SCIENCE ON THE TABLE: A BOTANICAL APPROACH TO FLORAL DECORATION ON PORCELAIN IN THE SECOND HALF OF THE EIGHTEENTH CENTURY

by

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts History of Decorative Arts at George Mason University

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ABSTRACT

SCIENCE ON THE TABLE: A BOTANICAL APPROACH TO FLORAL DECORATION ON PORCELAIN IN THE SECOND HALD OF THE 18TH CENTURY

Sara O’Keefe, M.A.

George Mason University, 2014

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Following a period of excess and frivolity in the Decorative Arts with the Rococo, the Enlightenment, with its emphasis on science, along with discoveries through global exploration, catalyzed an interest in nature which came to the forefront in the decorative arts, specifically porcelain, created in the second half of 18th century. This fascination encouraged the creation of porcelain items, which replicated natural discoveries, and, communicated, not just the wealth of the owner, but their intellectual eminence in the scrutiny of the natural world. In a period when floral decoration on porcelain is formally divided between styles inspired by the Far East or Germany, there is, in fact, another approach to floral decoration, initiated by science, which reflects a third distinct fashion at the time.

The Enlightenment with its emphasis on science and reason found inspiration in nature. Free from subjugation to King and Church, people were able to use their minds to embrace the splendor and order found in the natural world and to use the scholarly
knowledge to explain and control their existence. Scientific advances, exploration and political philosophy empowered humanity to pursue and attain, through their newfound awareness, happiness and insight through the physical world. On the dining table, porcelain objects were created to reinforce this appreciation of scholarship. The Chelsea “Hans Sloane” pattern and “Flora Danica” of the Royal Copenhagen Porcelain Manufactory, painted with the most accurate and scientific botanical imagery, were created, replicating studied illustrations by Oeder, Ehret, and others for the intellectual consumer. This scientific approach to decoration was novel, in that it was inspired by and created for an intellectual thinker.

Overall, much literary work has covered the intent of Enlightenment thinkers. Likewise, there is ample documentation of the botanical catalogues made by voyagers, scientists and artists of the time. In the Arts, much has been written about porcelain decoration in the late 18th century and there is a plethora of resources from which to draw on for research on the objects. However, this thesis will study a distinct style in the portrayal of botanicals at the time, which was inspired by science and the Enlightenment. There is little research on the genre of science on the table: scientific floral decoration on porcelain in the second half of the 18th century. This document will delve into 18th century exploration, enlightened philosophy and scientific study, which converged to make science a fashionable decoration on porcelain made in the second half of the 18th century.

Through extensive research of the “Flora Danica” collection of porcelain, along with Chelsea and other English porcelain, this examination will analyze the influence of
the Enlightenment thinkers, such as Sir Hans Sloane and G.C. Oeder, their journals, books, and, illustrations, on the decoration of porcelain for the dining table, which allowed for the actualization of a distinct third way, the scientific style, in portraying floral decoration. It is this crossroad of liberated mind, with art, which made methodical decoration, in the precise depiction of flora, a prominent style for the elite intellectual and a vehicle for them to communicate their new aspirations.
Science on the Table: A Botanical Approach to Floral Decoration on Porcelain in the Second Half of the Eighteenth Century

INTRODUCTION

Following a period of excess and frivolity in the Decorative Arts with the Rococo, the Enlightenment, with its emphasis on science, catalyzed an interest in nature which came to the forefront in the decorative arts, specifically porcelain, created in the second half of eighteenth century. Scientific fascination, along with discoveries through global exploration, encouraged the creation of porcelain items, which replicated natural discoveries, and, communicated, not just the status of the owner, but their intellectual eminence in the scrutiny of the natural world. In a period when floral decoration on ceramics is formally divided between styles inspired by the Far East or Germany, there is, in fact, another approach to floral decoration initiated by science which reflects a third distinct fashion. The separate decorative style resulted from the age of Enlightenment and a new interest in natural history.
Esteemed men such as Sir Hans Sloane, Josiah Wedgwood, and Erasmus Darwin, men who prized understanding and learning would use ceramics with botanical illustrations to promote the work of their fellow naturalists, and to promote the dissemination of knowledge.¹ Royalty such as King Christian XVII of Denmark, regarded for their Enlightened philosophy, commissioned porcelain services based on botanical journals compiled by highly regarded natural scientists to further demonstrate their intelligence, celebrate their countries’ beauty and to encourage scientific comprehension among their courts.²

Men who embraced ceramic decoration based on natural science journals moved among a heady group of intellectuals, philosophers, scientists, artists and adventurers. This group of Enlightenment thinkers, after centuries of Church control of thought, science and art, were finally able to explore and promote their ideas of the natural world and human kind. Having traveled throughout the European continent, men in London began to assemble societies, such as the Society Dilettanti, founded by the men such as

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Francis Dashwood, 15th Baron le Despencer, to discuss classical and antiquarian architecture, art and style, as well as to share their collected information. Members of the Society Dilettanti included famous men such as the artist Sir Joshua Reynolds and Sir Joseph Banks who traveled on a notable adventure with Captain James Cook from 1768 to 1771 in Brazil. Their interest in the natural sciences lead to the formation of the Royal Academy “an 'invisible college' of natural philosophers who began meeting in the mid-1640s to discuss the new philosophy promoting knowledge of the natural world through observation and experiment, which we now call science.” Also, in England, a young potter and chemist Josiah Wedgwood, along with his friend and relative Erasmus Darwin shared ideas with likeminded men in the Lunar Society, established in 1775, which assembled Enlightenment thinkers in the Midlands area of England. These well-known men had extensive reach among the international Enlightenment community. Their work was instrumental in facilitating the transition of the study of natural sciences into the development of industrial science in England.

Darwin also founded the Lichfield Botanical Society, which painstaking undertook the seven-year project of translating the works of the preeminent botanist Carl Linnaeus from Latin into English, resulting in the publication of A System of Vegetables

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6 “History,” The Royal Society. Royalsociety.org/about-us/history/ (April 7, 2014)
(1783-1785) and The Families of Plants (1787).\(^8\) Carl Linnaeus, of Sweden, worked to exact a classification system for the zoological, ornithological and horticultural specimens he had amassed. His two-name order, rooted in Latin, became the standard for the scientific identification of the natural world.\(^9\) French Enlightenment philosopher Jean Jacques Rousseau wrote of Linnaeus “Tell him I know no greater man on earth”.\(^10\) Likewise, the German writer and politician Johan Wolfgang von Goethe said of Linnaeus “With the exception of Shakespeare and Spinoza, I know no one among the no longer living who has influenced me more strongly”.\(^11\) Based on Linnaeus’s genius, and using his library and collection, Sir James Edward Smith, an English Botanist, was able to establish the Linnean Society of London in 1788, devoted to the application of all natural sciences.\(^12\) In 1789, Darwin wrote a book of poems titled The Botanic Garden, which was engraved by the romantic artist William Blake and reinforced Linnaeus’s sexual system for botanicals. The Botanic Garden presented an anthropomorphized approach to botanical anatomy, and the illustrations by Blake feminized and sexualized the botanical

\(^9\) “Why is Linnaeus World-Famous,” Uppsala Universitet. www.linnaeus.uu.se/online/life/1_0.html (April 7, 2014)
\(^12\) “The Society,” The Linnean Society of London. www.linnean.org/The-Society (April 7, 2014)
world. Significantly, Darwin emphasized the variability of botany and its contribution to the progress of the natural world through the process of transmutation. In addition, Josiah Wedgwood’s son John and his friend William Hooker, Horticultural Director at Kew, and both members of the Linnean society co-founded the Royal Horticultural Society in 1804.

In the eighteenth century both gardening and porcelain were considered to be fine arts. Botany was one, if not the first, acceptable scientific pursuits for women. Queen Charlotte of Great Britain was a champion of the arts and was also considered to be an ardent botanist who worked with William Hooker to expand the gardens at Kew. Likewise, Empress Josephine of France shared a passion for botany and was a patron of the botanical artist Redouté, who was informed by the specimens delivered to Malmaison by plant hunters. The detail and accuracy of Redouté’s drawings illustrate the Enlightenment approach to science and rationalism. (Figures 1 and 2) These inter-related

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organizations became honored professional associations as the once curious became experts in natural science.

Figure 1. Watercolor on Vellum, Pierre-Joseph Redouté, Josephine’s March Lily (Amaryllis Josephine), ca. 1802-1805. Photo Courtesy Collection Myrna and Ira Brind.

Figure 2. Photograph, Janet S. Williams, Brunsvigia Josephine. Photo Courtesy University of California, Botanical Garden, Berkley.
SEVENTEENTH AND EIGHTEENTH CENTURY DEVELOPMENTS IN CERAMICS

Tradesmen from the Dutch East India Company first imported porcelain products to Europe from China.\textsuperscript{18} By the mid-seventeenth century civil wars, resulting from the fall of the Ming dynasty, disrupted the porcelain trade in China and forced merchants to turn to Japan for products.\textsuperscript{19} Japanese porcelain wares produced in factories around Arita were decorated with the Kakiemon style of botanical decoration. These Japanese designs came to known as Indianische Blumen in Europe and beginning in the 1720s were replicated, initially by Meissen, then by artificial porcelain factories in France such as Saint-Cloud and Chantilly, as well as in England by Wedgwood and Staffordshire. By the 1740s popular tastes changed and Meissen, Sèvres, Chelsea and other prominent porcelain manufactories began to decorate in the more fashionable European styles of decoration, such as Deutsche Blumen.

In the eighteenth century, Europe was consumed by a fascination for porcelain. Initially imported from Asia, the desire to acquire expensive Chinese porcelain was


draining national treasuries and forcing nations into bankruptcy.\textsuperscript{20} Out of economic necessity, and to profit from consumer demands for the exquisite ceramic product, European countries began to explore methods to manufacture porcelain domestically. This transfer of knowledge over country borders joined with experimentation in the science of production is characteristic of the Enlightenment.

The lure of scientific discovery beckoned curious men to travel the world, to analyze the unknown and to publish their discoveries. In parallel, the newly discovered porcelain wares from Asia were assiduously investigated in Europe, and coveted for their novelty. The intersection of travel and curiosity was endemic to the eighteenth century. Ultimately, the extravagant cost of imported porcelain, paired with the domestic European demands for porcelain products, necessitated the production of porcelain in Europe. The Meissen Manufactory in Germany was the first to develop the porcelain material, and, therefore, the illustrious title of the first true (hard-paste) porcelain produced in Europe was bestowed upon them.\textsuperscript{21} Beginning in the 1720s, the manufactory initially produced goods in the Indianische Blumen genre of stylized exotic flowers as was in vogue which replicated imported Japanese porcelain in the Kakiemon style. (Figure 3)

However by the 1740s, as fashion changed, they also designed pieces in a
decidedly European style of decoration with bouquets of flowers, spray and sprigs of
native flora known as the Deutsche Blumen style.\textsuperscript{22} (Figure 4) The Deutsche Blumen
style stemmed from and was related to earlier naturalistic decoration on Germanic glass.

\textsuperscript{22} “Deutsche Blumen,” \textit{Encyclopædia Britannica}.
www.britannica.com/EBchecked/topic/159777/deutsche-Blumen (April 7,
2014)
First produced in Germany by Meissen this style of porcelain decoration was rooted in a sense of European nationalism, which celebrated domestic flora idealistically portrayed.

Figure 4. Sauceboat, Chelsea Porcelain Manufactory, ca. 1755. Photo Courtesy Brian Haughton Gallery.

Initially developed by Meissen, these two botanical designs, Indianische Blumen and Deutsche Blumen, were replicated by the newly established manufactories throughout Europe, on cream-colored earthenware in England by Wedgwood, and artificial (soft-paste) porcelain in France by Sèvres. As the ability to manufacture refined earthenware spread throughout Europe, parallel scientific discoveries were being made in the natural world by Enlightenment explorers. During the eighteenth century the study of botany was
considered to be a fine art, an academic pursuit and an illuminating contribution to society with potential economic value. The confluence of these assignations is evidenced by the illustration by Georg Ehret in collaboration with Carl Linnaeus to document the botanical system of sexes by Carl Linnaeus. (Figure 5)

Figure 5. Linnaeus’ Sexual System, Georg Ehret, dated 1736. PhotoCourtesy Uppsala Universitet.
Given the Enlightenment philosophy’s promotion of science, quest for discovery and interest in the workings of the natural world, the study of nature was greatly promoted and discoveries were widely disseminated. From either traveling around the world or meticulously studying their private gardens these naturalists knew that knowledge and revelation would come from analysis and comprehension. The increased attentiveness to nature and the promotion of scientific thought in the Enlightenment philosophy had successfully encouraged a connection between the individual and the natural world and fostered a need to truly understand and explain all that surrounded them. These men were enamored with every detail of their pragmatic discoveries. The world had been reborn to new eyes. These scholars cherished information and the ideal manner to disseminate this information among the educated and demonstrate their academic acumen to the elite was to display the discoveries. The material was presented in compendiums of the natural world, or more fashionably, as resplendent artistry on mediums such as ceramics for the table. Used to spur discussion at the table, cherished for their novelty, and, fortifying the enlightened mind of the possessor, these Natural Science services were an encyclopædia of the natural world. (Figure 6)

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Figure 6. Plate, Royal Copenhagen Manufactory “Flora Danica” “Anemone Silvestris L.”, 20th century. Photo Courtesy Flora Danica Online.
Everywhere Enlightenment thinking was free to thrive scientists, botanists and naturalists were cataloging and producing material documenting the natural world. In Denmark, the *Flora Danica* catalogue by Oeder served as the basis for the “Flora Danica” set made by Royal Copenhagen and used by King Christian VII.\(^{24}\) In Germany, Meissen designers were looking to sixteenth century illustrations of the natural world by Joris Hoefnagel and eighteenth century compendiums, such as Weinmann’s *Phytanthoza Iconographia*.\(^{25}\) In England, Wedgwood’s natural science curiosities were shared and emblazoned through the studies of Erasmus Darwin, the work of Carl Linnaeus and *The Botanic Garden*. The Chelsea Porcelain Manufactory under Nicholas Sprimont culled inspiration from Philip Miller’s Physic gardens in Chelsea, as illustrated by Georg Dionysius Ehret in *The Gardener’s Dictionary*.\(^{26}\) At the turn of the nineteenth century Sèvres, realizing the vogue for scientific botanical designs on porcelain, created “Service des Liliacées”, which pictured botanical illustrations found in Pierre Joseph Redouté’s *Les Liliacées* published from 1802 to 1816. A favorite of Empress Josephine of France, Redouté was a


fashionable and influential artist during the First Empire. Twentieth century reproductions by Royal Crown Derby and Portmeirion mimicked the original styles and continue to mass-produce natural science based botanical designs on porcelain through Modern times.
The establishment of the Meissen porcelain factory begins with the story of the alchemist Johann Frederick Böttger. Tasked by Augustus II, King of Poland and Elector of Saxony, in the late seventeenth century, to discover the alchemy to create gold, Böttger became a prisoner of the king. The prospect of having a limitless supply of gold made Böttger too valuable to be free, and possibly captured by other European kingdoms; and later his inability to conjure gold made him an embarrassment to the king who had invested so much financially and publicly in the man.\(^{27}\) Simultaneously the outbreak of war with Sweden had put a heavy financial burden on Saxony. On June 8, 1707, Böttger met with King Augustus and presented his plan. Given the great commercial value of Chinese porcelain, Böttger, subsidized by the Crown, would focus on creating the formula to manufacture true porcelain. In late 1708, Böttger, who worked under the supervision of Ehrenfried Tschirnhaus, announced the successful development of the recipe for true porcelain.\(^{28}\)


The porcelain product would bring Augustus great prestige throughout Europe and ultimately prove to be financially lucrative for Saxony in the 1720s when made commercially available. The quality of and styling of Meissen porcelain became renowned throughout the world for its imitation of Asian decoration and innovation of vessel forms for new beverages.

The advent of scientific botanical illustration on porcelain appeared on pieces designed by the Meissen Porcelain Manufactory circa 1740. The first of this new vogue for scientifically illustrated botany could be seen on porcelain painted in the style of J. G. Klinger. Generally referred to as Deutsche Blumen, which comprises naturalistic depictions of native European flowers, this transitional style of floral decoration on porcelain, specifically coined “Holzschnitt Blumen”, depicts “woodcut flowers” engravings. Floral illustrations on Meissen porcelain, called “Holzschnitt Blumen” were early designs based on natural science studies. Porcelain painters such as Klinger would replicate the colorized copper engravings of plant and insect specimens found in natural science journals. One such book Klinger looked to for source material titled *Archetypa*

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*Studiaque Patris* by Joris Hoefnagel and engraved by his son Jacob dated to 1592. Reproduced in the early eighteenth century by the printmaker and publisher Christoph Weigel, the *Archetypa* became a contemporary source for designers of natural history illustrations, which abetted the emerging fascination with scientific study. As court artist to the Emperor Rudolf II in Prague, Joris Hoefnagel was tasked with documenting the King’s growing Kunstkammer or Cabinet of Curiosities. Resulting from expeditions around the world, the collection included insect specimens, shells, and other natural history taxonomy. This coffeepot made by Meissen circa 1740 evidently reinforces Meissen’s consultation and imitation of images from compendiums such as Joris Hoefnagel’s *Archetypa Studiaque Patris*. (Figure 7) The insect designs on the porcelain pot are identical to the engravings by Hoefnagel. (Figures 8 and 9)

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Figure 7. Coffeepot, Meissen Porcelain Manufactory, ca. 1740. Photo Courtesy Sotheby’s.

Figure 8. Insects and the Head of a Wind God, Georg (Joris) Hoefnagel (Flemish, 1542-1601), ca. 1590-1600. The Metropolitan Museum of Art, Gift of Mrs. Darwin Morse.
Similarly, the chocolate pot by Meissen made circa 1740 is decorated with Hoefnagel designs. (Figure 10) Noticeably, this pot shows the “Holzschnitt Blumen” approach to Deutsche Blumen decoration on porcelain, which displayed the flowers individually, rather than in robust clusters. Note the insects on the upper left and lower left sides of the pot, which portray trompe-l’œil butterflies depicted by Joris Hoefnagel in *Archetypa Studiaque Patris*. (Figure 11)
Figure 10. Chocolate Pot, Meissen Porcelain Manufactory, ca. 1740. Photo Courtesy Smithsonian.
Figure 11. Ten insects, after Hoefnagel, one of 179 drawings from the 1637 album; including three species of dragonfly, a grasshopper, a wood-wasp, a frosted orange moth and a cricket. Watercolor and bodycolor, heightened with white. Drawn by Veit Spierincx (Drawn by), Joris Hoefnagel (After) Jacob Hoefnagel (After), ca. 1600-1620. Photo Courtesy The British Museum.
MEISSEN “BRÜHL’SCHE ALLERLEI”

Based on the *Phytanchoza Iconographia* by Weinmann, the Meissen Porelain Manufactory designed a set in 1742-1746 called the “Brühl’sche Allerlei” named in honor of Count Heinrich von Brühl, patron of the Meissen Porcelain Manufactory. Count von Brühl’s designs clearly blend the traditional “Holzschnitt Blumen” style, used by Klinger on the earlier Meissen set, which depicts native flowers, along with the natural science approach to botanical decoration. The sprigs and sprays, are bunched and sparsely arranged around the perimeter of the plate, with the new decoration of flora in the scientific style, based on Ehret’s illustrations for Weinmann at the center. (Figures 12 and 13)
Figure 12. Plate, Meissen Porcelain Manufactor “Brühl’sche Allerlei”, ca.1742. Photo Courtesy Bonhams.

Figure 13. Engraving, *Phytanthoza Iconographia* “Chrysanthemum Indicum flore et semine maximum”, ca. 1737-42. Photo Courtesy Vandekar.
The “Brühl’sche Allerlei” is a collection of over 2,000 pieces comprising a dinner, dessert and coffee service. Produced from 1742-1746 the set was modeled by J.F. Eberlein and proved to be one of Meissen’s most popular patterns into the nineteenth century, which reinforces the period’s fascination with, promotion of and patronage of Enlightenment rationalism. The decoration on ‘Brühl’sche Allerlei” follows contemporary scientific illustrations engraved by Georg Dionysius Ehret at the commission of Johann Weinmann in Germany in 1730. The *Phytanthoza Iconographia* is a catalogue of botanical specimens commissioned by Weinmann, an apothecary and botanist, and drawn by Ehret. As an apothecary, Weinmann wanted to create a compendium to document medicinal plants. He hired Ehret, a botanist and entomologist, who excelled in illustrations of the natural world and had recently collaborated on *Hortus Cliffortianus* with Carl Linnaeus and George Clifford, to undertake an ambitious commission to catalogue and diagram 1,000 plates of works. However, ill treated, poorly paid, and overworked, Ehret abandoned his project to seek more fair and lucrative assignments, with the confidence of already possessing fame for his skill and having

40 “Georg Dionys Ehret Collection,” Hunt Institute for Botanical Documentation. Huntbot.andrew.cmu.edu/HISBD/Departments/Art/Ehret.shtml (April 7, 2014)
41 “Georg Dionys Ehret Collection,” Hunt Institute for Botanical Documentation. Huntbot.andrew.cmu.edu/HISBD/Departments/Art/Ehret.shtml (April 7, 2014)
important horticultural contacts. Ehret’s attention to detail, painterly skill and unequaled keenness for observation is evident in the 500 of engravings he made for Weinmann, which are assembled to create the *Phytanthoza Iconographia*.

This combination of the Deutsche Blumen style of “Holzschnitt Blumen”, along with the scientific botanical style based on natural science journals was favored by Count von Brühl for his service and is emblematic of the two distinctive styles of floral decoration. “Holzschnitt Blumen” although, based on woodblock carvings and natural history journal illustrations, is more allegorical, and provincially ideal in essence. The botanicals are illustrated in nationalistic veneration of domestic European flora depicted in the woodblock print style. Idyllically bundled and assembled the “Holzschnitt Blumen” is evidently different from the individual reality of the scientific botanical illustrations at center. Depicted without embellishment, the images from the *Phytanthoza Iconographia* by Weinmann portray plants as they are in nature, without human intervention, as specimens. This Meissen set reinforces the notion that there was in fact a distinct third style of floral decoration in the eighteenth century, not inspired by stylized Asian floral imagery, as with Indianische Blumen, or robust and ornate styled bouquets of floral design, called Deutsche Blumen, or flat woodblock portrayals of European flora, as with the subset category of “Holzschnitt Blumen”, but singularly inspired by the botanical journals of naturalists and scientists, which accurately and precisely depict the flora found throughout the world.

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42 “Georg Dionysius Ehret (1708-1770),” Natural History Museum. www.nhm.ac.uk/nature-online/art-nature-imaging/collections/art-themes/drawingconclusions.more/carica_more_info.htm (April 7, 2014)
The eighteenth century was indeed the gold age of botanical science. In order to share scientific knowledge and to make it accessible to the public it was displayed stylishly as art. Mrs. Delaney gained fame for her intricate and exact details of flora created using colored paper. A friend of the Duchess of Portland, namesake to the famed ancient Roman cameo glass vase copied by Wedgwood in his jasperware ceramics, Mrs. Delaney had access to the Duchesses extensive collection of natural history ephemera. Mrs. Delaney’s collages are beautifully crafted and exquisitely prepared. The illustration of botany scientifically, painted on ceramics, constructed as collage folios, such as the impeccable works by Mrs. Delaney’s “Flora Delanica”, on textiles and cultivated for enjoyment in public gardens highlight the vogue for this style of depicting flora. The golden age of botanical exploration in the eighteenth century was thriving both for practical purposes in science and decoratively in art.


ROYAL COPENHAGEN “FLORA DANICA”

The Royal Danish Porcelain Manufactory was established in 1775. Financially backed by the Royal Family, the factory produced true porcelain based on the recipe developed by Frantz Heinrich Müller. The factory was privately acquired in 1868 and relocated from Copenhagen to Frederiksburg in 1882-1884. The factory continues to produce high quality true porcelain wares, exquisitely decorated and handcrafted.

Crown Prince Frederik on behalf of King Christian VII of Denmark commissioned the “Flora Danica” set. Intended as a gift for Empress Catherine the Great of Russia, the set was not yet completed upon her death in 1796. As a result, the service stayed in Denmark and was used by King Christian VII on January 29, 1803 at his birthday celebration. Based on designs in the encyclopædia Flora Danica initiated by Oeder and subsequently worked on by twelve other court-appointed botanists, each of

45 “Company History, “ Royal Copenhagen.
46 “Company History, “ Royal Copenhagen.
47 “Company History, “ Royal Copenhagen.
48 “The Dinner Set,” The Royal Library.
49 “The Dinner Set,” The Royal Library.
50 “Royal Copenhagen Flora Danica,” Danish Porcelain Online.
www.danishporcelainonline.com/non_frame_pags/rc/rc_floradanica_list.htm (April 7, 2014)
the nearly 2,000 pieces in the set, depict some of the 3,240 plates of wild flowers and plants native to Denmark catalogued in Oeder’s book.51 (Figures 14 and 15)

Figure 14. Plate, Royal Copenhagen “Flora Danica” “Plantago (major*) Intermedia Gilib.”, 20th century. Photo Courtesy Floral Danica Online.

Figure 15, Engraving, Flora Danica, “Planr’tago (major*) Intermedia Gilib.”, dated 1871. Photo Courtesy The Royal Library.
The porcelain, aptly nicknamed ‘White Gold’ for its value, is hand-molded and hand-painted by Johann Bayer, who was selected by Oeder himself in 1769. Bayer was an esteemed artist and his expertise is evident in the designs on the “Flora Danica” set. His life project, the set was delivered in 1802. The perfection of the central illustrations, along with the border rimmed with gold, reflects the wealth and prestige of the patron. (Figure 16)

Figure 16. Plate, Royal Copenhagen Manufactory “Polygala Vulgare”, 20th century. Photo Courtesy Flora Danica Online.

52 “Royal Copenhagen Flora Danica,” Danish Porcelain Online. www.danishporcelainonline.com/non_frame_pags/rc/rc_floradanica_list.htm (April 7, 2014)
However, the study of the wild flowers of Denmark, depicted, not stylistically, but accurately, with roots and seeds speak to the owner as an Enlightenment thinker with a keen appreciation for the world, and scientific acumen to appreciate the medicinal and scientific merits of botany. (Figure 17)

Figure 17. Engraving, Flora Danica, “Polygala Vulgare”, dated 1770. Photo Courtesy The Royal Library.
Fascinated with the study of nature, and science, King Christian promoted the dissemination of botanical knowledge throughout the kingdom, going so far as to freely distribute copies of the *Flora Danica* compendium “to spread...knowledge about native plants. Spreading of plant-knowledge among the inhabitants of the country must be encouraged, since botany cannot be of general use as long as it is only a science for...a few botanists.”

King Christian himself implemented many widespread social reforms under the influence of Johann Friedrich Struensee, an Enlightenment philosopher, who served as physician to the King. This set of porcelain, which today remains in production by the Royal Copenhagen Manufactory, continues to retain its esteem and allure. The refinement of artistry, detail of craftsmanship, and unequivocal sophistication of subject matter, enabled the “Flora Danica” porcelain to be style setter among polite society into the twenty-first century. The late Princess Grace of Monaco, in her book on flowers complimented the set as being “One of the most delicate and beautiful porcelain patterns.” Nearly 200 pieces of the Flora Danica set are on display at Christiansborg Castle and an astounding 1,500 pieces of the service remain today, making the Flora Danica set the largest surviving service of eighteenth century porcelain. (Figure 18)

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Figure 18, Photograph, “Flora Danica” Service, ca. 1860. Photo Courtesy The Danish Royal Collections.
SÈVRES “SERVICE DES LILIACÉES”

Louis XV, like other princes throughout Europe, spent a vast amount of resources acquiring elegant porcelain from China and Japan. Upon learning of the Meissen porcelain manufactories success in developing the recipe for true porcelain, he too realized the value of establishing a porcelain factory in France, which would bolster the country’s economy. Early artificial porcelain factories were established in Saint-Cloud and Chantilly and predominately created porcelain wares decorated in the Indianische Blumen style. In 1738, Louis XV financed the Vincennes factory, which relocated in 1756, and was renamed the Sèvres Factory.\(^{57}\) The factory never developed the recipe for true porcelain, instead producing pâte tendre or artificial porcelain.\(^ {58}\) However, under the influence of the stylish Madame du Pompadour, the factory created exquisite Rococo pieces in Chinoiserie and European styles, which were painted with yellow, blue and rose colors around white reserves and with ornate gilding that became a trademark, along with Louis XV’s interlocking L’s of the Sèvres style. (Figure 19)


Interrupted by the Seven Year War between Saxony and Sweden the Meissen porcelain factory output became limited.\textsuperscript{59} This weakness coincided with a resurrection at the

Sèvres factory to make the royal enterprise profitable. Under the direction of Alexandre Brongniart (1770 to 1847) and along with the acquisition of the true porcelain recipe from Meissen, the Sèvres factory began to efficiently produce fashionable true porcelain goods with commercial success throughout Europe circa 1800.60

The Sèvres porcelain manufactory in France seized on the newfound popularity of science, the Enlightenment, exploration, and, botany, and designed a porcelain collection in the scientific botanical style. In 1821, the factory created a line of Botanical Specimen plates named the “Service des Liliacées” based on the folio illustrations by the French naturalist Pierre Joseph Redouté in Les Liliacées. 61 Published between 1802 and 1816, Redouté was a celebrated artist and garnered much fame for his travels and study of botany. Redouté intended to illustrate plants “with all the fidelity that science can desire, and, which is more difficult, with the luxury of detail with which nature has embellished them,”62 This plate titled “Valthimia Glauque” or “Western Cape Sand Lily” is unique, because it is the only piece of the set to survive.63 Also, this plate is significant because it is a beautiful example of how botanically illustrated flora includes the scientific and

empirical documentation of a variety of indigenous vegetations – not strictly limited to German flora as the present misnomer for the style “Deutsche Blumen” implies.64 (Figure 20)

Figure 20. Plate, Sèvres Manufactory “Service des Liliacées”, ca. 1821. Photo Courtesy Hillwood Estate, Museum and Gardens.

Presumably, the entirety of the remainder of the ensemble was destroyed in the spring of 1830 during the looting of the Tuileries Palace. As you can see from the clarity of the lily at center, the flora is depicted with precision, accuracy and detail in the scientific style, but is combined with a highly stylized French neoclassical Empire-style border. It is a replica of Redouté’s illustration in Les Liliaées, which studied and documented flowers as they are in nature, realistically and clinically and with such finesse with color. (Figure 21)

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This service is typical of the confluence of French Enlightenment elements. Combining the richly gilded French Empire style and depicting exotic botanicals discovered on exploratory expeditions and copied from the folios of Empress Josephine’s favorite botanical artist, Pierre Redouté. Redouté’s drawings continue to be used by
porcelain factories all over Britain and Europe, such as Kent Pottery and Royal Kirkham, as sources for decoration on a variety of household wares.\textsuperscript{66}

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CHELSEA “SIR HANS SLOANE”

The Chelsea Porcelain Factory was established circa 1745 by Flemish émigré Nicholas Sprimont with assistance from Charles Gouyn, a French Hugenot, who later established the “Girl-in-a-swing” porcelain manufactory. Sprimont was a registered silversmith in London and his initial porcelain designs replicate silver forms. Early decorations on Chelsea wares imitate Chinese export porcelain and Meissen designs. However, the factory reached celebrity around 1761 with designs that replicated the French Sèvres taste combining beautiful blue, green, and red ground colors with lavish gilding. William Duesbury, owner of Derby works, then acquired the factory. Under Duesbury’s ownership the factory shuttered in 1768 and the holdings of the Chelsea factory were integrate under the Derby works umbrella.

The Chelsea Porcelain Manufactory’s “Hans Sloane” set is named in honor of the botanist, explorer and naturalist Sir Hans Sloane. A wealthy landowner, Sir Hans Sloane

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was appointed as the personal physician for Christopher Monck, Duke of Albermarle and Governor of Jamaica, in 1687. While traveling Sir Hans Sloane became an avid collector of curios, shells, rocks, plants, and, animals. Sloane authored *A Voyage to the Islands Madera, Barbados, Nieves, S. Christophers and Jamaica, with the Natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, Inspects, Reptiles, etc. of the Last of those Islands.* Sir Hans Sloane was appointed and served as head of the Royal Society in succession to the brilliant Sir Isaac Newton. This position encouraged his fascination with the study of botany for scientific ends. As a landowner, Sir Hans Sloane promoted the study of the natural world at his garden known as the Chelsea Physic garden, which served as a nursery for a variety of plant species. The garden was directed by Philip Miller, who was a member of the Royal Horticultural Society, and considered by Linnaeus to be “the greatest gardener of his time”. Miller also happened to be the brother-in-law of the esteemed botanical illuminator Georg Dionysius Ehret. Ehret was famous for his botanical engravings in the *Phytanthoza Iconographia* by Weinmann, which served as the source for design illustrations on the Meissen

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72 “Hans Sloane, Natural History of Jamaica, a Book,” The British Museum.
www.britishmuseum.org/explore/highlights/highlight_objects/loan_in/h/hans_sloane_natural_history_o.aspx (April 7, 2014)

73 “Hans Sloane, Natural History of Jamaica, a Book,” The British Museum.
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74 “Sir Hans Sloane,” The British Museum.
http://www.britishmuseum.org/about_us/the_museums_story/sir_hans_sloane.aspx (April 7, 2014)

75 “Natural History and Travel,” Antiquariaat Junk B.V.

76 “Georg Dionysius Ehret (1708-1770),” Natural History Museum.
www.nhm.ac.uk/nature-online/art-nature-imaging/collections/art-themes/drawingconclusions/more/carica_more_info.htm (April 7, 2014)
“Brühl’sche Allerlei” service. As discussed above, Ehret found Weinmann’s demands excessive and exploitive. After withdrawing from his work with Weimann he pursued other commissions, such as the *Gardener’s Dictionary* by his brother-in-law Philip Miller (*Figures of the most Beautiful, Useful and Uncommon Plants* by Miller). A true genius of botanical illustration, he catalogued the extensive assortment of species found in the Chelsea Physic gardens, which served as the basis for designs by the Chelsea Porcelain Factory on the “Hans Sloane” set named in honor of the naturalist champion and patron of the Chelsea Physic Gardens. The “Hans Sloane” dish inspired by Miller’s *Gardener’s Dictionary* (*Figures of the most Beautiful, Useful and Uncommon Plants*) and illustrated by Ehret is rocaille in shape which mimics dish forms in silver, and was influenced by Sprimont’s training as a silversmith. (Figure 22)

77 “Georg Dionysius Ehret (1708-1770),” Natural History Museum. www.nhm.ac.uk/nature-online/art-nature-imaging/collections/art-themes/drawingconclusions/more/carica_more_info.htm (April 7, 2014)
Figure 22. Dish, Chelsea Porcelain Manufactory “Hans Sloane” “Honeysuckle”, ca. 1758-1769. Photo Courtesy Colonial Williamsburg.

The honeysuckle image at center is directly sourced from Ehret’s “Honeysuckle” illustration, dated 1765. (Figure 23)
Likewise, the Chelsea plate “Acacia Americana” is a replica of the engraving by Ehret of “Acacia Americana” found in Miller’s Gardeners Dictionary. (Figures 24 and 25)
Figure 24. Plate, Chelsea Porcelain Manufactory “Hans Sloane” “Acacia Americana”, ca. 1755. Photo Courtesy The International Ceramics Fair & Seminar.
Furthering the dissemination of natural science knowledge, these plates allowed people to learn of exotic plants, such as the “Acacia Americana”, which had been brought to England from Mexico by the explorer Vera Cruz. Likewise, the intention of depicting

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the “Common Sweet Maudlin” on the Chelsea plate based on Ehret’s illustrations for Millers *Gardeners Dictionary* was to celebrate and promote the medicinal quality of the Maudlin plant. (Figures 26 and 27)

Figure 26. Plate, Chelsea Porcelain Manufactory “Hans Sloane” “Common Sweet Maudlin”, ca. 1755-1756. Photo Courtesy The International Ceramics Fair & Seminar.
These botanical plates in the scientific style, like the natural history journals, encyclopedias, compendiums and folios from which they sought inspiration, were purpose-made as teaching tools. The Enlightenment philosophy encouraged reason, discovery, and empiricism and the fine art medium of porcelain bolstered the circulation
of knowledge and affirmed the sophisticated mindedness of the owner. The botanical decorations on this service are not merely aesthetic, as with the Indianische Blumen and the Deutsche Blumen styles. They are intentionally used to serve philosophical and academic ends.

The art of dinner table conversation (especially among mixed or “promiscuous” company, as the English called it) was one of the new, fashionable attainments inspired by the Enlightenment. Designers of ceramics and silver were encouraged to include topics for conversation on their sophisticated wares to help ease the socially awkward into dialogue. In addition to botany favorite subjects of the period included ancient art, mythology, symbolism, music and literature.
Josiah Wedgwood was born in 1730 to Thomas and Mary Wedgwood in Staffordshire, England. Staffordshire was the principal location of ceramic production in England and Josiah came from a long line of potters. Like his forefather, Josiah apprenticed in the family business until he contracted small pox. While convalescing, Wedgwood used the time to read voraciously and to use his knowledge to develop analytical thought. The Right Honorable W.E. Gladstone, in his address at the founding of the Wedgwood Memorial Institute said:

“Then comes the well-known smallpox, the settling of the dregs of the disease in the lower part of the leg, and the eventual amputation of the limb, rendering him lame for life. It is not often that we have such palpable occasion to record our obligations to the smallpox. But, in the wonderful ways of Providence, that disease, which came to him as a twofold scourge, was probably the occasion of his subsequent excellence. It prevented him from growing up to be the active, vigorous workman, possessed of all his limbs, and knowing right well the use of them; but it put him upon considering whether, as he could not be that, he might not be something else, and something greater. It sent his mind inward; it drove him to meditation upon the laws and secrets of his art. The result was that he arrived at a perception and grasp of them which might, perhaps, have been envied, certainly have been owned, by an Athenian potter. Relentless criticism has long since torn to pieces the old legend of King Numa receiving in a cavern, from the nymph Egeria, the laws which were to govern Rome. But no criticism can shake the record of that illness and that mutilation of the boy Josiah Wedgwood, which made him a cavern of his bedroom, and an oracle of his own enquiring, searching, meditative, fruitful mind.”

Upon his recovery, Wedgwood apprenticed under his brother Thomas’s supervision. He then moved from Burslem to Stoke-upon-Trent where he entered into a partnership with John Harrison of Cliffe Bank Pottery. The arrangement did not last and Wedgwood subsequently partnered with Thomas Whieldon of Whieldon works near Stoke.

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Whieldon was an established and well-regarded businessman and his reputation benefited Wedgwood greatly.\textsuperscript{84} During this period Wedgwood developed the formula for the green underglaze for which he remains famous, and for ceramics made to emulate precious stones, which were then mounted by mechanics with precious metals.\textsuperscript{85} In 1760, Wedgwood established his own manufactory in Burslem at the Ivy works pottery.\textsuperscript{86} In 1763 he developed his own cream-colored earthenware formula, which had

“a fine and durable body, covered with a rich and brilliant glaze, and able to bear sudden vicissitudes of heat and cold without injury. As it was manufactured with ease and expedition, it was sold cheap; and as it possessed, with the novelty of its appearance, every requisite quality for the purposes intended, it came quickly into general estimation and use”\textsuperscript{87}

Queen Charlotte was please with Wedgwood cream ware and allowed him to designate his cream wares as “Queen’s ware”\textsuperscript{88} Wedgwood further developed recipes for a black basalt-looking stoneware, which replicated antiquities discovered in Herculaneum and Pompeii, a terra-cotta, which resembled Egyptian pebble, white porcelain biscuit, and jasperware, among others.\textsuperscript{89} In 1766 he partnered with Thomas Bentley of Liverpool to

\textsuperscript{84} Samuel Smiles, Josiah Wedgwood, F.R.S.: His Personal History (London: Harper & Brothers) 34.
\textsuperscript{86} Samuel Smiles, Josiah Wedgwood, F.R.S.: His Personal History (London: Harper & Brothers) 42.
assist in retailing Wedgwood trinkets and wares in London. Ultimately, Wedgwood moved and consolidated his home and factory in Etruria. Wedgwood’s ability to make his pottery fashionable and in step with trends and phenomena of the time was an astute marketing strategy and made his ceramics extremely popular. The innovation of technique, the quality of product and the cosmopolitan styling of the Wedgwood ware combined to make the Wedgwood factory a great success.

In the late eighteenth century Josiah Wedgwood undertook the creation of a “Queen’s ware” dinner and dessert service at the request of Catherine the Great. Named the “Husk” service because of the swags of wheat looping the border of dishes, the plates were painted with pink botanicals, in spray and twig designs by the artists Ralph Unwin, Joseph Cooper and James Bakewell. This flatness and naivety of the design adopts the “Holzschnitt Blumen”, or woodblock print, aesthetic, which falls under the category of Deutsche Blumen because of its depiction of European flora idealistically. (Figure 28)

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The country flowers are simple in their arrangement and allude to the designs of woodblock prints. This set was well received by Catherine the Great and remained in commercial production by Wedgwood to satisfy the demands of consumers who coveted the styled of the elite. As a result this “Queen’s ware” pattern continued to be produced for the general market in the late eighteenth century, however, a small but noticeable
evolution occurred in the central botanical decoration: The floral designs began to appear more studied, more detailed and the sprays of flowers began to dwindle to single sprigs. (Figure 29)
Although the service remained in the style of the “Husk Service”, this late eighteenth century Wedgwood design appeared to be much more influenced by the designs found in natural history journals, clearly illustrating specimen flowers. Conspicuously invoking botanical illustrations in natural science journals, these ceramic designs reinforce the argument that there was in fact a third botanical design in the eighteenth century, which emulated, and drew inspiration from images in natural science studies and botanical compendiums. These “Husk Service” plates by Wedgwood made circa 1770 portraying a rose, a chrysanthemum, a convolvulus and a phlox exhibit a much more scientific specimen-like presentation. The depiction of these botanicals are distinct from Indianische Blumen, which evokes Asian designs and stylization, and independent from “Holzschnitt Blumen”, which is a vernacular approach to botanical illustration in the Deutsche Blumen style. Although, “Holzschnitt Blumen”, and scientifically interpreted botanicals are usually grouped together under the Deutsche Blumen category of botanical decoration because botanicals are presented sparsely on the designs, natural science botanicals are a distinct style that resulted from the age of Enlightenment and the new interest in natural history. The difference of the styles is evident in the illustrations of the Blue Anemone flower on the Meissen tea caddy circa 1735-1740 in the “Holzschnitt Blumen” style of Deutsche Blumen and the Chelsea “Hans Sloane” plate in the scientific style circa 1755. (Figures 30 and 31)
Figure 30. Tea Caddy, Meissen Porcelain Manufactory, ca. 1735-1740. Photo Courtesy The International Ceramics Fair & Seminar.
Figure 31. Plate, Chelsea Porcelain Manufactory “Hans Sloane”, ca. 1755. Photo Courtesy The International Ceramics Fair and Seminar.
CONCLUSION

Science was the impetus behind the natural history flora style. Men and kings who had for centuries prayed to an invisible God were enraptured with the prospect that discovery and study of nature would elevate humankind in medicine, agriculture, geology and industry. Hope was tangible in the eighteenth century. In *The Botanist* John Adams, head of the Massachusetts Agricultural Society, Enlightenment thinker, and founding father of the United States, explained the overwhelming fascination with the study of nature and the resulting fervor for curiosity as “When he is told that by the word *Nature*, we mean *the energy of God, seen in the various productions that replenish and adorn the world*, he is silenced, but not satisfied.”

92 Men of thought were awakened and devoted to the certitude and the finality of scientific exploration. No longer would prayer and hope alone be sufficient when clarity, and truth could be realized with science. The fever of the Enlightenment was urged on by these men of science who through medicine, botany, geology, astronomy, zoology, and other sciences, could explain their beliefs and explain the world with reason and with proofs that were uncontestable. Their philosophy was one of natural reality. As the movement spread through Europe and to America, thinkers and rulers alike who seized this new awareness worked to personalize their connection with this resourceful earth, disseminate the knowledge and to keep the obvious truths of

92 Benjamin Waterhouse, *The Botanist* (Boston: J.T. Buckingham, 1811) x.
Enlightenment philosophy as clear and factual as possible even in the arts. Embellishment was cast to the side – all depictions purposefully executed were to be strictly literal and accurate. It is through avenues such as the arts where the information could be displayed and shared, and, therefore, reach a larger audience of intrigued consumers.

Seized by this momentum, empowered by its credibility, artists, philosophers, scientists, politicians provided a wellspring of material from which designers could draw to provide for their interested new audience. When the Danish King commissioned the Flora Danica set for Queen Catherine it was both a treasured gift cataloging the gorgeous botany of Denmark, and it was an overt gesture to an enlightened ally, an appreciation for and embrace of the fashion for science and the simultaneous appreciation for aesthetics and medicinal study. Likewise, in Europe the plates of Sir Hans Sloane for Chelsea Porcelain no doubt celebrated his personal gardens at Chelsea Physic and the variety of flora in them, but the porcelain product communicated the esteem not for the exotic, or for the pretty, but for a noble embrace of scientific discovery and a real sense of elitism to those who immerse themselves in the academic study of the natural world. Likewise, “Service des Liliacées” by Sèvres is beautifully executed, but was made in keeping with the vogue for botanical study of the time. The botanical illustrations depicted on each service are intended to teach, to captivate the mind, and to spur logical thinking and understanding. The plates are beautifully modeled and the images are exquisitely detailed, but their fascination comes from their true form, not embellishments or exotic imaginative imagery, but design validated by pure realism.
The Enlightenment “philosophes”, such as Rousseau, Voltaire, and Kant were obsessed with natural theory. Some used it as a basis for their ideologies; others feared its manipulation, which, according to Rousseau, lead to the debasement of society. The time of the Enlightenment was volatile. Systems based on faith, which had existed for thousands of years, came into doubt with the rationality of scientific and medicinal discovery. The opening of the world was hugely significant to the covetous minds of the newly moneyed consumers. The desire for the exotic, the craving to possess the unknown, allowed for the widespread fascination with Indianische Blumen china. The historic revelation of Asian culture was significant and the Western consumer market proved ready to be inspired.

Unlike Indianische Blumen, which satisfied a curiosity for the exotic, scientific porcelain affirmed a philosophy and the idea of progressive thought, exploration and scientific discovery. The Enlightenment was a time of science, exploration, analyzation, and study of the natural world, and botany in particular, provided knowledge which was infused into medicine, philosophy and politics. Interconnected by the academic fascination with botany in the eighteenth century, Wedgwood, Darwin, Blake, Linnaeus, Sloane, Klinge, Weinmenn, Miller, Ehret and Redouté took it upon themselves to bridge the study of science in the natural world with the decorative arts. These individuals, members of variety of societies, such as the Society Dilettanti, the Lunar Society, the Royal Horticultural Society, the Royal Society, the Linnean Society, and others, shared

their discoveries, their documentation, and their enlightened philosophy, which were based on the principles of the natural world. Anchored by the prestige of such men, promoted by the means of the same men, there was little doubt that botanical porcelain based on scientific journals would succeed. The people were eager for a system of government based on reality, nature, and reason, and the rulers were fascinated with knowledgeable pursuit and acquisition throughout the world.

Remarkably executed, the Botanical sets, such as “Flora Danica” by Royal Copenhagen, Chelsea “Hans Sloane”, and Meissen’s “Brühl’sche Allerlei” are not novel for their imagination, creativity and embellishment. However, they are unique for their exactness and truthfulness to the illustration of floral imagery. Scientific Botanical Porcelain in the eighteenth century remains one of the first forays of science into Decorative Arts decoration. Mostly concerned with formula and materials, science had been relegated to its productive capacity in the medium. However, as science on the table, Enlightenment porcelain made in the eighteenth century, based on scientific journals, elevated science to decoration as a means of communication, to expound values, to encourage conversation and to nurture progressive thinking. In the eighteenth century, the categorization of botanicals on porcelain does not strictly fall into the two existing groups divided between Indianische Blumen and Deutsche Blumen. There is in fact a third grouping, “Naturwissenschaft Blumen”, natural science flowers, which applies to botanicals depicted on porcelain, which promoted the scientific study of the natural world through botanical decoration, in exaltation of the Enlightenment and the Age of Reason.
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