Wood, made out of Vessels...<sup>67</sup>

Here Grew uses rhetorical devices, such as analogies to plants and minerals, to convey a vivid picture of the fetal skeleton to the readers. As a result, Marjorie Swann states that this catalogue, and others, served as "vehicles of representation," as many patrons only gained access to collections through conjuring mental images of the objects.<sup>68</sup> This aspect was understood by collectors and, in the natural history genre, the authors conformed to a certain format for the

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<sup>66</sup> Wragge-Morely, "Verbal Picturing," 170.

<sup>67</sup> Grew, *Musæum Regalis Societatis*, "Of Humane Rarities," 6.

<sup>68</sup> Marjorie Swann, *Curiosities and Texts: the Culture of Collecting in Early Modern England* (Philadelphia: University of Pennsylvania Press, 2001), 9. Although the Royal Society's Repository was a popular tourist attraction, it was still limited to visitors compared with those who purchased catalogues.

entries.<sup>69</sup> As exemplified above, the format for the entry starts with a rudimentary description of measurement (given in inches) and reports of the object's physical condition. To create a clearer image for his readers, Grew uses his utilitarian observations to compare the thickness of the fetal bone to a tailor's thread, rather than fully detailing its width. Similarly, in the latter half of the entry, Grew compares the flesh of humans to that of plants. Thus, mental images of the strange and curious items from the repository are conveyed to the readers via Grew's sensory descriptions of the objects.

Additional examples of sensory descriptions are found throughout the catalogue. In the *humana* category, the entry for "The entire SKIN of a MOOR" includes comparisons to other human body parts as well as to plants. Grew describes the skin of his foot being "...about fifty times the thickness of that in the ball of the Hand ...with calluses on his Right-Hand Fingers, as big as Walnuts."<sup>70</sup> These vivid descriptions are also not limited to human specimens; in the *naturalia* section under the description for "A STAGS TEARS," Grew uses a variety of metaphors to convey the appearance and texture of the object. The entry likens the consistency of the tears to hardened ear wax, the colour to Myrrh, and the smell to stinking animal sweat.<sup>71</sup> These object descriptions along with the new information provided by Grew allowed readers to create visual images of exotic items through written comparisons to common everyday objects.

Throughout the rich descriptions, Grew concedes that other authors possess greater authority on specific topics such as bones, trees or coins. He features the work of these authors by means of direct quotation to their published works, or indirectly to their body of work. Grew makes it clear in the preface that, while he is improving on the work of others, his catalogue does

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<sup>69</sup> Hüllen, "Reality, Museum and the Catalogue," 270.

<sup>70</sup> Grew, *Musæum Regalis Societatis*, "Of Humana," 5.

<sup>71</sup> Grew, *Musæum Regalis Societatis*. "Of Vivparous Quadrupeds Particularly such as are Bifidous, and Solidipedous," 21.

not represent the last word on these objects; the data described in his catalogue will soon be out of date: “Partly, to give the Authors, that which is their due: not at all liking the Malignant-way of some, who never mention any.”<sup>72</sup> While Grew’s observations played a large role in creating the catalogue descriptions, it was his research using natural history texts and catalogues that shaped his text.<sup>73</sup> Despite Grew’s training as a doctor and his celebrated plant publishing, he lacked detailed knowledge about the majority of the objects in the Repository. The resulting entries direct the reader to texts by doctors, naturalists, or fellow collectors who had greater authority than Grew on specific subjects.

Both formats of citations are used by Grew to provide depth and additional context for the object descriptions. The first format of reference is in-text citations, for example, that found at the end of the description for the skeleton of the human fetus: “See *Kirckringius de Fætûs Ossibus*.” This is a reference to the renowned Dutch anatomist Theodor Kerckring and his 1670 publication, *Spicilegium Anatomicarum* detailing the human skeletal system.<sup>74</sup> His work contained up to date information on the human body used by medical men across Europe. This is not the only instance Kerckring and his works are referenced in the catalogue; his name and relevant works are found with several other descriptions of human specimens. Grew uses in-text references frequently to provide a comprehensive description of the objects.

The second format of referencing is found in the margins of the catalogue. Grew used this format to add information to the text without interfering with the flow of the prose. Ann Blair notes that this particular form of referencing is similar to a list of authorities (*catalogus*

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<sup>72</sup> Grew, *Musæum Regalis Societatis*, preface.

<sup>73</sup> Details regarding Grew’s observation methods during his experiments can provide clues for how he enacted the survey of the Repository. See Al Coppola, “‘Without the Help of Glasses’: The Anthropomorphic Spectacle of Nehemiah Grew’s Botany,” *The Eighteenth Century* 54, no. 2, (Summer 2013), 266-270.

<sup>74</sup> Theodor Kerckring, *Spicilegium Anatomicarum centuriam unam; nec non Osteogeniam Foetuum, in qua quid euique ossiculo singulis accedat mensibus, quid et in eo per varia immutetu tempora, accuratissime oculis subjicitur* (Amsterdam, 1670). Kerckring speculates on the formation foetal skeletal bones via fusing in the latter half of this publication. Grew would have encountered Kerckring’s work while studying for his medical degree in Leiden.

*auctorum*), and dates back to medieval manuscripts.<sup>75</sup> Early modern authors often ostentatiously listed book titles to prove they had read them, rather than as research aids. Occasionally authors included specific page references and arguments in the margins as was the case with Grew.<sup>76</sup> His references are formatted with letters acting as provisional footnotes inserted in the body of the text; for example, (a), with the corresponding notes in the margin. These notes are not limited to bibliographic references; the names of men, places, or animals are included to enhance the description. An example of referencing textual material is evident when examining the entry for the Keremes Berry:

The empty Husks, being washed with Wine and dry'd, are put up in Sacks, either alone, or with a quantity of powder in the middle. This Account I have drawn up out of the Observations communicated by Dr. William Croon (a) from Mr. Verny an Apothecary at Montpelier, and those of Mr. Lyster (b), which illustrate each other.

(a)Phil. Trans. N. 20. p. 363.

(b)Ibid. N. 87. p. 5059.<sup>77</sup>

The information used in the description for the Keremes Berry is taken from two articles of the *Philosophical Transactions* by Doctor William Croon and Mr. Verny. Grew provides citations to give due credit to the respective authors and their research. Additionally, the volume and page number are given so interested readers can trace the source in order to find a more detailed explanation.

*Musæum Regalis Societatis* also functions as an endorsement for Grew's own publications. He includes references to his own works on many occasions, marginal and in-text. Comments include: "See the authors *Anatomy of Plants*" or "See the Authors *Comparative*

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<sup>75</sup> Ann Blair, *Too Much to Know: Managing Scholarly Information Before the Modern Age* (New Haven: Yale University Press, 2010), 133.

<sup>76</sup> Blair, *Too Much to Know*, 133-137. While *Musæum Regalis Societatis* does not contain a complete list of works at the end of the catalogue, its marginal references demonstrate the list of authorities favoured by early modern scholars.

<sup>77</sup> Grew, *Musæum Regalis Societatis*, "Of Moses, Mushrooms &c," 240.

*Anatomy of Trunks.*<sup>78</sup> Grew's early publications prior to *Musæum Regalis Societatis* include several texts on the comparative anatomy of plants. In fact, Grew's posthumous reputation, apart from the catalogue, is "the father of plant physiology," rather than as a physician.<sup>79</sup> The personal references also assert his authority over the realm of plant physiology.<sup>80</sup> In 1682 (after the publication of *Musæum Regalis Societatis*) the Royal Society allowed Grew to combine his papers into a master publication, *The Anatomy of Plants*. He was interested in the human body and how it compared to plants and thus conducted many human, animal and plant dissections. This interest is evident in the catalogue, notably with the appended *Stomach and Guts* reports from his dissections conducted in 1675.

## Figures and Tables

*Musæum Regalis Societatis* is supplemented with various forms of illustrations to aid the readers' understanding of the Repository's objects— these illustrations included knowledge trees and woodcuts. Knowledge trees are used to illustrate an entire classification system for one division, particularly for smaller groups of objects, such as shells (Figure 2).

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<sup>78</sup> For details on Grew's publications, see Jeanne Bolam "Botanical Works of Nehemiah Grew, F.R.S. (1641-1712)," *Notes and Records of the Royal Society of London* 27, no. 2 (February 1973): 219-231.

<sup>79</sup> William LeFanu, "The Versatile Nehemiah Grew," *Proceedings of the American Philosophical Society* 115, no. 6 (1971), 503.

<sup>80</sup> In 1672, prior to his move to London, Grew corresponded with Henry Oldenburg regarding the vegetation of Coventry. Several of his observations were published by the Royal Society and were later brought together in his master publication of *The Anatomy of Plants* in 1682. See William LeFanu, "The Versatile Nehemiah Grew," *Proceedings of the American Philosophical Society* 115, no. 6 (December 1971): 502-504.



The complex divisions exist to classify multiple objects of similar quality. These supplementary tables borrow their organizational methods again from Wilkins's 1668 *An Essay Towards a Real Character and a Philosophical Language*. Grew adopts the pedagogical component of Wilkins' work via the knowledge trees as a means to convey systems of "natural order" to his readers.<sup>81</sup>

In addition to knowledge trees, Grew includes thirty-one woodcuts in his catalogue. Figures are provided for choice objects described in the text, as well as for the appended dissection reports of stomachs and guts.<sup>82</sup> The Repository contained many preserved species, such as crocodiles, birds of paradise and a variety of fishes; however, these objects were common in other contemporary cabinets and catalogues. Grew, therefore, decided to illustrate the less published items such shells, nuts, and animal skulls. He notes in the preface:

As for the Figures, I have given only those of such particulars, as are omitted by others. Saving one or two, found in some Authors less known, or common. Nor any, but what is also describ'd: which makes any further Explication of these needless, besides what the Reader will find next before them.<sup>83</sup>

Previous works of natural history focused on illustrating quadrupeds, particularly exotic or mythical beasts. Grew omits these items and instead chose to depict other items such as shells and nuts. One exception is found in Table 5, the plate of the "*Leviathan*," which depicts the entire skeleton over three pages supplement.<sup>84</sup> Explanations for previous Biblical references to

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<sup>81</sup> Arnold, *Cabinets for the Curious*, 197. Grew was Wilkins' protégé in the Society. The two men collaborated on Society projects and shared many thoughts regarding natural philosophical understandings of the world. Yet, Grew chose to follow his own classification methods, based loosely on Aristotle, for the catalogue. The only evidence of Wilkins' influence is with the knowledge trees that solely appear in the shells section.

<sup>82</sup> There is no mention of these dissection records in the preface, but it should be noted that the formatting is very similar to the catalogue in terms of prose, style and tone.

<sup>83</sup> Grew, *Musæum Regalis Societatis*, preface.

<sup>84</sup> There are multiple variations for the placements of the illustrated plates. Upon my observation of the catalogues in the Royal Society, British Library, and Wellcome Library collections, it was noted that each edition possessed Table 5 (Leviathan) as a fold-out insert. Regarding the placement of the figures, the consensus leans towards placing all the plates at the end of the catalogue after the appended dissection records. There are, however, notable variations: Joseph Banks' copy in the British Library (Mic.C.9165) that intersperses the plates throughout the text and John

the Leviathan in the catalogue proper are dispelled as Grew alters the description to that of a crocodile.<sup>85</sup> The result is an illustration based solely on the observation of the large skeletal specimen rather than preconceived notions of a mythical beast. Despite the inclusion of a full body illustration, the plates remain true to Grew's desires for new sketches based on observation rather than on outdated opinions of mythical creatures.

Grew's catalogue marked a significant shift from the traditional illustration style of catalogue objects. The unknown illustrator used multiple angles and scales when depicting objects.<sup>86</sup> There are several instances in Grew's catalogue where one object, such as a shell or a coral, appears from different angles multiple times on the same page. As a result, there are descriptive labels on each engraving or Table and in many situations multiple items are present in a table. For instance, Table 8 depicts a variety of sea creatures while Table 11 illustrates different species of whelks (Figure 3). These two Tables establish the standard characteristics of the engravings found in the catalogue with the use of scales and multiple angles for depicting objects.

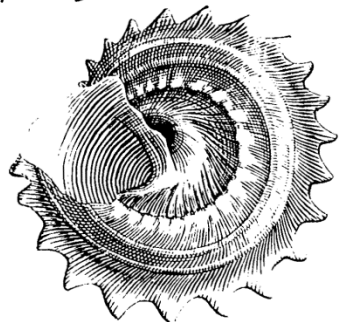
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Deakin Heaton's copy in the Wellcome Library (EPB/D 25718/D/3) where the plates are misplaced and inserted at the beginning of the catalogue.

<sup>85</sup> Grew, *Musæum Regalis Societatis*, "Of Quadrupeds," 41.

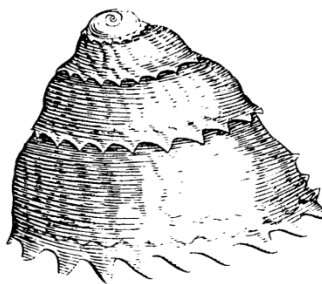
<sup>86</sup> Clues are found in Grew's letter to Royal Society treasurer Daniel Colwall where it is stated, "Neither must your [Colwall] Voluntary Undertaking for the Engraving of the Plates for this Work, be unknown. You having done this, not only out of respect to my Self; but likewise in order to a Publique Good; whereby you are a Benefactor to all Ingenious Men." Grew, *Musæum Regalis Societatis*, "Dedicatory Epistle." Colwall, who was a member of the Royal Security Council, provided funding for the engravings and the catalogue. In addition to funding the cataloging project, Colwall was instrumental in acquiring Robert Hubert's collection for the Repository in 1664. See RS *Original Council Minutes*, vol. 1, 21 February 1665/6:96.

*Spiked short Whirl* 1

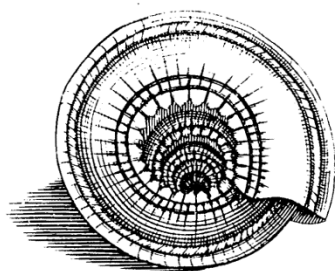


2

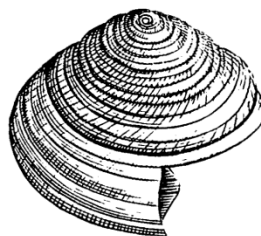
*Tab. 11.*



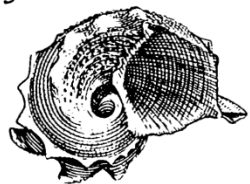
*Concave short Whirl* 1.



2



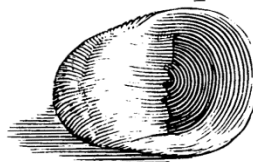
*Finger'd Snail* 1.



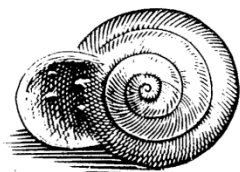
2



*Blober Lip*



*Fore Whirl*



*Mailed Sailer*



*Vaulted Limpet*

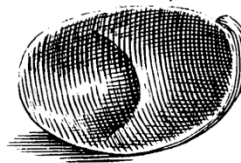


Figure 3: Table 11 illustrating a variety of whelks, taken from Grew's 1686 edition of *Musæum Regalis Societatis*. Reproduced courtesy of EEBO.

Despite Grew's dismissal of Gesner's classification methods, his woodcuts in *Historiae animalium* became a standard for natural history texts and was often duplicated in subsequent works of natural history.<sup>87</sup> Grew's difference in observation techniques led to a departure from Gesner's original woodcut style. Gesner's woodcuts were often one dimensional and somewhat whimsical, lacking both depth and scale. Conversely, the woodcuts in *Musæum Regalis Societatis* employ the use of shadows and scale, resulting in engravings which resemble scientific diagrams rather than fanciful images. Alix Cooper, writing on a similar catalogue of curiosities, notes the importance of pairing realistic drawings with catalogue descriptions: "the illustrations, then, were designed not only to complement the written text of the *Metallotheca*, but, through their unique capacity (as 'icones') of capturing the visible appearance of the objects themselves, to provide direct experience of the *observanda* [*observatio*], 'which we here set forth, to be seen by the eyes of all.'"<sup>88</sup> Cooper postulates that images played an equally important role in the dissemination of information. The woodcuts, combined with Grew's verbal descriptions, create a vivid imaginary experience for the readers. While it is unknown if Grew himself made these authoritative decisions, the realistic woodcuts nevertheless complement his desire to provide his readers with the most accurate likeness of the Repository's contents.

Other supplements in the catalogue include various indices providing the readers with additional avenues to learn about the Repository's contents. Following the 386 pages of descriptions, Grew provides "An INDEX of some MEDICINES" where he lists fifty-four

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<sup>87</sup> The woodcuts from Gesner's *Historiae animalium* were used as standard images in natural history texts for several decades. English naturalist Edward Topsell published a 1607 composite on four footed beasts and serpents comprising images with striking similarities to Gesner's. A reissue edited by John Rowland was published in 1658 titled *The History of Four Footed Beasts and Serpents*. Alix Cooper also observes that since the late 1990's scholars have begun to acknowledge the importance of these scientific drawings, their uses, cultural symbolism, and advancements of technique made in the seventeenth century. The developments in drawing techniques demonstrated new observational practices and methods corresponding with the *observatio* method also used for written description of objects. See Alix Cooper, "The Museum and the Book," *Journal of the History of Collections* 7, no. 1 (1995):1-23.

<sup>88</sup> Cooper, "The Museum and the Book," 6.

ailments, and the corresponding page numbers detailing remedies. *Musæum Regalis Societatis* contains medicines, and itemizes Grew's choice of Ailments ranging from broken bones, dysentery, melancholy, and poisons to ulcers.<sup>89</sup> These uses, however, were not limited to medical applications. Many of the descriptions detail the practical application of the objects in day-to-day life or for use in scientific experiments. His intention to reveal the practical use of these strange and exotic items was to diminish the objects' status as curios, and seem to the reader more commonplace.

The index of ailments enabled the readers of *Musæum Regalis Societatis* to understand the practical application of the objects in the Repository. The index is formatted via a list of ailments and the corresponding catalogue objects that possess curative properties. For example, the medical index indicates that 'Mad Dog' bite remedies are located on page 329. The item described on this page is "Tin", and in the description Grew writes, "A Mixture against the Bitings of Mad Dogs, consisting chiefly of Mithridate and the Filings of Tin, is much used and relied upon by some Huntsmen."<sup>90</sup> Certain ailments, such as epilepsy and fever, have multiple remedies. Combinations of items taken from *naturalia* and *artificialia* continue for the remaining 53 ailments. Grew's inclusion of the medical index demonstrates his desire for the readers to understand practical uses of the Repository's contents.

The practical application of the Repository objects does not stop at medical uses. As many of the objects were collected in foreign countries, the daily use in the native country was also recorded. For instance, Grew notes how the Turks and the Tartars used "Tusks of a Morse" for making sword handles and that Indians used "The Broad Lipped Wilk" as a hunting

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<sup>89</sup> Grew, *Musæum Regalis Societatis*, "An INDEX of some MEDICINES," Ddd 2.

<sup>90</sup> Grew, *Musæum Regalis Societatis*, "Of Tin, Lead, and Iron," 329.

trumpet.<sup>91</sup> Grew highlights the utilitarian value of the Repository's contents in an attempt to combat the *virtuosi* ideas associated with the Royal Society and its Repository. Both were often mocked and associated with to amateur and dilettante pastimes.

Grew stresses his staunch Protestant credentials, assuring readers that he would correct error perpetuated by Catholic authorities.<sup>92</sup> Grew claimed that:

instead of meddling with Mystick, Mythologick, or Hieroglyphick matters... I thought it much more proper, To remarque some of the Uses and Reasons of Things.<sup>93</sup>

The dismissal of mystical objects aptly summarizes the conflict between the pragmatic Baconian scholars and the frivolous cult of curiosity, also known as *virtuosi*. Criticisms of the *virtuosi* might have been especially popular during the height of the Popish Plot, when too much emphasis on human tradition may have suggested parallels with reputed Catholic tendencies towards superstition and idolatry. The ability, Houghton writes, to differentiate between “false and true wonders” is taken up by Grew.<sup>94</sup> Here, Grew refers to items of *mirabilia* which were believed to be involved with occult and mystical value. Hieroglyphics and sigils were also included in this category since the translation of these texts led to their use in Cabbalistic rituals, astrology and medicine.<sup>95</sup> Many European cabinets, such as those of Emperor Rudolf II, Athanasius Kircher, and Elector Joachim II of Brandenburg, contained similar items including

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<sup>91</sup> Grew, *Musæum Regalis Societatis*, “Of Fishes,” 88. The Sea Morse to which Grew refers is a walrus.

<sup>92</sup> Nehemiah Grew, “Whereas a book entituled, *Musæum Regalis Societatis* being not only a perfect catalogue of all the rarities,” (London, 1680), 1.

<sup>93</sup> Grew, *Musæum Regalis Societatis*, preface.

<sup>94</sup> Walter Houghton, “The English Virtuoso in the Seventeenth Century: Part II,” *Journal of the History of Ideas* 3, no. 2 (1942), 200.

<sup>95</sup> The fascination with sigils and symbols was a European phenomenon. For example, Athanasius Kircher's cabinet contained a large collection of Egyptian artefacts, amulets and obelisks, which were valued less for the cultural legacy and more for their mysterious quality, since not all of the glyphs were decoded. For case studies of the Royal Society and its interaction with sigils and the occult, see Anna Marie Roos, “‘Magical Coins and Magical Squares’: the Discovery of Astrological Sigils in Oldenburg Letters,” *Notes Records of the Royal Society of London* 62, (September 2008): 271–288. doi: 10.1098/rsnr.2007.0046.

bezoars, ritualistic texts, magical stones and objects from classical myth.<sup>96</sup> Additionally, these cabinets belonged to Catholics, making them all the more questionable to the dissenter Grew. The Repository contained few *mirabilia* and Grew chose to omit these items from the catalogue.

Another index included at the end of the catalogues is “A List of those who have Contributed to this Musæum: excepting some Names which are lost.” (Figure 4) The list would have been compiled via the Council Minutes which tracked new donations into the Repository. On this list, Grew alphabetically notes various patrons to the Repository and the Royal Society. The exception to this list is the first name, Prince Rupert of the Rhine, a key member in the Royal Society’s establishment. Order and knowing ones’ place within it played an important role in early modern English society, and Grew’s choice to include royalty at the top of an alphabetical list emphasizes this constant desire to maintain hierarchy.<sup>97</sup> The remainder of the names, listed alphabetically, includes various Royal Fellows, lecturers, professors and doctors affiliated with the Royal Society. These men either donated items themselves to the Repository or played a role in the collecting process. For example, John Evelyn donated several objects including “A CIDER-PRESS” and “Two Parcels of EARTH, RAINED on the Archipelago, upon the Eruption of M. Vesuvius,”<sup>98</sup> More importantly, publishing the names of benefactors provided public gratification for the individuals as their names appeared in print.

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<sup>96</sup> For a comprehensive list of European princely cabinet catalogues and their unique contents, see Paul Grinke, *From Wunderkammer to Museum* (London: Quaritch, 2006).

<sup>97</sup> Catalogues of the gentry were common. See for instance J.N., *A Perfect Catalogue of All the Knights of the Order of the Garter* (London, 1661); Sam Brooks, *A Perfect Catalogue of the Peeres of the Realm of England* (London, 1661); Edward Husbands, *The Grand Memorandum: Or, A True and Perfect Catalogue of the Secluded Members of the House of Commons, Sitting 16. March, 1659. Being the Day of Their Dissolution* (London, 1660).

<sup>98</sup> Grew, *Musæum Regalis Societatis*, “Of Earths,” 346; “Of Mechanicks,” 371.

*A List of those who have Contributed to this Musæum :  
excepting some Names which are lost.*

His Highness Prince RUPERT, Count Palatine of the Rhine.

<b>T</b> <i>Honus</i> <i>John</i>	Allen M. D. Aubrey Esq;	<i>Fash. Hieronim.</i> Richard Martyn	Lobus. Lower M. D. Lyster Esq;
<b>WILLIAM L.</b> <i>Vjcs.</i> Hon. ROBERT Dr. Erasmus <i>John</i> Sign. Paul Monf. Olaus <i>Joseph</i> Sir <i>Thomas</i> Edward	<b>BROUNCKER.</b> BOYLE, Esq; Bartholine. Bembde Esq; Boccone. Borrichius. Bowles Merch. Brown Brown. M. D.	Mr. John Sign. Christopher Sir Thomas Sir Jonas Sir Robert Mr. S.	Malling. Malpighi. Merret M. D. Millington. Moore. Moray, Morgan.
<b>JONH</b> late Lord B. of <b>EAST-INDIA</b> <b>ROYAL AFRICAN</b>	<b>CHESTER.</b> <b>COMPANY.</b> <b>COMPANY.</b>	<b>HENRY</b> Duke of Walter Isaac	<b>NORFOLK.</b> Needham M. D. Newton Math. Prof.
Walter Walter Andrew Samuel Thomas Edward Thomas Eliis William	Charleton M. D. Chetwynd Esq; Clench M. D. Colepreff, Esq; Cox, Esq; Cotton M. D. Crispe Esq; Crispe, Esq; Crone M. D.	Henry Philip Dudley Sir William Robert Walter Thomas	Oldenburge Esq; Packer Esq; Palmer Esq; Petty. Plot L. L. D. Pope M. D. Povey Esq;
John George	Evelyn Esq; Ent Esq;	<b>SETH</b> Lord B. of Mr. Mr. John Sir Philip Francis George Mr. John Sir Robert Dr. Captain George Edward	<b>SALISBURY.</b> Scotto Merch. Short. Skippon. Slare M. D. Smith M. D. Somner. Southwell. Swammerdam. Tayler. Trumbal T. D. Tyson M. D.
Captain Thomas	Fiffenden.		
Nabemjah	Grew M. D.		
Hon. CHARLES <i>Theodore</i> Thomas Abraham Mr. Luke Robert Anthony Sir John John	<b>HOWARD</b> of N. Esq; Haac Esq; Henshaw Esq; Hill Esq; Hocknel. Hodgson M. D. Hook Geom. Pr. Horneck B. D. Horkins. Houghton Pharm. L.		
Edmund Monf. Mr. Mr.	King M. D. Lannoy. Langerman Linger.	<b>WILLIAM</b> late L. Sir Christopher George Daniel Henry Sir Joseph Francis John Robert	(Parham.) <b>WILLOUGHBY</b> of Wren P. R. S. Wheeler Esq; Whistler, M. D. Whistler Esq; Williamson. Willughby Esq; Winstrop Esq; Witty M. D.

Figure 4: "A List of those who have Contributed to this Musæum: excepting some Names which are lost" from Grew's 1685 edition of *Musæum Regalis Societatis*.

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## Conclusion

Catalogues such as *Musæum Regalis Societatis* arose out of an early modern culture that sought to collect and understand the world. Catalogues provided a textual avenue to systemize the world, be it a collection of text, or natural items.<sup>99</sup> The increase in catalogues, notably in the seventeenth century, led to a specific genre that sought authors publishing respected texts. The rhetorical techniques found in *Musæum Regalis Societatis* are a product of these generic guidelines, but also of Grew's career as a physician, as well as influences from the Royal Society. A careful reading of Grew's catalogue also suggests that he was attempting to distinguish his work from that of Catholic sources, thus assuring readers of his Protestant credentials and enhancing its appeal and credibility for readers in an age obsessed with the dangers of "Popery".

The writing style of Grew was similar to early modern natural historians, noting a time of shared scientific inquiry. Alexander Wragge-Morley determined there is a specific rhetoric used by the likes of Grew, naturalist John Ray, and Martin Lister that goes beyond catalogues.<sup>100</sup> The rhetorical style, found in the catalogue descriptions, includes the use of metaphors and vivid descriptions to describe objects. The cause of this descriptive tool is the combination of the observational techniques used and the scholarly environments that cultivated Grew's, and others, successful careers. With this understanding, the catalogue can be treated as a cultural window into the lives of Grew and the Royal Society, rather than as an inventory of objects stored in the Repository. The way in which Grew guided the reader in planning a mental image of the Repository will be discussed in the next chapter.

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<sup>99</sup> Hüllen, "Reality, the Museum, and the catalogue," 271.

<sup>100</sup> Alexander Wragge-Morley, "'Vividness' in English Natural History and Anatomy 1650-1700," *Notes Records of the Royal Society of London* 66, no .4 (2012), 342; see also Alexander Wragge-Morley, "The Work of Verbal Picturing for John Ray and Some of His Contemporaries" *Intellectual History Review* 20, no.1 (2010), 177.

## Chapter 2 - Textual Windows: The Use of Glass, Wine and Wax in Late Seventeenth-Century Cabinets

“Your religion does not allow you to believe your eyes”<sup>1</sup>  
 -Lord Chief Justice (Sir William Scroggs) 13 June 1679.

### Introduction: Observation via Text

The influence of print is evident in nearly every aspect of culture in early modern England. In particular, the religious authorities used print to spread doctrine, but more importantly to seek and prove truth claims. Alison Shell comments that during this period “Protestantism benefitted from the link between print and verifiability, and this, in turn encouraged reformers and other Protestant writers to reframe a suspicion of the independent imagination.”<sup>2</sup> During the religious turmoil in England, Catholic knowledge and its reliance on tradition was viewed as suspicious. Nehemiah Grew, a Protestant, participated in the activity of verification with his cataloguing project. Rather than relying on outdated knowledge passed down from oral tradition or previous catalogues, Grew only trusted the physical objects and the leading texts written by Protestant experts in the field.<sup>3</sup>

*Musæum Regalis Societatis* is an invaluable text as it provides an overview of the Repository’s contents. But more importantly, Grew’s descriptive entries open a window into a variety of collecting practices of the seventeenth century. Curio cabinets, and their subsequent catalogues, attracted visitors through their strange and exotic items; in some cases, the catalogue

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<sup>1</sup> William Cobbett, “The Trial of Thomas White, alias Whitebread, Provincial of the Jesuits in England, William Harcourt, pretended Rector of London, John Fenwick, Procurator for the Jesuits in England, John Gavan alias Gawen, and Anthony Turner, all Jesuits and Priests, at the Old Bailey, for High Treason: 31 Charles II. A.D. 1679,” *Cobbett’s Complete Collection of State Trials and Proceedings for High Treason and Other Crimes and Misdemeanors from the Earliest Period to the Present Time*, Vol. 7 (London: Printed by T.C. Hansard, Peterborough Court, Fleet Street, 1816), 365.

<sup>2</sup> Alison Shell, *Oral Culture and Catholicism in Early Modern England* (New York: Cambridge University Press, 2007), 74.

<sup>3</sup> Shell, *Oral Culture and Catholicism in Early Modern England*, 68.

of a collection was purchased prior to the visit.<sup>4</sup> Many readers used the catalogues to experience the collection via the text without observing the objects firsthand. Compared to later museum productions, these early modern catalogues provide a virtual guide to the collection by documenting the varieties of physical qualities, uses and origins for each specimen. Grew's production is exemplary of this genre, and was well received among the Royal Society as well as with other esteemed colleagues and practitioners of natural history.<sup>5</sup> The following chapter explores Grew's rich descriptions and paints a picture of the materials used for display and preservation of preparations in the Repository, with a particular focus on glass, wine, and wax.

### **Grew's Observation Practices**

In accordance with his Protestant world view, Grew returned *ad fontes* (to the source), to create *Musæum Regalis Societatis*. His source material was the objects themselves, rather than written traditions or legends about them; Grew observed each object, rather than solely relying on texts for his descriptions. The firsthand experience is reflected in the plain descriptive language used in the catalogue. Observations are exemplified via analogies and measurements, which allowed the collector to link the exotic items to known, everyday items, for his readers.<sup>6</sup>

This aspect is explained by Grew in the preface:

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<sup>4</sup> Zacharias Conrad von Uffenbach visited the Repository in 1710 and was aware of its contents prior to his visit. In his diary, the young German traveller writes that he, and indeed many German scholars, knew of the Repository's contents prior to his visit because of Grew's catalogue. The Royal Society had many foreign Fellows and contacts; it is not unlikely that foreign subscribers were included for the printing of the second and third editions of *Musæum Regalis Societatis*. At present the only subscription remaining is for the first edition and is extant in the Council Minutes from 1680. Zacharias Conrad von Uffenbach, *London in 1710 From the Travels of Zacharias Conrad von Uffenbach*. Trans. W. H. Quarrell and Margaret Mare (London: Faber and Faber Limited, 1934), 98.

<sup>5</sup> Ken Arnold, *Cabinets for the Curious: Looking Back at Early English Museums* (Aldershot, Burlington, VT: Ashgate, 2005), 218.

<sup>6</sup> Werner Hüllen, "Reality, the Museum, and the Catalogue: A Semiotic Interpretation of Early German Texts of Museology," *Semiotica* 80, no. 3 (1990), 272.

In the Descriptions given, I have observed, with the Figures of Things, also their Colours; so far as I could, unless I had view'd them Living, and Fresh. And have added their just Measures. Much neglected by Writers of Natural History.<sup>7</sup>

While many of his contemporaries wrote scientific observations based on the use of the microscope, Grew preferred the naked eye.<sup>8</sup> He despised the recent invention of the microscope, citing a distrust for the images produced and the extra steps it created in observation; often Grew tried to create experiments where the tool was not required.<sup>9</sup> He explained that rather than using new technology, common descriptive practices for the objects would be devised using basic measurements and the senses. The resulting entries in *Musæum Regalis Societatis* and his other natural history publications consider the colour, size, shape and likeness of each object.<sup>10</sup> Grew's unique rhetorical style enables readers of the catalogue to create a virtual representation of the objects in the Repository.

In the broader context of natural history, Grew's work is an example of the early modern practice of *observatio*, favored by Francis Bacon, a scientific technique that relied on the evidence of the senses rather than theoretical traditions.<sup>11</sup> Observations using the senses allowed for written descriptions where readers could mentally experience the objects.<sup>12</sup> Alexander Wragge-Morely elaborates on this idea stating “vivid descriptions were valuable because they engendered clarity and because the mental images that they provoked would assist in the ethical

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<sup>7</sup> Nehemiah Grew, *Musæum Regalis Societatis, or a Catalogue & description of the Rarities belonging to the Royal Society & preserved at Gresham College. Made by N. Grew. Where unto is subjoined the comparative anatomy of stomachs and guts* (London: W. Rawlins, 1681), “preface.”

<sup>8</sup> Al Coppola, “‘Without the Help of Glasses:’ The Anthropomorphic Spectacle of Nehemiah Grew's Botany,” *The Eighteenth Century* 54, 2 (2013), 263.

<sup>9</sup> Coppola, “‘Without the Help of Glasses,” 263.

<sup>10</sup> No item described in the catalogue or appended *Stomachs and Guts* was observed using a microscope. Grew used his senses to observe the objects; hence, the vivid depictions of the objects.

<sup>11</sup> Gianna Pomata, “Observation Rising: Birth of An Epistemic Genre, 1500-1650,” *Histories of Scientific Observation*, eds. Lorraine Daston and Elizabeth Lunbeck (Chicago: University of Chicago Press, 2011): 45-80.

<sup>12</sup> Alexander Wragge-Morley, “The Work of Verbal Picturing for John Ray and Some of His Contemporaries” *Intellectual History Review* 20, no.1 (2010): 165-168.

or moralizing function of history.”<sup>13</sup> Moralizing objects supports a notion of Grew composing a plain-speaking catalogue that sought to inform a broad audience about the latest knowledge of natural history. The descriptions emphasize the practical use of the objects rather than the trivial and exotic nature of the curios. His observations use human senses rather than potentially unreliable technology or fallible human traditions.

It must be stressed that Grew’s collective observations in the catalogue are not illustrative of a consensus on the part of the Royal Society methods of display and preservation; rather, Grew’s observations highlight the diversity of England’s collecting culture.<sup>14</sup> In the Royal Society’s early years, the Keepers of the Repository were employed as caretakers and operators of the scientific instruments housed in the Repository, and were not in charge of preserving each specimen.<sup>15</sup> The majority of the collection was donated or purchased from Fellows of the Society or other collectors who had prepared the specimens prior to donating or selling them.<sup>16</sup> In some instances (as with the items acquired from Robert Hubert) entire collections were purchased, the items already in bottled spirits, glass jars, wooden boxes or other storage devices. The Keepers of the Repository, unlike personal collectors, were not entirely responsible for the presentation or

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<sup>13</sup> Wragge-Morely, “‘Vividness’ in English Natural History and Anatomy 1650-1700,” *Notes Records of the Royal Society of London* 66, no .4 (2012), 342.

<sup>14</sup> See Arthur MacGregor, *Curiosity and Enlightenment: Collectors and Collections from the Sixteenth to the Nineteenth Century* (New Haven: Yale University Press, 2008).

<sup>15</sup> H.W. Robinson, “The Administrative Staff of the Royal Society 1663-1831,” *Notes Records of the Royal Society of London* 4, no. 2 (October 1946): 196-7. The Keeper of the Repository and Keeper of the Library was not an official position in the Royal Society until 1696, fifteen years after the first publication of Grew’s catalogue. Prior to this date, various Fellows were appointed as curators and operators to oversee both the Repository and the Library. This duty of oversight continued into the late eighteenth century with duties requiring the clerk to attend the collection twice a week (on Mondays and Friday during Society meetings) and to make note of any new donations that required preservation. The outlined duties for this job refer to the slowed accumulation of objects to the Repository in the later eighteenth century. See Annon, “Of the Clerk, Librarian, Keeper of the Repository and House Keeper,” *Philosophical Transactions* vol. 71 (1781): 30-35.

<sup>16</sup> Michael Hunter, *Establishing the New Science: The Experience of the Early Royal Society* (Woodbridge, Suffolk: Boydell, 1989), 125. The Society also created partnerships with the Royal Navy and the Hudson’s Bay Company to bring back specimens for scientific study from the Colonies and the far reaches of the globes. The objects, such as local flora and fauna, were collected out of the Society’s interest, rather than one individual. Instead of a sole collector or curator, the Society’s interests as a whole dictated the items of interest bound for the Repository.

preservation of each item. Grew diligently noted the donors' names and details, in both the object description and the list of benefactors.<sup>17</sup> Consequently, the descriptions in *Musæum Regalis Societatis* offer insight into how different collectors and scholars alike preserved and displayed their specimens.

Sources detailing the physical structures in the Repository are scant. Council Minutes and diaries note how the physical space of the Repository was used, who used the space, when items were donated, but rarely the physical details of an item's display.<sup>18</sup> Instead, we are left to piece the appearance of such specimens together via other sources. In this regard, the descriptive references of Grew's catalogue are invaluable. Moreover, by understanding the physical materials used to store objects in the Repository we can create a better understanding for the practical aspects of collecting in the seventeenth century.

### **Curious Display Materials: Bottles and Bubbles**

The English glassmaking trade was growing in the seventeenth century due to the new export of flint glass. George Ravenscroft's innovative formula was patented in 1674 and ensured a clear and transparent glass.<sup>19</sup> The increasing demand called for a variety of domestic materials such as windows, drinking vessels, bottles and tableware, in a variety of colours that ranged from

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<sup>17</sup> Grew included a list of benefactors at the end of the catalogue. Many of the individuals are Fellows of the Royal Society. Additionally, in the later catalogues, such as Ms.413 and Ms.414, the date of donation appears alongside the name of the benefactor.

<sup>18</sup> The narratives used to abstract the physical appearance of the Repository include: Michael Hunter, *Establishing the New Science, Establishing the New Science: The Experience of the Early Royal Society* (Woodbridge, Suffolk: Boydell, 1989); A.D.C. Simpson, "Newton's Telescope and the Cataloguing of the Royal Society's Repository," *Notes and Records of the Royal Society of London* 38, no. 2 (1984): 187-214; Jennifer Thomas, "A Philosophical Storehouse, the Life and Afterlife of the Royal Society's Repository" (PhD diss., Queen Mary, University of London, 2009), and "Compiling 'God's Great Book [of] Universal Nature': The Royal Society's Collecting Strategies," *Journal of the History of Collections* 23, no. 1 (2011): 1-13.

<sup>19</sup> Eleanor S. Godfrey, "Specialized Glassware: Bottles, Hourglasses, Mirrors, and Scientific Wares," in *The Development of English Glassmaking 1560-1640* (Oxford: Clarendon Press, 1975), 243-250; see also Colin Brian and David Dungworth, "Late 17th-Century Crystal Glass: An Analytical Investigation," *Journal of Glass Studies* vol. 51 (2009): 111-137. The new ingredients allowed the glass to stay transparent even after washing.

pink, blue, green, brown, black, to clear.<sup>20</sup> Such new and improved glass was also sought after in the scientific community. The production of lenses, spectacles, slides for the recently developed microscopes, barometers, and globes for air pumps were significantly improved by Ravenscroft's new formula.<sup>21</sup> Collectors, many of whom were members of the scientific community, also used glass as display vessels and display bubbles.<sup>22</sup> This growing use of glass is evident in the plethora of references to glass in Grew's catalogue the items of the Repository. The object entries provide details on the appearance and quality of various storage devices as well as how each was used.

Glass figures largely in the catalogue not only as a means of displaying objects, but also as a point of comparison. In the descriptions, Grew compares exotic objects to everyday items so as to create a vivid picture for the reader; the common object in many situations is glass. For example, the interior part of "The CASED CORNU AMMONIS" (the interior of an ammonite fossil) is described as "very glossy, and transparent as Glass."<sup>23</sup> Grew's familiarity with glass of high gloss and transparency points to the high quality of Ravenscroft's flint glass as it was used in scientific instruments in the late seventeenth century.<sup>24</sup> Moreover, in another example, in the description of "The SHIPHALTER" we learn there were varying degrees of texture for glass used in scientific procedures; Grew notes that the Leech "sticks her self fast to the smoothest

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<sup>20</sup> The colour of the glass was dependent on the ingredients; darker glass was cheaper to produce. For surveys on the history of glass in early modern England, see Eleanor S. Godfrey, *The Development of English Glassmaking 1560-1640* (Oxford: Clarendon Press, 1975) and R.J. Charleston, *English Glass and the Glass Used in England, circa 400-1940* (London: George Allen and Unwin, 1984).

<sup>21</sup> Godfrey, "Specialized Glassware," 243-246.

<sup>22</sup> Elizabeth Hallam and Samuel J.M.M. Alberti, "Bodies in Museums," *Medical Museums: Past, Present, Future* ed. Samuel JMM Alberti and Elizabeth Hallam (London: Royal College of Surgeons, 2013), 6.

<sup>23</sup> Nehemiah Grew, *Musæum Regalis Societatis*, 260-261.

<sup>24</sup> Dungworth and Brain, "Late 17th-Century Crystal Glass," 111-112. See also, MacGregor, *Curiosity and Enlightenment*, 163.

Glass.”<sup>25</sup> From the detailed descriptions, the glass used to contain items in the Repository is understood to have sheen, transparency, and a smooth texture.

With the increase of collecting as a hobby for both the learned and for gentlemen, there was a growing demand for glass jars and vessels to contain large and small specimens. Cylindrical glass jars increased in production as more collections sprang up across England in the seventeenth century.<sup>26</sup> Grew notes in several entries the use of such jars. For instance, a male human fetus was suspended “by being included with rectified spirit of Wine in a Cylindrical Glass.”<sup>27</sup> Larger items requiring long-term storage and preservation, typically human or animal tissue, were kept in glass jars filled with spirits. Hence, the vessels which contained “A young CHICKEN emboweled and put into rectified Oil of Turpentine” and “A SNAKE preserved in Spirit of Wine” were contained in glass vessels. Additionally, small dried items could be piled inside cylindrical bottles, as with the “Little Navle-Shell,”<sup>28</sup> of which, Grew wrote, there were “several of them kept in a glass.”<sup>29</sup> What is apparent from these examples is the reliance on cylindrical glass jars to hold both wet and dry specimens.

The same style of cylindrical jar was used in contemporary English cabinets. For example, Sir Hans Sloane’s collection of animals and plants collected from his 1687 expedition to Jamaica with the Duke of Albermarle is preserved in nearly the same fashion. Clear cylindrical glass jars filled with spirits and sealed with glass lids remain in the Natural History

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<sup>25</sup> Grew is describing a sea lamprey. In the lengthy entry, Grew dispels previous myths of the fish sinking ships with its sucking jaws, “Tis plain, that the Tradition had a very early beginning, when little light Boats were the Ships which people us'd. To the side whereof, this Fish fastening her self, might easily make it swag, as the least preponderance on either side will do, and so retard its Course. And the Story once begot upon a Boat, might still, like the Fish it self, stick to it, though turn'd to a Ship” (Grew, *Musæum Regalis Societatis*, 104-6).

<sup>26</sup> MacGregor, *Curiosity and Enlightenment*, 163.

<sup>27</sup> Grew, *Musæum Regalis Societatis*, 3-4.

<sup>28</sup> Grew, *Musæum Regalis Societatis*, 134.

<sup>29</sup> Grew, *Musæum Regalis Societatis*, 58; 48.

Museum as a testament to Sloane's dedication to the preservation of his collection.<sup>30</sup> English collector and Royal Fellow James Petiver possessed an immense cabinet of natural rarities in London which is now dispersed amongst the British Museum and Natural History Museum.<sup>31</sup> The collection was applauded by German traveller Zacharias Conrad von Uffenbach for the sheer size and quality of its display, which included a vast array of preserved natural history specimens in cylindrical glass jars.<sup>32</sup> Additionally, Oxford's Ashmolean Museum (founded in 1683 and incorporating John Tradescant's cabinet) also houses preserved natural history specimens in spirit-filled glass jars.<sup>33</sup>

Yet glass was not a foolproof method for display. Other entries in the catalogue highlight the fact that over time specimens preserved in spirits dirtied the glass. In the instance of the young chicken mentioned above Grew notes that "there is a little sediment at the bottom of the Glass."<sup>34</sup> Many of the specimens preserved in spirits were kept in jars for upwards of fifteen years. As a result, the organic material and liquid deteriorated, leaving sediment and dirt on the surface and bottom of the vessels. It was difficult to clean the interior of the jars because this required unsealing the lid, emptying the old spirits from the jars and refilling them with new spirits. This maintenance of the jars was time consuming and costly, and it also risked affecting the condition of the preserved specimen. As a result, maintenance for the wet specimens was neglected and the jars slowly accumulated sediment and dirt from prolonged display.<sup>35</sup>

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<sup>30</sup> Juliet Clutton-Brock, "Vertebrate Collections," in *Sir Hans Sloane: Collector, Scientist, Antiquary, Founding Father of the British Museum*, ed. Arthur MacGregor (London: British Museum Press, 1994), 80-81.

<sup>31</sup> Erik Jorink, "Sloane and the Dutch Connection" *From Books to Bezoars: Sir Hans Sloane and His Collections* edited by Alison Walker, Arthur MacGregor and Michael Hunter (London: British Library Press, 2012), 64-67; MacGregor, *Curiosity and Enlightenment*, 140-141. Sloane purchased the bulk of Petiver's collection after his death.

<sup>32</sup> Zacharias Conrad von Uffenbach, *London in 1710 From the Travels of Zacharias Conrad von Uffenbach*, trans. W. H. Quarrell and Margaret Mare (London: Faber and Faber Limited, 1934), 157.

<sup>33</sup> See MacGregor, ed. *Tradescant's Rarities: Essay's on the Foundation of the Ashmolean Museum* (Oxford: Clarendon Press, 1983).

<sup>34</sup> Grew, *Musæum Regalis Societatis*, 58.

<sup>35</sup> Preservation in spirits will be discussed in further detail below.

In addition to the glass display jars, glass was also used by collectors to improve the display of specimens. Bubbles blown from glass were used to alter how specimens appeared in spirits. Collectors and physicians used wire to attach glass bubbles to specimens; the bubbles floated above the liquid, stabilizing the display model in the jar. In the front section of Grew's catalogue (which is dedicated to human specimens) there are a number of clinical preparations that were originally used by physicians in an educational setting.<sup>36</sup> For example, Grew describes a male fetus, and the apparatus accompanying the specimen in the jar. The fetus was donated by Thomas Coxe, a Fellow of the Royal Society and the College of Physicians. The bottling and injections of this specimen were completed by Coxe fifteen years prior to Grew's compilation of the catalogue.<sup>37</sup> Grew's description sheds light on the technique used in the fetal preparation: "to the middle of which the Fœtus is poised, by means of a Glass Buble of an Inch diametre, the Neck whereof is fastned to the Anus of the Fœtus by a wyer."<sup>38</sup> The glass bubble was used to anchor the specimen in the jar. Wires supported the neck there posing the fetus in a life-like position. Coxe connected wires to the floating glass bubble to ensure the fetus was anchored in the centre of the jar and faced the visitor. This technique allowed physicians and curious patrons alike to examine the full body of the fetus. In fact, several other donations of clinical preparations to the Repository used the glass bubble and wire technique but are not described in Grew's catalogue.<sup>39</sup>

The University of Leiden's anatomical collection houses clinical preparations dating from the early eighteenth century. Various wet preparations in large cylindrical glass jars provide

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<sup>36</sup> Michael Day, "Humana" in *Sir Hans Sloane: Collector, Scientist, Antiquary, Founding Father of the British Museum*, ed. Arthur MacGregor (London: British Museum Press, 1994), 70.

<sup>37</sup> Grew, *Musæum Regalis Societatis*, 4. According to Ms.414 Catalogue B [Section 1] the Royal Society received Coxe's donation on May 21 1665.

<sup>38</sup> Grew, *Musæum Regalis Societatis*, 3-4.

<sup>39</sup> Uffenbach, *London in 1710*, 98. Uffenbach writes in his diary that the ovaries of a woman are displayed in a glass jar and held in place using glass bubbles.

evidence regarding how human and animal specimens in the Repository might have appeared. Similar to the Royal Society, The University of Leiden opened its anatomical collection to the public.<sup>40</sup> Its clinical preparations were prepared using the same materials and techniques described by Grew. Clinical preparations were displayed in the anatomical theatre as early as the sixteenth century but it is the collection of the anatomist Bernhard Siegfried Albinus that survives to this day. Like the donors of the Repository, Albinus also injected his specimens with coloured wax (often red), and placed the injections in spirits of wine.<sup>41</sup> In many situations, wire helped support the display via a connection to the glass lid. Collections with objects remaining intact, including those of Sir Hans Sloane, John Hunter, Joseph Bank, James Petiver and Leiden's anatomical theatre allow for comparison for the types of preservation methods and materials described in *Musæum Regalis Societatis*.<sup>42</sup>

Grew's frequent mention of the jars and the numerous comparisons of specimens to glass points to the growing prominence of glass in domestic English life.<sup>43</sup> The growing reliance on flint glass also increased the demand for glass in the scientific community. Indeed, Grew demonstrates an awareness of glass in his catalogue with careful descriptions of the shape, texture, appearance and colour of the glass found in the Repository. Moreover, Grew's technique of comparison allows for the quality of glass to be established from the entries, creating a clear picture of the storage methods used in the early years of the Repository. Cylindrical glass jars held both wet and dry specimens and glass bubbles helped in the overall display of the

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<sup>40</sup> The 'public' in question who had the privilege of visiting Leiden's museum, Repository as well as other renounce cabinets of curiosities either academic or institutional consisted of any gentlemen or scholar. In some cases the visitors required letters of introduction. Paula Findlen, "The Museum: Its Classical Etymology and Renaissance Genealogy," *Journal of the History of Collections* 1, no. 1 (1989), 72.

<sup>41</sup> Marieke Hendriksen, Hieke Huistra and Rina Knoeff, "Recycling Anatomical Preparations: Leiden's Anatomical Collections," *Medical Museums: Past, Present, Future*, ed. Samuel JMM Alberti and Elizabeth Hallam (London: Royal College of Surgeons of England, 2013): 75-87.

<sup>42</sup> MacGregor, "The Museum Comes of Age," *Curiosity and Enlightenment*, 237-297.

<sup>43</sup> Charleston, "The Rise of the English Glass Industry: Tudor and Stuart (c. 1500-1675)," in *English Glass and the Glass Used in England, circa 400-1940*, 42-108.

preparations. Although the clinical preparations from the Repository no longer remain, examples from the collectors Sir Hans Sloane, James Petiver— and even from the University of Leiden’s anatomical collection— all share the same display methods; that is, using bottles of flint glass.

## Preservation of Objects

### *Wet Preservation: Wine and Spirits*

The preservation of organic material was a primary concern for dedicated connoisseurs of collecting as well as physicians. Without suitable preservation or storage, delicate material such as human organs, animal remains, or plant matter deteriorated and decayed. The ideal materials for collecting included stone, shell, bone, or wood since they did not decay and required little or no further attention.<sup>44</sup> Indeed, much of the Royal Society’s collections remaining in the Hunterian Museum, such as the Evelyn tables, are man-made or composed of hardened organic material that required little or no preservation.<sup>45</sup> Nevertheless, many collectors and physicians alike sought to acquire and exhibit a range of organic material. In the seventeenth century, the principal methods of preserving delicate organic tissue involved the use of spirits and wax injections. Donors to the Repository included avid collectors such as John Evelyn, Robert Hubert, John Woodward and Sir Hans Sloane, together with prominent physicians such as Thomas Coxe, Edward Browne, and Walter Charleton.<sup>46</sup> The latter group of donors performed dissections and created both wet and dry preparations as educational tools for their pupils. The latest techniques practiced by these men developed out of medical theatres and were transferred

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<sup>44</sup> Wilma George, “Alive or Dead: Zoological Collections in the Seventeenth Century,” in *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, eds. Oliver Impey and Arthur MacGregor (Oxford: Oxford University Press, 1985), 184-185.

<sup>45</sup>The four Evelyn tables, while containing the human nerves and artery systems, are varnished onto pine planks to ensure preservation. Details about the four tables [RCSHM/Z 32-35] are available on the Royal College of Surgeons of England’s online catalogue: <http://surgicat.rcseng.ac.uk/>.

<sup>46</sup> Grew, *Musæum Regalis Societatis*, “A List of those who have Contributed to this Musæum: excepting some Names which are lost,” np.

into cabinets of curiosities, insofar as many collectors had ties to academia or practicing physicians.<sup>47</sup> The result was a trickle-down effect of medical techniques of preservation being represented in cabinets of curiosities, including the Repository.

One of the most common preservation methods for delicate specimens was to place the object in a glass of alcoholic spirits to avoid decay. The alcohol listed most frequently in *Musæum Regalis Societatis* is “spirits of wine” a high content alcohol (approximately 90%), similar to ethanol. The high concentration of alcohol and low sugar content allowed for the preservation of both human and animal specimens.<sup>48</sup> Apart from the costs of obtaining rarities (which often included buying specimens or entire collections), it was the alcohol (followed by the glass jars) which took up the largest portion of a collector’s budget.<sup>49</sup> A detailed description of preservation using wine appears in the fourth section of Grew’s catalogue, “Of Birds,” in the entry for “A young LINET”.<sup>50</sup> In this entry, Grew describes the bird donated by Robert Boyle, and refers to Boyle’s experimentation with organic preservation using wine:

A young LINET which being first embowel'd, hath been preserved sound and entire, in rectified Spirit of Wine, for the space of 17 years. Given by the Honourable Mr. Boyl. Who, so far as I know, was the first that made trial of preserving Animals this way. An Experiment of much use. As for the preserving of all sorts of Worms, Caterpillars, and other soft Insects in their natural bulk and shape, which otherwise shrink up, so as nothing can be observed of their parts after they are dead. So also to keep the Guts, or other soft parts of Animals, fit for often repeated Inspections. And had the Kings or Physitians of Egypt thought on't, in my Opinion, it had been a much better way of making an everlasting Mummy.<sup>51</sup>

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<sup>47</sup> Ken Arnold, *Cabinets for the Curious*, 138.

<sup>48</sup> Day, “Humana,” 70. Wine and other alcohols were used for preservation until the 1890s when Formalin was invented.

<sup>49</sup> MacGregor, *Curiosity and Enlightenment*, 163-4.

<sup>50</sup> Grew, *Musæum Regalis Societatis*, 58. A small finch.

<sup>51</sup> Grew, *Musæum Regalis Societatis*, 58.

“The linet” in the Repository had been preserved in wine for upwards of seventeen years when Grew noted its appearance for the catalogue.<sup>52</sup> Grew’s awareness of current scientific practices is evident when he praises Boyle’s work on the preservation of specimens with wine. Typically, insects and small specimens housed in collections lost their original form when dried. On the basis of Boyle’s experiments, Grew promoted the notion that alcohol slowed organic decomposition. One of the benefits was that having undergone little or no change after being preserved in the spirits, the specimen could be examined by collectors and scientists at a later date. Apart from “the linet,” there are several other animals that the catalogue lists as preserved in wine or spirits, including “A SNAKE preserved in Spirit of Wine.”<sup>53</sup> The most important aspect, however, of this method of preservation was to place the deceased specimen in the alcohol as soon as possible to avoid rapid decomposition.

The methods and materials highlighted by Grew are confirmed by James Petiver, a Fellow of the Royal Society, naturalist, and avid collector. Petiver’s broadsheet, *Brief directions for the easie making, and preserving collections of all natural curiosities* was endorsed by the Royal Society and republished on several occasions.<sup>54</sup> If we examine Petiver’s instructions for preserving animals, we see that his advice is consistent with the preservation techniques described in Grew’s catalogue:

All small Animals, as Beasts, Birds, Fishes, Serpents, Lizards, and other Fleshy Bodies capable of corruption, are certainly preserved in Rack, Rum, Brandy, or any other Spirits; but where these are not easily to be had, a strong Pickle, or Brine of Sea Water may serve.<sup>55</sup>

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<sup>52</sup> Ms.414 Catalogue B [Section 4] notes Boyle donating the specimen 20 January 1663.

<sup>53</sup> Grew, *Musæum Regalis Societatis*, 48. Many of the human specimens in wet preservation were injected with coloured wax and then placed in spirits. Others included dry items such as bone or stones (kidney or bladder).

<sup>54</sup> James Delbourgo, “Listing People,” *Isis* 103, no. 4 (2012): 737-738.

<sup>55</sup> James Petiver, “Directions for the Easie Making and Preserving Collections of All Natural Curiosities” (London, 1700).

Wet preservation was chosen as the best option to preserve organic material and was practiced by amateur collectors, such as Petiver, as well as physicians. Petiver's connection to both the Royal Society, as well as the Temple Coffee House Botanic Club, justified his status as an authoritative naturalist in English collecting circles.<sup>56</sup> While the dating of the publication is approximately twenty years after Grew published *Musæum Regalis Societatis*, the methods and materials for wet preservation of animal specimens remained the same well into the nineteenth century.

Although preservation in alcohol prevented the deterioration of the specimen, the glass and alcohol often caused problems for collectors. To achieve wet preservation, the specimen was placed in a glass vessel of spirits and then sealed.<sup>57</sup> Apart from the dirt and sediment build-up over time (as noted above), collectors encountered the problem of alcohol evaporating due to poorly sealed jars. Initially, lids of foil or a stretched bladder were placed on the jars. Many of the items described by Grew sat in the Repository for over fifteen years prior to the publication of his catalogue. While Grew does not provide information on evaporation, it was a pressing concern of collectors. When Uffenbach visited the Repository, he noted that many of the preparations were stored in jars with little to no alcohol remaining.<sup>58</sup> Hans Sloane encountered this problem in his own collection. Sloane's collection contained numerous clinical specimens gathered during his early medical career in the late seventeenth and early eighteenth centuries. Due to his medical career, Sloane's collection of medical preparations bore resemblance to those

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<sup>56</sup> David E. Allen, *The Naturalist in Britain* (London: Penguin Books, 1967), 10-11; Mark Laird and Margaret Riley, "The Congenial Climate of Coffeehouse Horticulture: The *Historia plantarum rariorum* and the *Catalogue plantarum*," *Studies in the History of Art* 69, no. 46 (2008): 226-259; and Jorink, "Sloane and the Dutch Connection," 57-70. Members of the Temple House Botanic Club included Nehemiah Grew, Martin Lister, Hans Sloane, Tancred Robinson, Samuel Dale, Charles du Bois and William Vernon.

<sup>57</sup> MacGregor, *Curiosity and Enlightenment*, 163-4.

<sup>58</sup> Uffenbach, *London in 1710*, 98.

found in the Repository in terms of the use of glass jars, spirits, and wax injections.<sup>59</sup> Eventually it was discovered that evaporation could be prevented by sealing the lids of the glass jars with wax.<sup>60</sup>

Grew uses his vivid descriptions of preserved human specimens to create a virtual guide to the Repository. Clear alcohol was used for preservation because it slowed the decomposition of the object, but for the avid collector, the colourless liquid allowed for close observation without manual examination. For example, the description of “A Male Humane Foetus” states that “The Skin hath been kept white and smooth for so long a time, *scil.* above fifteen years, by being included with rectified spirit of Wine in a Cylindrical Glass.”<sup>61</sup> Although Grew was unable to remove the specimen from the jar, he observed the specimen in its container and described the two items together for the catalogue readers. Like the linet mentioned above, the fetus was preserved in the Repository for fifteen years in wine. Yet, in this particular instance, glass bubbles were used in the preparation to improve in the physical display of the specimen. Careful preparation was required; specifically, the wrapping of the wire around the bubble and the fetus to ensure that the fetus would not float freely within the container. During Uffenbach’s visit to the Repository he noted the ovaries of a woman preserved in the same manner.<sup>62</sup> This method of preparation demonstrates that the donor Thomas Coxe’s medical expertise influenced the realm of collecting.

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<sup>59</sup> Rina Knoeff, “The Visitor’s View: Early Modern Tourism and the Polyvalence of Anatomical Exhibits,” in *Centres and Cycles of Accumulation in and Around the Netherlands During the Early Modern Period*, ed. Lissa Roberts (Münster: LIT Verlag, 2011), 164; McGregor, *Curiosity and Enlightenment*, 163-4.

<sup>60</sup> MacGregor, *Curiosity and Enlightenment*, 163-4.

<sup>61</sup> Grew, *Musæum Regalis Societatis*, 4.

<sup>62</sup> Uffenbach, *London in 1710*, 98. The Repository, however, was in poor condition when Uffenbach visited the Royal Society in 1710. Glass bubbles used for balance lay broken at the bottom of the now empty jars. The particular preserved ovaries Uffenbach is referencing are not listed in the catalogue.

### *Dry Preservation and Wax Injection*

There are only a handful of human specimens in the Repository; however these specimens require the most detailed preparation. As with the organic material discussed above, careful attention was given to the preservation of the human specimens to ensure their longevity in the collection. Pages 1-10 of *Musæum Regalis Societatis* describe twenty-three human specimens, which were either in wet or dry preservation. These clinical preparations were restricted to those taken from dissections, specifically those conducted by Dr. Jan Swammerdam and Dr. Edmund King, or taken from deceased patients. After the dissections, the organs chosen for preservation were set aside to receive the necessary preparation, either dry or wet, for their placement in the Repository. Dry methods involved stuffing, injecting, and colouring in an attempt to recreate the specimen's original form.<sup>63</sup> The final product was useful in teaching because it could be handled and touched by students and instructors. Details regarding the methods used to create the human preparations are included by Grew in his vivid catalogue entries.

The Repository contained many human preparations preserved in a dry state, which resulted in the specimen losing its original colour and shape. Physicians gradually found solutions to the problem by using stuffing or wax injections.<sup>64</sup> For example, Grew describes a woman's womb that derived from a dissection by Swammerdam:

The WOMB of a WOMAN, blown up and dried. Together with the *Spermatik Vessels* annexed; and the *Artieries* in the bottom of the *Uterus*, undulated like the Claspers of a Vine; all filled up with soft wax. Also, the Membranous and Round Ligaments of the *Womb*, the *Uterus*, *Bladder*, *Clitoris*, *Nymphae*, *Hymen*, *Fallopian Tube* and the *Ovarys*, commonly called the *Testicles*; all made most curiously visibly, and given by Dr. *Swammerdam*. The Descriptions and Figures

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<sup>63</sup> MacGregor, *Curiosity and Enlightenment*, 163-4

<sup>64</sup> MacGregor, *Curiosity and Enlightenment*, 162.

hereof may be seen in the same Authors Book, printed at *Leyden*, 1672. And presented to the *Royal Society*.<sup>65</sup>

In keeping with the genre of the natural history catalogue, Grew provides a physical description of the womb and its associated organs. Grew, characteristically resorting to metaphor, compares the veins' appearance to the "claspers of a vine". Also, noted in the description is the dried condition of the womb which resulted from the womb being blown up with air to display its entire shape; additionally, the exterior veins and arteries were separated and injected with wax. These methods of dry preservation prolonged the display of the organ and its extremities.

In the quotation above, Grew records two methods of dried preservation: drying out and wax injection. The more effective of the two methods was wax injection. This technique allowed thin, delicate tissue to maintain its shape and decay slower and it also permitted the organ to be physically handled in demonstrations.<sup>66</sup> Preserving human specimens for medical experiments was a developing practice in the late seventeenth century. Many new and experimental methods of preservation were applied to the organic specimens in the Repository by the Royal Society. For instance, in the entry for The GALL BLADDER, Grew notes how the organ was "filled with soft red Wax."<sup>67</sup> The hot wax was injected with a syringe into the organ in order to fill out its shape. Once cooled, the organ was solid and less likely to decompose. In the case of the gall bladder (and other specimens), red wax was injected to create a life-like appearance for specimen.<sup>68</sup>

The preservation of human specimens was important for anatomy and medical classes.

Dissections were limited by the availability of bodies, and as a result, were only scheduled

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<sup>65</sup> Grew, *Musæum Regalis Societatis*, 8. Grew is referencing Jan Swammerdam's work on the female reproductive system, *Miraculum naturae sive uteri muliebris fabrica*, published in Leiden in 1672.

<sup>66</sup> Alessandro Riva, Gabriele Conti, Paola Solinas, and Francesco Loy "The Evolution of Anatomical Illustration and Wax Modelling in Italy from the 16th to early 19th centuries," *Journal of Anatomy* 216, no. 2 (2010), 213.

<sup>67</sup> Grew, *Musæum Regalis Societatis*, 7. "The GALL BLADDER, together with the VASA BILIARIA, taken out of the Liver, and filled with soft red Wax. Performed, and given by Dr. Swammerdam."

<sup>68</sup> Hendriksen, et al., "Recycling anatomical Preparations: Leiden's Anatomical Collections," 78.

during the winter months. The preservation of human specimens, or organs, was therefore an important practical issue for the medical community as it allowed year round teaching that was not reliant on dissections. Wax became the preferred material for preservation due to its malleability. The malleability of wax allowed organs to retain their natural shape. Injections into any protruding vessels allowed visitors to observe the various components of the organ. Mercury or suet oil was often added to the wax to create a soft consistency.<sup>69</sup> There were also specific colours used when injecting organs that helped in distinguishing the various components. Vermillion was used for arteries, Prussian blue for veins, and English king's yellow for larger organs.<sup>70</sup> As noted above, Grew described the "tiny Gallbladder", filled with red wax.<sup>71</sup> The red wax created a fleshy appearance through the surface of the organ, making the object appear more realistic. For instance, Grew records in the entry for the Spleen that "the Vessels [are] filled with wax: whereby its Fibers and Vessels are very well seen."<sup>72</sup> The preserved models were intended for use in anatomical teaching; hence, the colour coding of the veins and vessels.<sup>73</sup>

The preservation of anatomical models using coloured wax developed in Italian medical schools and slowly moved across the continent through Europe to other prominent institutions.<sup>74</sup> Treatises were published on the principles of wax injection and its use in the medical community. In the margins alongside the entry for womb of a woman, Grew includes a reference to the first part of Robert Boyle's tract, *The Usefulness of Natural Philosophy*, which describes

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<sup>69</sup> Day, "Humana," 70-71; and John Morgan, "The Art of Making Anatomical Preparations by Corrosion," *Transactions of the American Philosophical Society* vol. 2, (1786), 373.

<sup>70</sup> Morgan, "The Art of Making Anatomical Preparations by Corrosion," 375.

<sup>71</sup> Grew, *Musæum Regalis Societatis*, 7.

<sup>72</sup> Grew, *Musæum Regalis Societatis*, 7.

<sup>73</sup> Morgan, "The Art of Making Anatomical Preparations by Corrosion," 373. Morgan describes the techniques used and developed by William and John Hunter. Although these two anatomists practiced in the later eighteenth century, the art of wax injection remained relatively stable in regards to technique and the use of colour.

<sup>74</sup> See R. Ballestrero, "Anatomical models and wax Venuses: art masterpieces or scientific craft works?" *Journal of Anatomy* 216, no. 2 (2010): 223-234. doi: 10.1111/j.1469-7580.2009.01169.x. 224-225 for a survey wax models used in an academic setting. See also Alessandro Riva, Gabriele Conti, Paola Solinas, and Francesco Loy "The Evolution of Anatomical Illustration and Wax modelling in Italy from the 16th to Early 19th Centuries" *Journal of Anatomy* 216, no. 2 (2010): 209-222.

the practice of wax injection.<sup>75</sup> Not only did Boyle write on wax injection, but so too did the Dutch naturalist Jan Swammerdam, whom Grew notes as the donor of the womb and the Gallbladder in the human specimens section.<sup>76</sup> Both Boyle and Swammerdam's research was influenced by the methods emerging from Italian universities.<sup>77</sup> Swammerdam worked to perfect the method of wax injection by experimenting with the ingredients in the wax, and his work would later be influential for many European anatomists and collectors.<sup>78</sup> Yet, Grew's catalogue shows it was not only the medical community that showed interest in wax preservation, but that wax preservation was of interest to collectors of rarities more generally. The most notable example is Dutch anatomist Frederik Ruysch, who began in the medical field but collected and curated his own collection of moral tableaux from human and animal specimens.<sup>79</sup> Ruysch, in fact, improved upon Swammerdam's methods of wax injection while working at the Amsterdam Surgeon's Guild and used his new techniques for his clinical preparations and collection.<sup>80</sup>

The discursive prose of *Musæum Regalis Societatis* enabled Grew to shed light on the preservation methods used for the Repository's human specimens. Delicate organic tissue was preserved either by drying or injecting to prolong its existence in a collection. The medical use of dried organs transferred to the realm of collecting, as did the art of wax injection. Boyle and

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<sup>75</sup> Robert Boyle, *Some Considerations Touching the Usefulness of Experimental Naturall Philosophy Propos'd in Familiar Discourses to a Friend, by Way of Invitation to the Study of it* (Oxford: Printed by HEN: HALL, 1663), 384-386.

<sup>76</sup> Grew, *Musæum Regalis Societatis*, 7-8. These two specimens were the result of donations dissections by Dr. Swammerdam. The SKREW-GUT of the RAJA was also a donation by Swammerdam. Grew, *Musæum Regalis Societatis*, 99.

<sup>77</sup> Ballestriero, "Anatomical models and wax Venuses," 224.

<sup>78</sup> See A. Schierbeek, *Jan Swammerdam (1637-1680). His Life and Works* (Amsterdam: Swets & Zeitlinger, 1967); MacGregor, *Curiosity and Enlightenment*, 164-167.

<sup>79</sup> Th.H. Lunsingh Scheurleer, "Early Dutch Cabinets of Curiosities," in *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, eds. Oliver Impey and Arthur MacGregor (Oxford: Oxford University Press, 1985), 119-120; Ruysch's anatomical creations involved injecting, stuffing, and moulding cadavers via wax and wire. He opened a museum of his anatomical creations in Amsterdam, open to the public by donation. For an overview of Ruysch's tableaux and the chronology of his collection, see Luuc Kooijmans, *Death Defied: The Anatomy Lessons of Frederik Ruysch* (Boston: Brill, 2011), 269-341.

<sup>80</sup> Kooijmans, *Death Defied: The Anatomy Lessons of Frederik Ruysch*, 62.

Swammerdam worked to perfect preservation techniques that emerged from the Italian medical schools. Their efforts allowed connoisseurs of rare and wondrous objects to preserve their collections of organic specimens for future viewers.

## Conclusion

With so few artefacts remaining from the Repository, it becomes difficult to piece together the original collection. However, through Grew's textual description of the Repository in *Musæum Regalis Societatis*, it is possible to create virtual images of the objects: readers can abstract the collector's tools and materials found in the Repository. The use of flint glass jars, glass bubbles, alcohol and wax injections are all described in the catalogue and shared by other collectors. These tools can be linked more broadly to the culture of collecting that individuals identified with in the early modern period as it was the donors of the Repository's items who preserved and stored the items, not the Keepers of the Repository. Moreover, the material, such as flint glass, are linked with increasing glass trade in seventeenth-century England, and techniques of wax injection with the growing field of anatomical studies. Grew's descriptions of the preservation methods used for the Repository's objects is analogous to the physical remnants of similar collections, reaffirming the methods of preservation used by collectors in seventeenth-century cabinets.

Yet, the methods described did not ensure the long-term survival of a collection. Proper care and attention for the Repository's objects required dusting, cleaning, and refilling evaporated alcohol to ensure the survival of the collection. The Keepers of the Repository neglected their duties, exacerbating the deterioration of the fragile objects in the collection. Even durable objects, such as the Evelyn tables, the Egyptian Mummy, and the Skin of a Moor, which did not demand initial precautions for long term care, required occasional maintenance. As noted

by Uffenbach during his visit, this lack of attention by the Repository's curators left the collection in disarray.<sup>81</sup> Durable objects, including the Evelyn tables, were "covered with dust, filth and coal smoke."<sup>82</sup> This neglect was one of the main causes for the Repository's decline in the eighteenth century, leading to the dispersal of the few remaining items (that will be discussed in the following chapter).

The Royal Society continued to receive items in jars, boxes, under glass, and purchased entire collections that had undergone care and preservation. As a result, the similarities of display and storage methods, noted by Grew, are demonstrative of the collecting habits of the Royal Society's Fellows and its associates. Therefore, the early modern museum catalogues provide readers with a window onto the practical aspects of collecting in the seventeenth century. As the culture of collecting changed, so too did the catalogues. The shift in museum literature will be discussed in the next chapter.

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<sup>81</sup> Uffenbach. *London in 1710*, 98. Uffenbach reported that when the curator was asked about an object that was missing, he replied by stating "a rouge stole it away."

<sup>82</sup> Uffenbach, *London in 1710*, 98.

## Chapter 3 - The Decline of the Seventeenth Century Printed Catalogue

The inventory is almost unfailingly a simple act of recording, a registering, which is thus subject to the vagaries of time, displacement, inheritance, and so forth. By contrast, the published catalogue constitutes the salient point of a collection's life.<sup>1</sup>

### Introduction

The late seventeenth century can be seen as a golden age of printed catalogues published for a broad consumer audience. These elaborate productions sought to perfectly describe and illustrate collections, be they of private cabinets, book auctions, or anatomical schools.

Catalogues used lengthy descriptions- in an encyclopedic manner- to convey information to the reader, including appearance, use and provenance. The vast amount of information contained in collections were ordered in catalogues using classical philosophy (such as Aristotle or Pliny) to appeal to long standing traditions of order and hierarchy. Nehemiah Grew's *Musæum Regalis Societatis* informs its audience of the objects via vivid descriptive prose—a representational strategy specific to the seventeenth-century printed descriptive catalogues that gained readers textual access to collections by visualizing the objects.<sup>2</sup> Other characteristics situating this catalogue as a distinctly early modern production include the author's desire to create a “perfect” “true” and “exact” catalogue of a specific collection.<sup>3</sup>

The eighteenth century witnessed a decline in descriptive published catalogues and a shift toward texts used internally for functional and organizational purposes. A quick search at EEBO reveals there is a noticeable decrease in publications that include the words “catalogue” “exact”

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<sup>1</sup> Adalgisa Lulgi, “Inquiry as Collection: The Athanasius Kircher Museum in Rome” *RES: Anthropology and Aesthetics* 12 (1986), 112.

<sup>2</sup> Alexander Wragge-Morley, “The Work of Verbal Picturing for John Ray and Some of His Contemporaries,” *Intellectual History Review* 20, no.1 (2010), 166.

<sup>3</sup> See for instance, Nathaniel Brooke, *Englands Glory, Or, An Exact Catalogue of the Lords of His Majesties Most Honourable Privy Council* (London, 1660); Nicholas Cox, *A True, Perfect, and Exact Catalogue of All the Comedies, Tragedies, Tragi-comedies, &c. ... Printed and Published, Till this Present Year 1675* (London, 1675); Thomas Basset, *An exact catalogue of the common and statute law books of this realm, and some others relating thereunto* (London, 1684).

and “perfect” moving into the eighteenth century (Table 1). While EEBO offers a less than exhaustive record of early modern literature, the quantitative data verifies the shift in catalogue genres from the descriptive catalogues of the early modern period towards the objective and methodical catalogues of the eighteenth century. Authors provided concise descriptions or omitted them completely, instead focusing on the scientific names and classification of contents. These catalogues functioned as lists or finding aids, whether for cabinets or sales auctions, and were rarely printed separately as publications in themselves.<sup>4</sup> The authors compiling these catalogues were sought after for their expert skills in organization and curation. These shifts in contents and format correspond to the changes in collecting habits and, more broadly, scientific scholarship and professionalization. These changes occurred, Krzysztof Pomian argues, during a time of institutional shifts towards specialized fields of medicine, anatomy, botany, and zoology.<sup>5</sup> This changing relationship in collection use and catalogue format is evident within the Royal Society’s Repository, as well as with other collections of the eighteenth century.

Multiple factors contributed to the decline of the golden age of published catalogues. The following chapter will highlight three significant factors in the shift away from descriptive catalogues towards functional catalogues over the course of the eighteenth century, both in terms of the Royal Society collections and cataloguing culture generally, namely: the demand of the museum expert, the division of the sciences, and the catalogues’ gradual shift from a discursive scholarly text to a more functional inventory. Such changes are apparent with the various catalogues produced throughout the eighteenth century—specifically, the two complete

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<sup>4</sup> Many catalogues were appended at the back of another text, or only written as a manuscript.

<sup>5</sup> Krzysztof Pomian, “Medals/Shells = Erudition/Philosophy,” *Collectors and Curiosities: Paris and Venice, 1500-1800*, trans. Elizabeth Wiles-Portier (Cambridge: Polity Press, 1990), 121-138. Pomian also notes the decline of medals found in eighteenth-century collections. Coins and medals were prominent in Renaissance collections that sought to recreate classical tropes. However, with the rise of natural history texts and the departure from humanist scholarship, natural objects took prominence in the collections.

**Table 1: Records found on Early English Books Online (EEBO) Database**

<b>Year:</b>	<b>Title:</b> catalogue	<b>Keyword:</b> catalogue	<b>Title: exact</b> <b>Keyword: catalogue</b>	<b>Title: perfect</b> <b>Keyword: catalogue</b>
<b>1500-1600</b>	13	334	3	8
<b>1600-1700</b>	736	6479	132	113
<b>1700-1800</b>	21	147	5	3

\*EEBO database contains 130, 305 possible records, searches included variant spellings.

\*\*results contain catalogues of booksellers, people, laws and lists.

eighteenth-century manuscripts “Catalogue of the Royal Society Museum” (Ms. 413 and Ms. 414), as well as those of other contemporary collections.<sup>6</sup> It should be noted that when comparing *Musæum Regalis Societatis* and other seventeenth century catalogues to catalogues of the eighteenth century it is important to avoid suggesting, as Ann Marie Roos warns, “a clear chronological development from ‘bookish to empirical knowledge, from traditional to objective description, from symbolic to realistic illustration.’”<sup>7</sup> Rather, it is the complex development of museums as cultural sites coupled with shifting philosophical concerns and differing theories of knowledge that combined to create gradual change in cataloguing attitudes. A comparison of Grew’s seventeenth-century catalogue and later Royal Society catalogues of the eighteenth century will allow us to examine this transition in more depth.

### **The Rise of the Museum Expert**

In 1711 the Royal Society moved from Gresham College to Crane Court, which entailed the transportation of the Repository’s objects.<sup>8</sup> The move, while beneficial to the Royal Fellows and their experiments, was at the expense of the Repository. After the move, the objects in the collection were not maintained under proper conditions for preservation and many of the natural specimens deteriorated. The German visitor Zacharias Conrad von Uffenbach noted that the Repository’s contents were “in no sort of order of tidiness but covered with dust, filth and coal

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<sup>6</sup> RS Ms.413-417. Other catalogues (e.g. Ms. 416) surveyed Royal Society Journal Book Minutes and letters to create a complete list of items gifted to the Society since its creation in 1660.

<sup>7</sup> Anna Marie Roos, “Naturalia: the History of Natural History and Medicine in the Seventeenth Century,” *Notes and Records of the Royal Society of London* 66 (2012), 317.

<sup>8</sup> Michael Hunter, *Establishing the New Science: The Experience of the Early Royal Society* (Woodbridge, Suffolk: Boydell, 1989), 154; and Jennifer Thomas, “A Philosophical Storehouse, the Life and Afterlife of the Royal Society’s Repository,” PhD diss (Queen Mary, University of London, 2009), 9.

smoke, and many of them broken and utterly ruined.”<sup>9</sup> As a result, many items officially recorded in Grew’s catalogue were either lost or broken during the move.

The Council responded by inventorying the Repository’s salvageable contents.<sup>10</sup> The first inspection for the Repository was ordered in 1713, but a detailed cataloguing project was not ordered until 1719. Finally by 1721, nearing the end of Isaac Newton’s term, “Catalogue of the Royal Society Museum” (Ms.413) was produced, after the Committee acknowledged the poor condition of the Repository’s contents. There was a noticeable change in format as catalogues focusing more on function than on discursive description. Grew’s catalogue was valued as a standalone text, printed as a lavish folio and distributed via subscription. The only handwritten information appears in the form of corrections to the text.<sup>11</sup> In contrast, the Royal Society’s eighteenth-century catalogues consist entirely of manuscript, handwritten in small, bound notebooks.<sup>12</sup> The first of these (Ms.413), dating from 1719 to 1731, was an ongoing catalogue divided into three chapters: animal, vegetable, and mineral. Each chapter, respectively, contains nine, twelve, and seventeen sections.<sup>13</sup> The later production also titled “Catalogue of the Royal

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<sup>9</sup> Zacharias Conrad von Uffenbach, *London in 1710 From the Travels of Zacharias Conrad von Uffenbach*. Trans. W. H. Quarrell and Margaret Mare (London: Faber and Faber Limited, 1934), 97.

<sup>10</sup> H.W. Robinson, “The Administrative Staff of the Royal Society 1663-1831,” *Notes Records of the Royal Society of London* 4, no. 2 (October 1946): 196-7. The Keeper of the Repository during Grew’s cataloguing project was Robert Hooke, followed by Henry Hunt. Hunt also assumed the roles of Keeper of the Library and the Housekeeper from 1696 until 1713. Prior to his appointment, however, he worked closely under Robert Hooke.

<sup>11</sup> The corrections, independent of the *errata*, appear on pages 62, 81, 177, 181, 269, and 312 in all three editions of *Musæum Regalis Societatis*. The alterations fix the incorrect names and descriptions of objects. It is most likely these corrections were added in the printing house after the plates were printed. See William LeFanu, *Nehemiah Grew: A Study and Bibliography of his Writings* (London: St. Paul’s Bibliographies, 1990), 117.

<sup>12</sup> These catalogues do not have formal binding. Some of the internal divisions among RS Ms. 416 such as “Humana” and “Birds” are in packets, bound in Japanese style.

<sup>13</sup> RS Ms.413 sections are as follows: Chapter 1 [Animals] Section 1 Human Rarities, 2 Quadrupeds, 3-, 4 Serpents, 5 Birds, 6 Eggs and Nests of Birds, 7 Fishes, 8 Shells, 9 Insects. Chapter 2 [Vegetables] Section 1 Woods, Barks Branches and Leaves of Trees, 2 Fruits, 3 Berries, 4 Cones, 5 Gums, 6 Shrubs, 7 Plants and Herbs, 8 Stalks and Roots, 9 Seeds, 10 Mosses, 11 Mushrooms, 12 Sea Plants and Sponges. Chapter 3 [Minerals], Section 1 Stones, 2 Gems 3 Corals, 4 Petrifications Animal Vegetable and other Transmutations, 5 gold, 6 Silver, 7 Copper, 8 Tin, 9 Lead, 10 Iron, 11 Antimony, 12 Mercury, 13 Marcasits Mundick Oar and fire stone or Pyrites, 14 Salts, 15 Sulphurs Coals and Ambergrease, 16 Amber, 17 Earths.

Society Museum” (Ms.414) from 1735, is divided into eleven separate parts,<sup>14</sup> each containing a table of contents with hundreds of objects. The change in the catalogue description and order marks the slow transformation of cataloguing into a more precise activity that required expert skills which no longer hoped to attract a reading public.

The Council’s orders emphasize how catalogues shifted in use over the lifespan of the Repository. The first catalogue, *Musæum Regalis Societatis*, shared many traits with other published books. The meetings in 1679 prior to the first edition of *Musæum Regalis Societatis* note Grew reading aloud drafts of his catalogue to seek approval from the Council. For instance, on 8 May, 1679, “Dr Grew read a section of his discourse and description of the Repository.”<sup>15</sup> These meeting minutes highlight the divisions of Grew’s text into sections and chapters. More importantly, the minutes describe the text as a “discourse,” emphasizing the catalogue’s informative function. It is this characteristic of Grew’s catalogue that demonstrates how the seventeenth-century catalogue was not a list of items, but rather a descriptive treatise on its objects.

Between the printing of Grew’s catalogue and the 1781 donation, the Society commenced four additional cataloguing projects for the Repository.<sup>16</sup> The later catalogues were internal publications meant for administrative purposes and were never published. These manuscripts (Ms.413-417) represent the first phase of what was perhaps to be a published catalogue. Simpson notes that

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<sup>14</sup> The eleven sections of RS Ms.414 are as follows: Human Rarities, Quadrupeds, Serpents, Birds, Fish, Insects, Vegetables, Minerals, Fossils, Shells, and Artificial Curiosities.

<sup>15</sup> *RS Journal Book Minutes*, vol. 6, 8 May 1679: 193. Further excerpts from the minutes of April-May 1679 have Grew reading aloud various extracts from “Section 1: Animals” while the catalogue was being fitted for the press.

<sup>16</sup> RS Ms.413-417. For an extensive look at the Repository’s influence on the British Museum, see A.E. Gunther “The Royal Society and the Foundation of the British Museum,” *Notes and Records of the Royal Society of London* 33, no. 2 (Mar., 1979): 207-216.

The Committee's cataloguing work appears to fall into three stages. Firstly they made a preliminary examination of all that survived, completing this in September 1731, in the course of which they undertook the more urgent repair work. Then, between March and October 1733 they reviewed the collections and numbered such material as was thought worthy of preservation, or at least of further consideration. Finally Mortimer was to produce a descriptive catalogue along the general lines of Grew's, but this last stage may not have been completed and the catalogue itself is not known to survive.<sup>17</sup>

What is apparent from the various remaining manuscripts of Ms.414 is that the new production was to have new classifications for the objects, and employ different rhetorical techniques of description than those of Grew.

At first glance it is difficult to explain the decline of the published catalogue in light of what we know about the rise of antiquarianism in the seventeenth century, a trend which intensified in the eighteenth century. G.R. Porter notes that during the eighteenth century there was an increasing interest in natural history, collecting, and antiquarianism as leisure activities for gentlemen scholars.<sup>18</sup> David Miller explains there was an overlap between the Royal Society with the recently established Society of Antiquaries, both in terms of membership and interests, highlighting that antiquarianism had a place in eighteenth-century scientific culture:

It formed part of a pattern of intellectual interests deemed natural and appropriate to many members of the aristocracy, gentry and the old professions. It was cognate with natural history at the very least in the sense that the *type* of activity involved (field work, collection, display, classification) was of a similar character.<sup>19</sup>

Previous assessments of the Royal Society entering the 'dark ages' with the departure from President Isaac Newton's experimental philosophy, points to a shift in English culture towards a

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<sup>17</sup> A.D.C. Simpson, "Newton's Telescope and the Cataloguing of the Royal Society's Repository," *Notes and Records of the Royal Society of London* 38, no. 2 (Mar., 1984), 196.

<sup>18</sup> G.R. Porter, "The significance to the history of English natural science of John Hill's 'Review of the works of the Royal Society,'" *University of California Publications in English* 14 (1943): 157-180.

<sup>19</sup> David Miller, "Into the Valley of Darkness: Reflections on the Royal Society in the Eighteenth Century," *History of Science* 11, no.3 (1973), 160. The Society of Antiquaries of London was founded in 1707 but its charter was not granted until 1751.

fascination with collections and (more broadly) museums.<sup>20</sup> This shift is a subtle factor that affects the purpose and need for catalogues as it coincides with the rise of public museums, and subsequently, the museum expert. The rise of the museum and the museum-going public may resolve this apparent paradox posed by the decline of published catalogues. Antiquaries and other interested parties could, by the eighteenth century, increasingly experience collections firsthand, in the museum.<sup>21</sup> Moreover, as we shall see, both eighteenth-century scholars and antiquaries became increasingly specialised as the eighteenth century progressed. Published catalogues were superseded by manuscript inventories, written by museum experts rather than generalist scholars such as Grew.

When Grew was charged with cataloguing the Repository, he was not a collector, a curator, or a librarian; rather, he was a formally trained physician. In addition to his medical training, he exhibited an interest in plants, and his later works included studies on minerals, ethnography, and theology.<sup>22</sup> Grew's broad interests, representative of seventeenth-century philosophical concerns, encompass both the study of man and nature. His scholarly practices, largely informed by Baconian philosophy, criticized the reliance on classical knowledge and encouraged experimentation and observation.<sup>23</sup> His catalogue reflects these ideals by discrediting popular myths surrounding many of the Repository's objects.

There are two known writers of the eighteenth-century catalogue manuscripts: Moses Williams and Cromwell Mortimer. While the former, Williams, is the credited author of the

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<sup>20</sup> Miller, "Reflections on the Royal Society in the Eighteenth Century," 158.

<sup>21</sup> Richard Altick, "From Cabinets to Museum II : 1750-1800," *The Shows of London* (Boston: Harvard University Press, 1978), 22-33. Many private collectors opened their collections for public visitation in the eighteenth century. Several museums, including the British Museum and the Ashmolean, became public after bequests from private cabinets.

<sup>22</sup> See above for a discussion on Grew's scientific writings. For an extensive look into Grew's published works, see William LeFanu's, *Nehemiah Grew: A Study and Bibliography of his Writings* (London: St. Paul's Bibliographies, 1990).

<sup>23</sup> Allen Debus, *Science and Education in the Seventeenth Century: the Webster-Ward Debate* (London: Macdonald & Co, 1970), 24.

“Catalogue of the Royal Society Museum” (Ms. 413), he was not the officially appointed Keeper of the Repository during this period. The job of maintaining the Society’s collection, along with the affiliated Housekeeper and Keeper of the Library, was carried out by another individual with specified bibliographic skills: Alban Thomas. Preceding his post at the Royal Society, Thomas worked as a reader at Oxford University Press and as the Librarian of the Ashmolean Museum in Oxford.<sup>24</sup> It was in part due to this experience and circle of correspondents at the Ashmolean Museum that the Royal Society called upon him to update the Library and Repository catalogues in 1719.<sup>25</sup>

Unfortunately for the Society, Thomas preferred to devote his efforts to the Library’s catalogue and the Repository was left neglected. It was, in fact, Moses Williams who took over the daunting task of cataloguing the Repository. Williams was a Welsh scholar and rector of Llangynllo, Cardiganshire.<sup>26</sup> His father, Samuel Williams, was an antiquary and a translator who raised Moses in an environment of collecting and texts. As an adult, William was known for his personal library of rare books and manuscripts, many of which he transcribed.<sup>27</sup> Prior to his appointment to the Royal Society 1719, Williams had meticulously catalogued his own library, indexing the titles. His work resulted in the compilation of the “Catalogue of the Royal Society Museum” (Ms.413).<sup>28</sup>

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<sup>24</sup> Thomas was a close friend and colleague of Edward Lhwyd (1659/60?–1709), a local antiquary and one of the first Keepers of the Ashmolean Museum. Lhwyd’s legacy lies with his archaeological survey of England, Ireland, Scotland and Wales. In 1697 he set out on his journey and in 1707 a complete publication of his journey was issued under the title *Archaeologia Britannica: giving some account...of the languages, histories and customs the original habitants of Great Britain from collections and observations in travels through Wales, Cornwall, Bas-Bretagne, Ireland and Scotland by Edward Lhuyd M.A. of Jesus College, Keeper of the Ashmolean Museum in Oxford. Vol. 1: Glossography* (Oxford, 1707). Over the course of their friendship, Thomas became privy to Lhwyd’s research methods and his approaches to cataloguing the natural world. See, Sir Henry Lyons, *The Royal Society 1660-1940: A History of its Administration under its Charters* (Greenwood Press: New York, 1968), 144; and R.F. Ovenell, *The Ashmolean Museum 1683-1834* (Clarendon Press: Oxford, 1986).

<sup>25</sup> RS *Original Council Minutes*, vol.2, 14 April 1719, p.247.

<sup>26</sup> G. H. Jenkins, *Literature, religion and society in Wales, 1660–1730* (Cardiff: University of Wales Press, 1978), 203.

<sup>27</sup> Jenkins, *Literature, religion and society in Wales*, 225-226; 269.

<sup>28</sup> Simpson, “Newton’s Telescope,” 209, n. 36.

During Thomas' role as Keeper of the Repository, A.D.C. Simpson speculates that Thomas was asked by the Council to create an updated list of the Repository based on Grew's previous publication.<sup>29</sup> It is clear these tasks were not completed but there are orders for Williams to carry out such projects.<sup>30</sup> Thomas ended his employment with the Royal Society in 1723 due to suspected Jacobite loyalties; however, Williams' work shows continuous use until 1731.<sup>31</sup> In particular, Simpson has noted that the "corals" section is enumerated, as per the Council's 1730 order for the Repository Committee.<sup>32</sup>

The second of the cataloguing endeavours was conducted by Cromwell Mortimer in 1735. Like Grew, Mortimer was a physician at the time of his appointment to the Society in 1730. He served as Secretary and was simultaneously employed as a curator for Sir Hans Sloane's collection.<sup>33</sup> Mortimer's position, therefore, was central to London's collecting circle. He compiled several catalogues for Sloane, with projects focused on the integration of recently acquired collections (such as James Petiver's insect collection and William Courten's cabinet) into Sloane's master inventory. These efforts involved the use of Petiver's and Courten's catalogues in order to properly classify the objects.<sup>34</sup> The Sloane catalogues, much like

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<sup>29</sup> Simpson, "Newton's Telescope," 209 n. 36.

<sup>30</sup> An initial order for a Repository survey was issued by the Council on July 9 1713. Thomas failed to carry out this project and another order was issued in April of 1719. Thomas, "A Philosophical Storehouse," 30, n.91.

<sup>31</sup> Thomas, "A Philosophical Storehouse," 29-30.

<sup>32</sup> "It was noted in June 1733 that John Martyn, who had served on the 1730 Committee, 'did formerly at ye Desire of ye Committee examin & number ye Corals': Roy. Soc. Ms. 490 (CMB 63), meeting of 15 June 1733." Simpson, "Newton's Telescope," 209, n.50.

<sup>33</sup> Sloane served as President of the Royal Society from 1727-1741 and also owned one of London's largest collections. Mortimer assisted James Empson in the compilation of 46 catalogues for Sloane's collection prior to its bequeathal to the Crown in 1753. However, Sloane also wrote the majority of his catalogues. See Arthur MacGregor ed., *Sir Hans Sloane: Collector, Scientist, Antiquary, Founding Father of the British Museum* (London: Published for the Trustees of the British Museum, 1994); and Marjorie Caygill's "Catalogues and Arrangement of Sloane's Collections," in *From Books to Bezoars: Sir Hans Sloane and His Collections* ed. Alison Walker et al. (London: British Library Press, 2012), 120-136.

<sup>34</sup> Upon Sloane's death in 1753, his collection was bequeathed to the British government forming the basis of the British Museum, the first national museum of England. In 1781 the museum accepted the Royal Society's donation of the Repository's remaining contents; see Caygill, "Catalogues," 122-123.

Mortimer's 1735 catalogue, are brief in description but detailed in item numbering, categorization, and donation reporting.<sup>35</sup>

Williams' and Mortimer's experience with catalogues preceding their appointments with the Royal Society demonstrates the rise of the museum cataloguing expert; even Thomas, who neglected his Repository duties, possessed bibliographic skills when he was selected by the Royal Society. Outside of their Royal Society duties, these men possessed the skills to create catalogues that classified and categorized objects, including rarities or books. Thomas and Mortimer gained their expertise in reputable public English collections, such as the Ashmolean, the first public museum in England, and Hans Sloane's collection, which opened on many occasions for public visitation. The owners and curators of these prominent collections corresponded with fellow European collectors in order to acquire new items for their cabinets.<sup>36</sup> Similarly, Williams worked with smaller personal collections but remained in the realm of collecting and print culture. As a result, Williams, Thomas (despite his favouritism towards the library) and Mortimer were privy to the interests of England's prominent collectors and subsequently those of European collectors. This prior employment proved indispensable for organizing and categorizing vast collections of objects.

The desire for expert knowledge is apparent in the cataloguers from several other collections of the eighteenth century. Much of John Hunter's *Catalogue of the Hunterian Collection* was compiled by Sir Richard Owen, who was superintendent of the natural history departments of the British Museum and who would later go on to establish the Natural History

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<sup>35</sup> Caygill, "Catalogues," 122.

<sup>36</sup> Collectors and their assistants, such as John Tradescant, Robert Plot, and Hans Sloane, kept a strong correspondence network with fellow collectors. This was to aid in the trading and selling of items so as to increase the size of one's cabinet. In some cases, entire collections were left to individuals in personal wills. See Erik Jorink, "Sloane and the Dutch Connection," *From Books to Bezoars: Sir Hans Sloane and His Collections* edited by Alison Walker, Arthur MacGregor and Michael Hunter (London: British Library Press, 2012), 57-70 and R. F. Ovenall, "The Tradescants and Elias Ashmole," *The Ashmolean Museum 1683-1834* (Clarendon Press: Oxford, 1986), 1-17.

Museum at South Kensington.<sup>37</sup> While Hunter's catalogue was a posthumous publication, efforts were made to preserve his original order and organization and descriptions, using direct quotations from Hunter's original notes. Similarly, William Babington, a late eighteenth-century mineralogist, organized his mineral collection using quantitative data and detailed expert knowledge from his field. The 1799 catalogue, *A New System of Mineralogy in the Form of a Catalogue* uses terminology familiar to Babington and other mineralogists as noted in the following description for ammonium carbonate:

GENUS III *BASE AMMONIAC*.  
 SPECIES I. *CARBONATE OF AMMONIAC*.  
*Aeriated Volatile Alkali. Carbonate Ammoniacal, Fr.*  
 Analysis – Acid 45 Alkalai 43 Water-12 Berg.  
 Variety I. *IN SOLUTION*<sup>38</sup>

Here, Babington classifies ammonium carbonate according to its measured chemical components. At the beginning of each “Genus” section, Babington records quantitative data such as the change of colour, pungent smell and ability for each object to form a solution.<sup>39</sup> He does not resort to comparisons to provide the general reader with a basic grasp of his minerals, instead, he only uses terminology specific to his collection. While Babington's minerals, at first glance, are sorted into the traditional categories of order, class, genus, species—the determining factors for these categories has now become more measured and specific, particularly due to the growing field of chemistry. Babington and other mineralogists used tools, such as blowpipes, from the emerging chemical field to classify their collections according to “the most dominant ingredient of the mineral where dominance was defined quantitatively.”<sup>40</sup> What is clear from

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<sup>37</sup> The Natural History Museum would later contain several of Hunter's natural history items. See Nicolaas A. Rupke, *Richard Owen: Victorian Naturalist* (New Haven, CT : Yale University Press, 1994).

<sup>38</sup> William Babington, *A New System of Mineralogy in the Form of a Catalogue* (London, 1799), 5.

<sup>39</sup> Babington, *A New System of Mineralogy in the Form of a Catalogue*, 2.

<sup>40</sup> Anders, Lundgren, “The Changing Role of Numbers in 18th-Century Chemistry,” in *The Quantifying Spirit in the 18th Century*, edited by Tore Frängsmyr, J.L. Heilbron, and Robin E. Rider (Berkeley: University of California Press, 1990), 255.

these examples is that the individuals selected for the task of cataloging have experience working with collections, and that audiences, too, appear more specific.

### **Division of the Sciences**

Grew's catalogue sought to convey all possible knowledge regarding the objects to his readers. This universal knowledge is reflective of the cabinets of curiosities or 'theatres of the world' prominent among the collectors of the sixteenth and seventeenth century. The desire to collect and represent was reflected in the catalogues produced by the collectors. Ken Arnold maintains that Grew, "[compared] one collected specimen with another" and "by grouping together similar ones while seeking out finer differences between them, it became possible in theory to coordinate absolutely all the disparate elements of the material world."<sup>41</sup> Grew compared items to one another in order to create his own classification system; he also employed metaphors to convey mental images of the object to his reader.<sup>42</sup> It is this method of comparison that identifies the seventeenth-century natural history catalogue.

Grew's catalogue practices reflected Renaissance and early modern practices of the classical revival. The Classical revival enabled students and scholars to incorporate a range of topics into their studies. European scholarship shifted its focus towards Aristotelianism and the revival of Pliny's ideas of natural history. The broad spectrum of study its noted by Anne Marie Roos and Lorraine Daston, who indicate that there was "a proliferation of natural histories, all with different philosophical pedigrees."<sup>43</sup> At medical schools, for instance, a physic garden was used in the summer months for pharmacy education, while the winter months saw the use of

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<sup>41</sup> Ken Arnold, *Cabinets for the Curious: Looking Back at Early English Museums* (Aldershot, Burlington, VT: Ashgate, 2005), 214.

<sup>42</sup> Alexander Wragge-Morley, "'Vividness' in English Natural History and Anatomy 1650-1700," *Notes Records of the Royal Society of London* 66 (2012), 342. doi: 10.1098/rsnr.2012.0045.

<sup>43</sup> Roos, "History of Natural History and Medicine," 314. Roos' article is summarizing a conference on the life of Martin Lister that occurred on 27 April, 2012. The quote is referencing Lorraine Daston's article "Historia: explorations in the history of early modern empiricism," Max Planck Institute for the History of Science.

<< [http://www.mpiwg-berlin.mpg.de/projects/projects/DeptII\\_Da\\_Historia](http://www.mpiwg-berlin.mpg.de/projects/projects/DeptII_Da_Historia).>>

cadavers for anatomical education while the rest of the year involved courses and lectures.<sup>44</sup> In many cases, collections of antiquities and statutes were placed in these gardens, creating a multifunctional space that taught students and housed art collections.<sup>45</sup> Other collections assembled by the gentry and merchants also emphasized the internal organization of objects. In each situation collectors adhered to the Aristotelian method. This classification saw physical traits as the distinctive factors differentiating between genus. Regarding the human, natural, and artificial items, the Aristotelian ‘great chain of being’ ordered the specimens in a hierarchy: man at the top, followed by genera in descending order. Grew’s catalogue reflected these epistemic practices.

Alongside the Classical revival was a movement against the use of ancient textual authority and push for authentic observed knowledge, exemplified by Francis Bacon. His writings date from the early seventeenth century, and were arguably the founding platform for the Royal Society. Grew, among others, was a practitioner of Bacon’s experimental principles. This is reflected in *Musæum Regalis Societatis*, as Grew’s observations drew upon Bacon’s method of experimentation to create descriptions for the items. Grew did not perceive himself as a frivolous collector; instead, he experimented and observed specimens for the greater good of mankind.

Grew’s catalogue is a part of the broadly conceived early modern genre of natural history that encompassed the symbiotic relationship between study of man and nature known as *historia*.

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<sup>44</sup> William Schubach, “Some Cabinets of Curiosities in European Academic Institutions,” *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*, eds. Oliver Impey and Arthur MacGregor (Oxford: Oxford University Press, 1985), 169. Physic Gardens have their origins in the Renaissance Italian universities and medical institutions. The function of these gardens was to educate the pupils about the plants used in the drugs prescribed to patients. These gardens were frequently geometric in layout and sought to reclaim knowledge of plants from ancient authors such as Theophrastus and Galen. See also Andrew Cunningham “The Culture of Gardens,” *Cultures of Natural History*,” edited by Nicholas Jardine H, James A. Secord and Emma C. Spary (London: Cambridge University Press, 1996), 47-50.

<sup>45</sup> Schubach, “Some Cabinets of Curiosities in European Academic Institutions,” 169.

The various sections of Grew's catalogue demonstrate the study of nature and the study of man.

Gianna Pomata explains:

First and foremost a closer look at *historia* brings into sharper focus the peculiar characteristics of the early modern system of sciences. The versatility of the early modern *historia* equally applicable to the domain of natural knowledge and the study of human action, points to a salient feature of early modern encyclopedism: the lack of clear cut boundaries between the study of nature and the study of culture.<sup>46</sup>

The Repository contained both *naturalia* (objects of nature) and *artificialia* (objects of man); additionally, the catalogue also includes many dissection practices in the *humana* (human specimens) section. Thus, the “lack of clear cut boundaries”<sup>47</sup> situates Grew's catalogue in the realm of *historia*, and, therefore, within an early modern episteme.

These schools of knowledge changed across Europe during the late seventeenth century; connections to the New World brought more objects for collections and allowed for scholars and scientists to garner their investigations of nature. Pomian notes that with these new investigations, the encyclopedic cabinets shifted and broke down into collections relating to the specific interest of the collector.<sup>48</sup> Arnold follows up with these ideas of changing classification systems, noting that “this increasingly dominant interest in taxonomic order largely grew out of contemporary philosophical concerns with education, language and memory.”<sup>49</sup> The eighteenth-century collector no longer desired to represent the entire world via his collection; instead, that larger world was highly compartmentalized and selectively studied and collected. Notable examples of such specialized collections include John Hunter's anatomical specimens, John

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<sup>46</sup> Gianna Pomata and Nancy Sirasi, “Introduction,” in *Historia: Empiricism and Erudition in Early Modern Europe*, eds. Gianna Pomata (Cambridge, Massachusetts: MIT Press, 2005), 5.

<sup>47</sup> Pomata, “Introduction,” 5.

<sup>48</sup> Pomian, *Collectors and Curiosities*, 99.

<sup>49</sup> Arnold, *Cabinets for the Curious*, 212-213.

Soane and his statue collection, and Carl Linnaeus' assemblage of plants.<sup>50</sup> Each of these collectors chose a specific category of object to collect and use to advance their academic studies. The Royal Society tended to collect more exclusively largely in the contexts of specific scientific projects or endeavours, such as expeditions.<sup>51</sup> Rather than indiscriminately accepting, the repository slowed, and instead only accepted objects that reflected the scientific agenda of the Society.

Pomian notes that, during the eighteenth century, institutions became more specialized in their academic interests, including the Royal Society—and these changing interests increasingly affected the choices of gentlemen collectors. He asserts: “natural things, on the other hand, were only collected by those who dealt with them in a professional capacity, in the same way that science instruments were amassed solely by engineers, artillerymen or scholars.”<sup>52</sup> The encyclopedic cabinets that attracted a broad audience were rapidly replaced by new compartmentalized collections of plants, architectural models, scientific instruments, and anatomical models. Indeed, in the latter half of the century, the establishment of specific learned societies, such as the Linnaean, Medical and Mineralogical Societies catered to specific interests.<sup>53</sup> The objects took on new uses, aiding visitors in experimental and pedagogical pursuits; consequently, the detailed contents of the catalogues changed for practical purposes,

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<sup>50</sup> See Arthur MacGregor, *Curiosity and Enlightenment: Collectors and Collections from the Sixteenth to the Nineteenth Century* (New Haven: Yale University Press, 2008) where he discusses the rise of a variety of collections in Europe and America. MacGregor highlights the divisions that occurred in the Enlightenment period regarding the transition of encyclopedic cabinets to more specific collections of art, antiquities, manuscripts, natural history, anatomical specimens and instruments, and scientific tools.

<sup>51</sup> Daniel E. Clinkman, “Civil-Military Enlightenment in Britain: Links between the Royal Society of London and the British Military, 1761-1790,” in *Scientists and Scholars in the Field: Studies in the History of Fieldwork and Expeditions* eds. Kristian H. Nielsen, et al. (Aarhus: Aarhus Universitetsforlag, 2012), 123-146.

<sup>52</sup> Pomian, *Collectors and Curiosities*, 99.

<sup>53</sup> For an extensive list of London's learned societies and their foundation dates, see Russell, *Science and Social Change*, 194.

reflecting the evolving role of collections. These catalogues served to aid collectors, be they private or from newly forming public museums.

Colin Russell describes the Royal Society as one of the earliest “formally constituted bodies... dedicated primarily or exclusively to the practice of science.”<sup>54</sup> At its formation, the Royal Society offered the learned gentleman new avenues of learning via public lectures and demonstrations, while internally obtaining new knowledge, and objects, through correspondence networks.<sup>55</sup> However, according to Peter Dear, during the early years, this body was “more of a club than a college” as it was often unorganized and acted as a showroom for many of its Fellows.<sup>56</sup> Similarly, the Repository notes its origin as an encyclopedic cabinet, but as the eighteenth century unfolded the Royal Society and its Repository adopted more formal rules and became more institutionalized. This shift reflected, in part, developing collecting trends, and also drastic change in presidential leadership in the first half of the eighteenth-century.

During the Royal Society’s first forty years the President did not have much influence over the experimental practices or the scholarship produced at the Society.<sup>57</sup> The Presidents from 1660-1703 numbered no fewer than eleven men, including William, Viscount Brouncker (President from 1662-1677) Christopher Wren (1680-1682), Samuel Peyps (1684-1686), and Robert Southwell (1690-1695).<sup>58</sup> It was not until Isaac Newton’s election in 1703 that the Royal

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<sup>54</sup> Colin A. Russell, *Science and Social Change 1700-1900* (London: The MacMillan Press Ltd, 1983), 69.

<sup>55</sup> Michael Hunter, “First Steps in Institutionalization: The Role of the Royal Society of London,” in *Science and the Shape of Orthodoxy: Intellectual Change in Late Seventeenth Century Britain*, (London: Boydell Press, 1995), 126-128; and Steven Shapin and Simon Shaffer, *Leviathan and the Air Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, NJ: Princeton University Press, 1985), 69. See also Andrea Rusnock, “Correspondence Networks and the Royal Society, 1700-1750,” *The British Journal for the History of Science* 32, no.113 (1999): 155-169.

<sup>56</sup> Peter Dear, “‘Totius in Verba’: Rhetoric and Authority in the Early Royal Society” *Isis*, Vol. 76, No. 2 (Jun., 1985), 147.

<sup>57</sup> Hunter, *Establishing the New Science*, 210. In general the Presidents were not active within the workings of the early Royal Society’ however, exceptions are found with some of the founding Presidents and Fellows such as Viscount Brouncker and Christopher Wren.

<sup>58</sup> Miller, “Reflections on the Royal Society in the Eighteenth Century,” 157. The current length for the President’s term is 5 years.

Society began to see long-term Presidents whose own interests swayed the direction of experiments and scholarship.

Within the Royal Society, Isaac Newton took an active role in revitalizing several functions of the Society: for instance, his decision that the Society's meetings include more demonstrations and experiments, particularly of a mathematical and physical nature.<sup>59</sup> For example, it was during the early Newton years when the curators of experiments Francis Hauksbee (1660-1713) and later John T. Desaguliers (1683–1744) demonstrated electricity and the existence of a vacuum.<sup>60</sup> Indeed, much of Newton's experimental philosophy was published during this era, including *Optiks* (1704) and his second edition of *Principia* (1713).<sup>61</sup> Newton also stabilized the Society's finances, which allowed for the purchase of a new meeting house, Crane Court.<sup>62</sup>

Under Newton, the Society maintained its dedication to experimental practices; however, under Sloane, many have argued that the Society's goals of pursuing knowledge for mankind's betterment began to unravel as the study of natural history took centre stage.<sup>63</sup> Sloane's attention was occupied by his successful medical practice at Bloomsbury and his own prized collection of rarities, books and natural curiosities which was respected across England and Europe. Although Sloane was a largely absent President of the Royal Society, he was instrumental in obtaining an

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<sup>59</sup> For a survey of Newton and his impact on the Royal Society while President, see Richard S. Westfall, "President of the Royal Society," *Never at Rest: A Biography of Isaac Newton* (New York : Cambridge University Press, 1980), 627-697; J.L. Heilbron, *Physics at the Royal Society during Newton's Presidency* (Los Angeles: William Andrews Clark Memorial Library, University of California, 1983); Mordechai Feingold, "Mathematicians and Naturalists: Sir Isaac Newton and the Royal Society," *Isaac Newton's Natural Philosophy*, edited by Jed Z. Buchwald, I. Bernard Cohen (Cambridge, MA: MIT Press, 2001), 78-102; Alan E. Shapiro, "Newton's Experimental Philosophy," *Early Science and Medicine* 9, no.3 (2004): 185-217; The Royal Society, *Newton Tercentenary Celebrations 15-19 July 1946* (Cambridge: Cambridge University Press, July 1947).

<sup>60</sup> See J.L. Heilbron, *Physics at the Royal Society during Newton's Presidency* (Los Angeles: William Andrews Clark Memorial Library, University of California, 1983).

<sup>61</sup> Isaac Newton, *Opticks: Or, A treatise of the Reflections, Refractions, Inflexions and Colours of Light. Also Two treatises of the Species and Magnitude of Curvilinear Figures* (London: 1704); and *Philosophiae Naturalis Principia Mathematica* (Cambridge: 1713).

<sup>62</sup> Thomas, "The Royal Society's Collecting Strategies," 2.

<sup>63</sup> Miller, "Reflections on the Royal Society in the Eighteenth Century," 156-160.

annual plant donation for the Repository's collection.<sup>64</sup> In 1722 the Society of Apothecaries, located at Chelsea Physic Garden, began a donation of fifty dried plant specimens each year.<sup>65</sup> This created an influx of specimens, creating new cataloguing projects in the 1720s and 1730s.<sup>66</sup>

These scholastic and institutional changes are evident in the terminology used in the catalogues. Collectors shifted away from universal cabinets, organized according to hierarchical orders, and towards a growing experimental field that increasingly relied on observation and classification. Emerging eighteenth-century naturalists found themselves immersed within the “results obtained by science, along with its terminology and methodology.”<sup>67</sup> Newly developing scientific terminology crossed into the collecting sphere and found its way into catalogues. Catalogues gradually adopted nomenclature and ordering systems used by scientists, rather than classification schemes that mirrored classical methods of Aristotle and Pliny.

By the eighteenth century, the catalogues included the object's name, its donation date, and its donor in a single sentence. Details omitted included observations and comments on the objects, physical appearance and functions. There is evidence from the manuscripts of the more methodical approach as many of the pages in the sections (e.g. birds, fossils, shells) are blank,

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<sup>64</sup> There is frequent debate whether Sloane's election as President in 1727 aided the Society in maintaining its place in the forefront of scientific research.

<sup>65</sup> The plant donation was a personal agreement with Hans Sloane. Rather than the Society of Apothecaries paying yearly rent to Sloane, who owned Chelsea Manor, the Society provided the yearly donation of plant specimens. The collections now reside in the Natural History Museum at South Kensington. Thomas, “The Royal Society's Collecting Strategies,” 6; and Ruth Stungo, “The Royal Society Specimens from the Chelsea Physic Garden 1722-1799,” *Notes Records of the Royal Society of London* 47, no.2 (1993): 213-224.

<sup>66</sup> Prior to Sloane's position as President, he served as Secretary to the Royal Society and it was reported he neglected these duties for his medical practice and collection of curios. The German traveller Zacharias Conrad von Uffenbach visited the Royal Society in 1710 and reported that Sloane ignored his Society duties, but was the owner of a well-organized collection (in contrast to the decaying Repository). The Repository was often unfairly compared to Sloane's collection in travel guides as it failed to live up to the comparison in both quality and quantity. Hunter, “The Cabinet Institutionalized,” 146-147. See for instance, Zacharias Conrad von Uffenbach, *London in 1710 From the Travels of Zacharias Conrad von Uffenbach* (London: Faber and Faber Limited, 1934), 98. For essays on the medical and collecting life of Sir Hans Sloane, see Arthur MacGregor, *Sir Hans Sloane: Collector, Scientist, Antiquary, Founding Father of the British Museum* (London: Published for the Trustees of the British Museum, 1994); and Allison Walker et al., *From Books to Bezoars: Sir Hans Sloane and His Collections* (London: The British Library Press, 2012).

<sup>67</sup> Pomian, *Collectors and Curiosities*, 221.

but maintain a grid and empty spaces for future entries (Figures 5 and 6). These pages suggest the catalogues were used as an ongoing list meant to accommodate incoming items. Williams' catalogue (Ms.413) has two columns per page and, by way of enumeration, provides the names and donation dates of the objects. Headings provided at the top of each new page differentiate between categories such as "Human Rarities," "Quadrupeds," and "Minerals," and the numeration restarts at the beginning of each section. Mortimer's catalogue (Ms.414) maintains the categorized headings at the top of the page and also enumerates its objects.

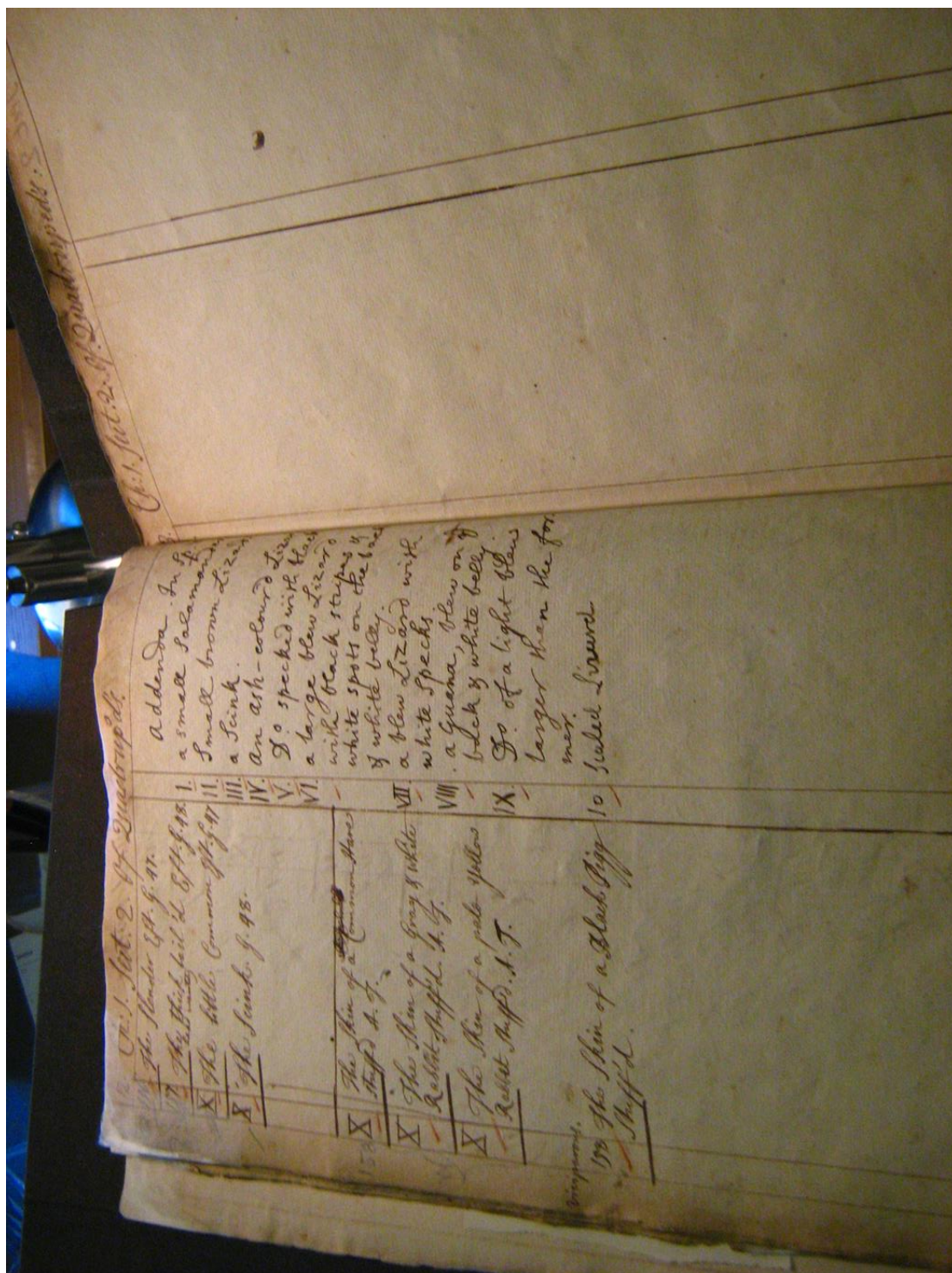


Figure 5: RS Ms. 413, 1719-1731. Chapter 2 "Of Quadrupeds". Note the blank page with lined columns on the right providing room for additional items to be added. Courtesy of the Royal Society.

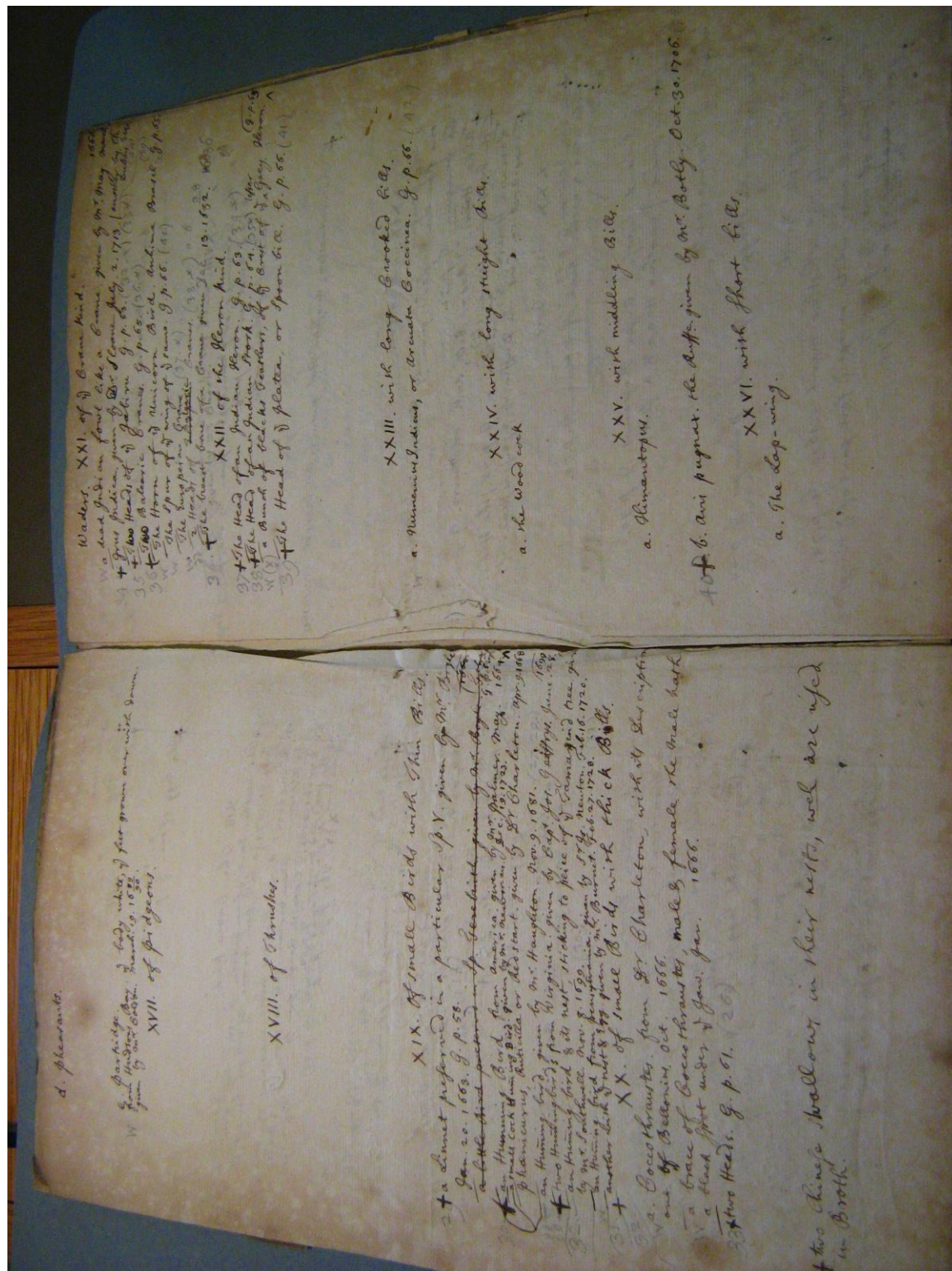


Figure 6: RS Ms. 414 1735 Section 4 "Birds". Note the blank spaces left below each of the categories to provide for additional items to be added. Courtesy of the Royal Society.

The details became sparse in Mortimer's manuscript, and frequently either donor name or date is omitted. Despite the lack of description, page references to Grew's catalogue persist. For example, looking at section one, "Human Rarities" in Ms.414, we find the categorization of objects based on comparable properties:

External Parts of the head, preserved by themselves  
 + the skin of a Moor, tanned with the hair on the head G.p.4  
 bought Apr. 15 1669  
 + an head or skull with the skin on it dried. G.p.7  
 + an head from the East Indies, dried but having Skin and flesh sticking  
 upon it. Given by Dr. Sloane March 18 1684.  
 + a *Plica Polomica*, or a man's hair felted as it were onto a cloath. with an  
 acct. given by Dr. Connor. March 1694/5.<sup>68</sup>

While page references to Grew are included, the notations do not follow the original print order, demonstrating Mortimer's new categorization method. In *Musæum Regalis Societatis*, the Skin of the Moor is enclosed by "A MALE HUMANE FOETUS" and "All the Principal VEINS, ARTERIES, and NERVES, both of the Limbs and Viscera" (the Evelyn tables).<sup>69</sup> In fact, the *Humana* section of Grew's catalogue contains only one principal division, whereas Mortimer provides a variety of specific divisions. There is an initial title page that divides the items into four categories (Figure 7). "Human Rarities": "I. Human Bodies Perfect II. Monsters III. Extraneous Bodies found in the... IV. Anatomical Drawings."<sup>70</sup> Each of these sections has further subcategories that group items based on like properties: "Internal Parts of the Head Preserved by Themselves," "Parts of the Breast Preserved by Themselves," and "Monsters."<sup>71</sup> Mortimer divides the objects based on like properties and, what is more, the divisions in each category reflect a growing scientific imperative to compartmentalize bodies of knowledge, branching away from the idea of *historia*.

<sup>68</sup> RS Ms.414, "Human Rarities."

<sup>69</sup> Grew, *Musæum Regalis Societatis*, "Human Rarities," 3-4.

<sup>70</sup> RS Ms.414 "Human Rarities."

<sup>71</sup> RS Ms.414 "Human Rarities."

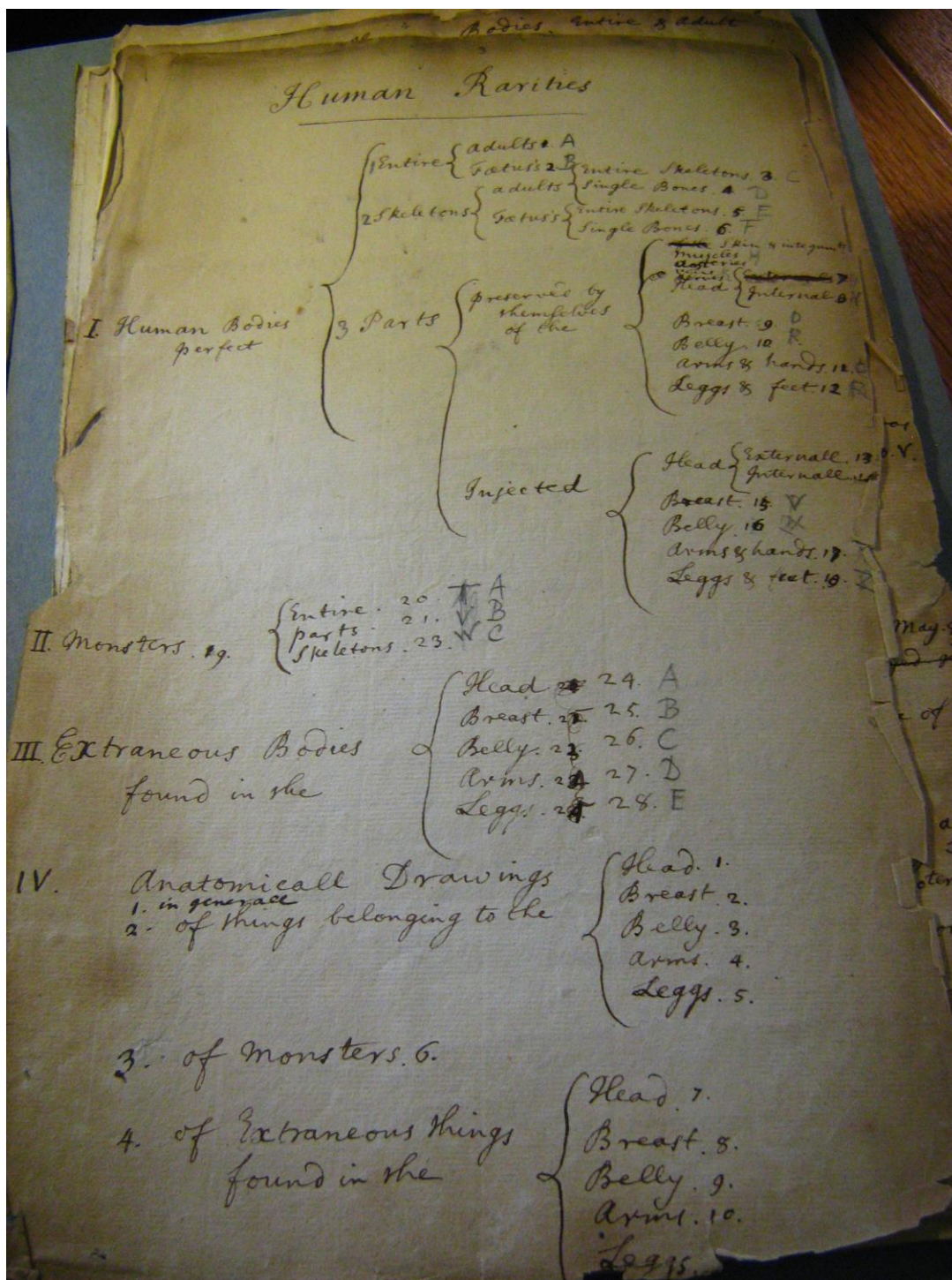


Figure 7: RS MS 414 Section 1 "Human Rarities" 1735. The internal title page for the section by Cromwell Mortimer which divides up the items in the section. Note the four divisions and various subsections. Courtesy of the Royal Society.

Where Grew grouped all *humana* items into one category and employed his own terminology for the objects, anatomists such as John Hunter used technical terms such as femur, radius, and popliteal aneurism.<sup>72</sup> Hunter's anatomy collection with its technical terms shows the move away from *historia* with the move into the eighteenth century and the compartmentalization of the disciplines. Divisions are also observable in natural history collections. In William Burchell's 1764 *A Catalogue of Trees, Shrubs, Plants, and Flowers which are Propagated for Sale* he notes in the preface he will provide divisions "such as they are commonly called by in the gardens near *London*; and to each Genus there is a *Latin* Title, which, it is presumed, will be sufficient Direction to know the sorts."<sup>73</sup> The catalogue proceeds in alphabetical order, listing the Latin names of the plants in his garden. These later cataloguing practices are reflective of the new collecting and scientific practices that rigorously divided the objects into categories based on specialized knowledge of the collections.

### **From Descriptive Catalogue to Inventory**

One notable difference between the catalogues of the seventeenth and the eighteenth century is the decline in the frequency of scholarly references and descriptive prose. As established in Chapter 1, Grew consulted a plethora of sources for research and sought to establish himself as an updated source of authority. Conversely, catalogues in the eighteenth century sought to convey, as succinctly as possible, only the most pertinent information for each object.

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<sup>72</sup> Richard Taylor, *Catalogue of the Hunterian Collection in the Museum of the Royal College of Surgeons in London. Part I Comprehending the Pathological Preparations in Spirit* (London: Red Lion Court, Fleet Street, 1831). After Hunter's death, his collection was purchased by the government and later donated to the Company of Surgeons (soon to be the Royal College of Surgeons) that relocated the collection to Lincoln's Inn Field. There was a stipulation, however, that a curator and catalogue be drawn up for the collection.

<sup>73</sup> William Burchell, *A Catalogue of Trees, Shrubs, Plants, and Flowers which are Propagated for Sale* (London: 1764).

For example, during the production of the later “Catalogue of the Royal Society Museum” (Ms.414), Council orders requested that Mortimer consult Royal Society texts *only*, namely Grew’s catalogue, Journal Book Minutes, and Council Minutes.<sup>74</sup> The result was a catalogue (Ms.414) that featured the donor names and dates alongside names of items. Compared to Grew’s earlier catalogue, which included a separate index of benefactors, Mortimer’s and Williams’ choice to change the format demonstrates a shift in genre and object description in catalogues, which placed more weight on institutional history than on natural history more broadly conceived.

3dly, that there be an exact methodical Catalogue made of all the things at present in the Repository, written fair, with proper vacancies for adding all future Donations in their due places: and that the several particulars be number’d correspondent thereto.

4ly, that when a number of things shall hereafter be presented to the society by any one person, they shall be all immediately enter’d in the Catalogue, and put in their due places, according to the method observed in the same, and number’d agreeable thereto.<sup>75</sup>

The Council’s third order not only specified that the catalogue include blank spaces for future donations, but more importantly, that the entries were to be methodical. By all accounts, Grew’s catalogue represented his own observations and opinions of the items; it was not published by the Royal Society’s printer and contained his personal commentary on the objects. The 1735 catalogue was ordered to exclude commentary on objects, critiques of other catalogues and authors, as well as previous opinions or myths surrounding objects. Stripped of Grew’s discursive prose and research, Mortimer’s catalogue functioned strictly as a practical administrative tool.

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<sup>74</sup> RS *Original Council Minutes*, vol. 3, 18 February 1734:134-40; For Alban Thomas’ order, see A.D.C. Simpson, “Newton’s Telescope and the Cataloguing of the Royal Society’s Repository,” *Notes and Records of the Royal Society of London* 38, 2 (Mar., 1984), 209, n. 50.

<sup>75</sup> “Report of the Committee Appointed to Inspect and Examine the State of the Repository of the Royal Society,” RS *Original Council Minutes*, vol. 3, 18 February 1734: 134-40.

These Royal Society manuscript catalogues were inventories intended for internal organization; they were not meant to act as a visual substitute for the Repository. The audience was a select group of Fellows appointed as Keepers of the Repository or committee members who were supposed to maintain the condition of the items. The act of immediately entering names and donation dates disabled the author from researching and providing detailed descriptions; when compared to the lavish catalogues from the seventeenth century, these new texts resemble registers. Ample blank space was intentionally left empty in the manuscripts in anticipation of new donations. Indeed, Williams' catalogue shows continuous use from 1719 until 1731, and Mortimer's catalogue saw ongoing additions until the next catalogue, which reclassified the collection in 1765.<sup>76</sup> Moreover, the Council orders omitted ideas of publishing the catalogue for a public audience.

Mortimer's catalogue included the names and dates of item donations obtained from official Royal Society publications. Even though Grew's catalogue was not an 'official' Royal Society publication as it did not bear the Society's imprimatur, Grew's text was consulted by future Keepers of the Repository to demonstrate how the collection had changed over time.<sup>77</sup> Mortimer occasionally cross-referenced pages from Grew's *Musæum Regalis Societatis*, providing readers (that is, members of the Royal Society) with a list of further information. However, such references were rare and consisted mainly of text cut-and-paste from Grew's original catalogue. These appear as a simple "G." followed by the page number. For instance, in the bound section labelled "Human Rarities," it notes:

### 3. Skeletons of Adults Entire

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<sup>76</sup> Simpson, "Newton's Telescope," 196.

<sup>77</sup> The catalogue was not printed by the Royal Society official printers, John Martyn or Spencer Hickman, rather it was issued by W. Rawlins for the Author, 1681. Later publications also did not bear the imprimatur of the Society. See Charles A. Rivington, "Early Printer of the Royal Society," *Notes and Records of the Royal Society of London* 39, no.1 (Sep., 1984): 1-27.

One of a man given by Mr. Povey. Nov. 11 1669. G. p. 5.  
The skeleton of a woman. G. p. 5.<sup>78</sup>

In the above example, each item only receives one line of information; a stark contrast to *Musæum Regalis Societatis* where Grew provided extensive details on the provenance and appearance of Thomas Povey's donations. In some sections of Mortimer's catalogue, the Committee inserted handwritten entries on scraps of paper, indicating constant addition to his catalogue (Figure 8).<sup>79</sup> As the Repository's contents increased, references to the catalogue ceased because the initial 1681 publication was merely reprinted and contained no alterations to its contents. The remaining manuscripts also referred to Grew's catalogue using a similar pagination. In a later production, "An Inventory of the Subjects of Natural History in the Repository of the Royal Society" (Ms. 415/1) scraps were cut from the *Musæum Regalis Societatis* and pasted directly onto the pages to create an inventory of the natural history items.<sup>80</sup> The manuscripts, unlike Grew's text, contained no quotations or references to additional works on human rarities, minerals, or plants. Because Williams and Mortimer only used Grew's work and the official documentation of the Society, their catalogues represented official Royal Society documents designed for internal use and, therefore, did not address a wider audience.

Other practical, inventory-style catalogues can be found in the collections of eighteenth-century collectors such as Hans Sloane, John Hunter, James Cox and William Burchell and others. For instance, although James Cox's catalogue for his collection of

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<sup>78</sup> RS Ms.414, "Human Rarities."

<sup>79</sup> Simpson, "Newton's Telescope," 211, n.57.

<sup>80</sup> RS Ms.415/1 "Inventory of the Subjects of Natural History in the Repository of the Royal Society." Shortly after the completion of Ms.414, Mortimer completed this catalogue of only natural history items. It is not included in the overall comparison as it does not represent the entire repository.

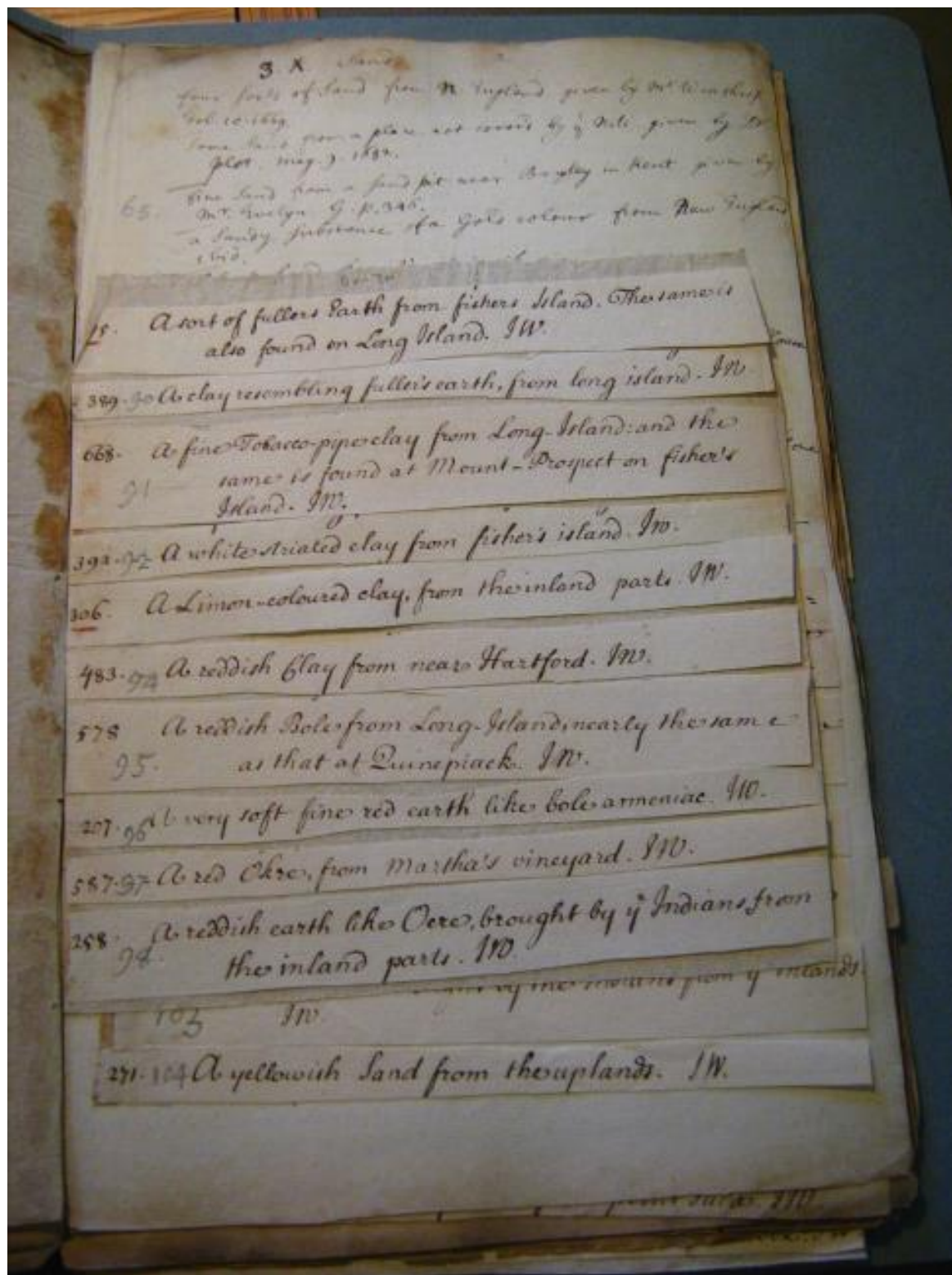


Figure 8: RS Ms. 414 Section 9 "Of Fossils" 1735. Note the addition of items via scrap paper in a different hand indicating the constant additions to the catalogue. Courtesy of the Royal Society.

mechanical instruments bears the title “A Descriptive Catalogue of the Several Superb and Magnificent Pieces of Mechanism and Jewellery, Exhibited in Mr. Cox's Museum,” the entries do not resemble the comparative analysis found in Grew’s descriptive text. For example:

Piece the first. At the entrance of the room on the left hand. A Griffin sitted upon a rock, supported by a vase, richly ornamented, the pedestal itself supported by four beautiful palm trees. This piece is nine feet high, and exhibits a number of mechanical motions; artificial water works and musical chimes.<sup>81</sup>

Instead, Cox’s text functions as a guidebook for visitors, providing a finding aid for the visitors, noting the location of each item within his household. The title page goes further to provide opening hours and a fee for visitors, reflecting with the flourishing museum culture in London. John Hunter and William Burchell’s catalogues share a similar organizational format choosing alphabetical order as a method of organization. While each collection is specific to the collector’s profession, the two men chose Latin terminology as a primary source of organization, suggesting that they were addressing a specialist audience.

## Conclusion

The contents of collections changed over time, accordingly, their corresponding catalogues altered format and purpose to illustrate the shifting trends. A comparison of Grew’s *Musæum Regalis Societatis* with eighteenth-century catalogues reveals a noticeable decline of lavishly produced published catalogues, and the steady increase of functional inventory-style texts. The shift illustrates collectors adapting to outside pressures including the rise of museums and demand of the museum expert, the division of the sciences, and the catalogues’ gradual shift from a discursive scholarly text toward a systematic inventory. The joint discussion of man and nature found in Grew’s catalogue, exemplifies *historia* as demonstrated in the habits of

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<sup>81</sup> James Cox, *A Descriptive Catalogue of the Several Superb and Magnificent Pieces of Mechanism and Jewellery, Exhibited in Mr. Cox's Museum* (London, 1772), 5.

seventeenth-century collectors, and indeed the early Royal Society. In the seventeenth century there was little to no distinction between the scholar-cataloguer and the *virtuosi*-collector; thus, the men who wrote catalogues addressed the texts toward a general audience of educated non-specialists. Grew's elaborate and descriptive catalogue sought to establish intellectual authority through discursive prose, reflecting quintessential seventeenth-century scholarly practices and preoccupations.

As the eighteenth century progressed, there was a decline in publication of catalogues as stand-alone texts; instead, they began to function as administrative tools specific to a collection. Collections became more specialized, focusing on particular fields of knowledge; so too, were the men creating the texts. Curators and cataloguers rose in prominence as professions integral to both private and institutional collections. Such men displayed characteristics of increasing professionalization in their work. The vivid description characteristic of the previous century was omitted from their texts and replaced with new methods of systematic organization. These catalogues aided both collectors and museum visitors in finding and locating objects, rather than serving as a virtual substitute for viewing the collection first-hand. The change in organizational methods in the eighteenth-century catalogues suggest that demand for published catalogues declined even as the museum-going public increased. New organizational methods were implemented that were influenced by professionalization and the growing body of scientific literature. Taxonomy and terminology, which aided in organization of the collection, took precedence over commentary and descriptions of the items. This change reflects the growing popularity of the natural sciences that witnessed the emergence of specific disciplines each possessing its own vocabulary and terminology. Noting the change in the catalogues for the Royal Society genre highlights the complex nature of the literary genre of early modern museum

literature. Through these visible developments and changes in the purpose, function, and style of the Repository's catalogue, it is clear that *Musæum Regalis Societatis* constitutes a distinctly seventeenth-century genre of museum literature.

## Conclusion: The Decline of the Repository

The great proliferation of printed material in late seventeenth-century England created a need for information management. In this context, the printed descriptive catalogue flourished as a standalone text. Discursive prose, elaborate illustrations and rare contents attracted readers to catalogues of curiosity cabinets, physic gardens, and art collections alike. Nehemiah Grew's *Musæum Regalis Societatis* reflects both contemporary cataloguing conventions and influences from Grew's career as a physician, as well as London's Royal Society. What is more, an examination of the vivid prose reveals Grew's intentions to distinguish his work from that of Catholic sources. He actively assures readers of his Protestant credentials and seeks to correct superstitious Catholic authorities, based on dubious human traditions rather than rigorous scientific observation and testing. In an age obsessed with the dangers of "Popery," this may have improved the marketability of Grew's catalogue, which was reprinted three times in fifteen years.

Grew's *Musæum Regalis Societatis* opens up a window into the lives of Grew and the Royal Society and the larger culture in which they lived. Specifically, it provides a unique perspective on a variety collecting practices of the seventeenth century. In order to create the catalogue, Grew observed the objects of the Repository himself; he did not rely on outside sources. Authoritative sources were used to corroborate his observations, which were moreover illustrated by numerous common-sense analogies and examples. The result was a rich text with lengthy descriptions on the appearances, use and provenance of the object. Alexander Wragge-Morely compares Grew's method to other contemporary naturalists, noting that "Verbal descriptions did not just signify things in the Royal Society's collection, but had the capacity to alter their

meanings.”<sup>1</sup> Grew’s textual description of the Repository in *Musæum Regalis Societatis*, creates virtual images of the objects: readers can abstract the collector’s tools and materials found in the Repository, and the act of reading the catalogue replaces the act of visiting the collection. From reading the vivid prose, it is clear how the Royal Society and other collectors used flint glass jars, glass bubbles, and alcohol and wax injections to preserve and display their collections. More broadly, these materials are linked with increasing trade in seventeenth-century England, and, outside Europe, seen with wax injection, with the expanding field of anatomical studies techniques.

Grew’s catalogue exemplified a seventeenth-century cataloguing trope that highlighted the discussion of man and nature known as *historia*. These elaborate texts sought to index all knowledge and its authors sought to create perfect and exact accounts of collections while providing vivid descriptions of objects. This approach reflected preoccupations, practices and beliefs of seventeenth-century collectors and members of the early Royal Society. Among the authors of seventeenth-century printed catalogues, there was little to no distinction between the scholar-cataloguer and the *virtuosi*-collector; men who wrote these catalogues addressed the content to a broad general audience of non-specialists. These authors, including Grew, sought to establish themselves as intellectual authorities through discursive prose and references. However, the eighteenth century witnesses a major shift in the museum literature genre: catalogues shifted away from the standalone printed descriptive catalogue towards more functional, practical texts, and began to function primarily as administrative tools within a collection. This gradual change is the result of several factors including the trend towards specialization in the composition of collections, which tended to focus on particular fields of knowledge, as well as the

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<sup>1</sup> Alexander Wragge-Morley, “The Work of Verbal Picturing for John Ray and Some of His Contemporaries,” *Intellectual History Review* 20, no.1, (2010), 166.

professionalization of the men creating the texts. Within the catalogues, taxonomy and terminology replaced the vivid prose and commentary provided in the object descriptions. Thus, Grew's elaborate and descriptive printed catalogue offers a cultural window into late seventeenth-century scholarly practices and preoccupations.

The vast majority of objects described in Nehemiah Grew's *Musæum Regalis Societatis* are no longer extant. In 1781, after years of neglect and a decline in item acquisition, the Royal Society decided to disperse the Repository, and what few objects that remained were sold to the British Museum. The British Museum continued to accumulate objects, particular natural history specimens, at an incredible rate.<sup>2</sup> Consequently, the Repository's items became scattered and lost in London's cultural landscape.<sup>3</sup> It was this emerging culture of an open public visitation (a selective public, but a form of public nonetheless) to museums and rarity enterprises that contributed to the shift away from printed descriptive catalogues towards the organizational, functional inventory. Commenting about the prospect of museums in the early eighteenth century, Richard Altick notes "museums themselves were still far in the future, and in the meantime rarity showing was thrown open to a candidly commercial enterprise. The official Protestant de-sanctification of relics, although ending the practice of veneration, has in no way diminished the people's hunger for marvels."<sup>4</sup> Grew used his catalogue to de-sanctify such superstitious and marvelous objects during a time of religious turmoil. Anxieties about

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<sup>2</sup> Criticism arose from the public regarding the sheer amount of items in the British Museum and the haphazard display methods. Richard Owen, the superintendent of the Natural History departments in the British Museum, initially proposed the idea of a separate natural history collection in 1862. After years of debates with the trustees and government, Owen's proposal for a new museum was accepted in 1881. See Nicolaas A. Rupke, *Richard Owen: Victorian Naturalist* (New Haven, CT: Yale University Press, 1994); and William T. Stearn, *The Natural History Museum at South Kensington: a History of the British Museum (Natural History) 1753-1980* (London : Heinemann, 1981).

<sup>3</sup> Jennifer Thomas, "A Philosophical Storehouse, the Life and Afterlife of the Royal Society's Repository" (PhD diss., Queen Mary, University of London, 2009), 119. At present only a fraction of the repository's original contents can be traced to modern institutions.

<sup>4</sup> Richard Altick, *The Shows of London* (Boston: Harvard University Press, 1978), 7.

Catholicism and idolatry declined over the course of the eighteenth century (at least, on the part of the educated classes), but interest in rare and curious objects persisted.<sup>5</sup>

Unfortunately, due to poor documentation of the Repository's initial transfer of its objects to the British Museum, it is difficult to determine the location of original Repository items.<sup>6</sup> By the late eighteenth and nineteenth centuries, there was a proliferation of museums open for public visitation. These sites of cultural entertainment and scientific learning included the British Museum (1753), the Hunterian Museum in the Royal College of Surgeons (1813), the National Gallery (1824), the Science Museum (1857), and the Natural History Museum at South Kensington (1881). These cultural sites were owned and operated by a tightly-knit group of individuals, which resulted in collections such as the Repository being divvied up as new museums formed. Currently, the Evelyn tables, a spiral elephant tusk, a mummified left foot, and charting instruments are the only original objects remaining from the Repository that have been identified. The vast collections of human preparations and preserved vertebrates, invertebrates, and plants in spirits have been misplaced or destroyed.<sup>7</sup> The loss of the original Repository items points to the significance of ephemeral literature and the importance of the information that can be obtained from them. Grew's catalogue offers to scholars a virtual glimpse into a world which no longer exists.

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<sup>5</sup> For a detailed study on the decline of anti-popery in the educated population see Colin Haydon, *Anti-Catholicism in Eighteenth-century England, c. 1714-80: A Political and Social Study* (Manchester: Manchester University Press, 1993).

<sup>6</sup> Thomas, "A Philosophical Storehouse," 149. See also A.E. Gunther, "The Royal Society and the Foundation of the British Museum," *Notes and Records of the Royal Society of London* 33, no. 2 (Mar., 1979): 207-216.

<sup>7</sup> The Hunterian Museum of the Royal College of Surgeons houses the Evelyn tables [RCSHM/Z 32-35], the spiral elephant's tusk [RCSOM/G 122.81] and a mummy's foot [EN: 324]. Henry Norfolk donated the mummy to the Repository in 1667. In the 1760s John and William Hunter dissected the mummy and now only the left foot remains in the museum. See Royal Society Archives DM.5.101.

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