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Art and Science in Early Modern Gdańsk

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Abstract:

The 17th and 18th centuries were a period of the development of art and science in Gdańsk. Johann Hevelius, was the most famous astronomer of that time. He cooperated with the best artists: Jeremias Falck, Daniel Schultz and Andreas Stech. Hevelius's second wife Elisabeth was also dedicated to science and the couple were shown together at work. Scientists' collections and cabinets in Gdańsk provided a platform for the exchange of ideas. The artists interested in observing nature were incorporated into the circle of discussants. Samuel Niedenthal who studied both the fauna and flora worked together with two other researchers and collectors from Gdańsk: Christoph Gottwald – doctor of medicine and botanist – Jacob Breyne. Gdansk naturalists themselves attempted to draw or to sculpt. Passions for art and science as well as collecting have sometimes been continued by subsequent generations. Johann Philipp Breyne and Jacob Theodor Klein supported the artistic education of their daughters. Their drawings were both used as models to make scientific illustrations and were artistic objects used also for exchange. Gdańsk scientists collected paintings, drawings, prints, and scientific as well as natural specimens. Their collections were dynamic and consistent with the emerging idea of a “theatre of nature and art” developed by Gottfried Leibniz.



The text aims to draw attention to an important and hitherto underexplored phenomenon of the links between science and art in early modern Gdańsk (Danzig). The 17th and 18th centuries were a period of the development of science, particularly of botany, zoology, anatomy, and astronomy. Although there was no university, the city on the Motława River was home to many eminent scholars who collected both the books and the various kinds of objects needed in their research. It was also an important centre of the arts and publishing. Research was conducted

in the Academic Gymnasium and by private scientists who often had an entirely different profession. Professors as well as students of the gymnasium had access to the Library of Senatus Gedanensis as early as 1596. To study at a university, Gdańsk residents would most frequently travel to Königsberg, Wittenberg, Jena, Halle, or Leiden. Although travel constituted an important element of education and research initiation, scientists and amateurs often persevered in their activities such as cultivating exotic plants, breeding animals and insects, and observing the planets.

Conducting research in astronomy or medicine required collecting *scientificis*. Botanists would establish gardens, both real and *horti sicci*: herbaria. Gdańsk researchers and collectors also eagerly studied different types of fossils, amber or shells. Acquiring them meant intense exchanges with other scientists from around Europe. Such objects were amassed in special rooms called *cabinets* or *theatres of art and nature*.

It goes without saying that Johann Hevelius (1611–1687) was the most famous Gdańsk scientist of the modern era. He studied in Königsberg at the department of liberal arts, after which in 1630 he went to Leiden to study law. During his travels he also visited France and England. Upon the return to his hometown, he started collecting and constructing scientific instruments. Hevelius exchanged letters with the noblest and grandest scientists of his time from all over Europe.¹ Moreover, he soon established cooperation with the best Gdańsk artists. It was Jeremias Falck (1605/9–1677) who executed a copperplate that served as the frontispiece of Hevelius's first grand work: *Selenographia*;² Jeremias Falck also made an early portrait of the scientist based on the painted work by Helmich Twenhuisen³ (Fig. 1). In the 1640s, the English traveller Peter Mundy visited Gdańsk and remarked about the celestial maps worked out by Hevelius. The astronomer drew maps and coloured engravings, including those by Falck.

Falck and Hevelius stayed in touch even after the artist had moved out of Gdańsk to serve as a royal engraver for Christina of Sweden. The letter the printmaker wrote to Hevelius from Hamburg reveals that both men maintained quite close relations at the time; yet, first and foremost it was Falck who acted as the agent for Hevelius's artistic output.⁴

¹ Most of those letters have survived: *Correspondance de Johannes Hevelius*, vol. I: *Prolégomènes critiques*, ed. Ch. Grell (Turnhout: Brepols, 2014); vol. II: *Correspondance avec la cour de France et ses agents avec un dossier sur la querelle de la com te de 1664–1665*, ed. Ch. Grell (Turnhout: Brepols, 2017); vol. III: *Correspondance avec Pierre des Noyers, secrétaire de la Reine de Pologne*, ed. Ch. Grell (Turnhout: Brepols, 2020).

² Johannis Hevelii, *Selenographia Sive, Lunæ Descriptio* (Gedani [Gdańsk/Danzig]: Auctoris sumtibus, Typis Hünefeldiani, 1647), <https://pbc.gda.pl/dlibra/publication/10775/edition/6656/conten>, accessed on: 23 X 2021.

³ Helmich van Tweekhuysen (II), RKD – Nederlands Instituut voor Kunstgeschiedenis, <https://rkd.nl/nl/explore/artists/record?query=twenhusen&start=2>, accessed on 23 X 2021.

⁴ This letter is missing. *Correspondance de Johannes Hevelius*, vol. I, 277, but it was noticed by: F[riedrich] Schwarz, "Hevelius-Briefe," *Mitteilungen des Westpreußischen Geschichtsvereins* 24/4 (1925): 64–72.



Contemplare Virum, qui caeli sidera primus
Quae vidit, sculpto, mentis manique valens.
Haecenus ut nemo: quid sciret, ALPHABET,
Si in visis caelo; tu ALPHABET quoque.
Exgressit caelo, Falcki celeberrima dextra,
ALPHABET, patria nobile sidus Eumi.
Solanoes Albrechtingerus. f. Jeroem. Falck sculpsit.

Fig. 1. Jeremias Falck after H. Twenhusen, Hevelius, 1647, from *Selenografia*

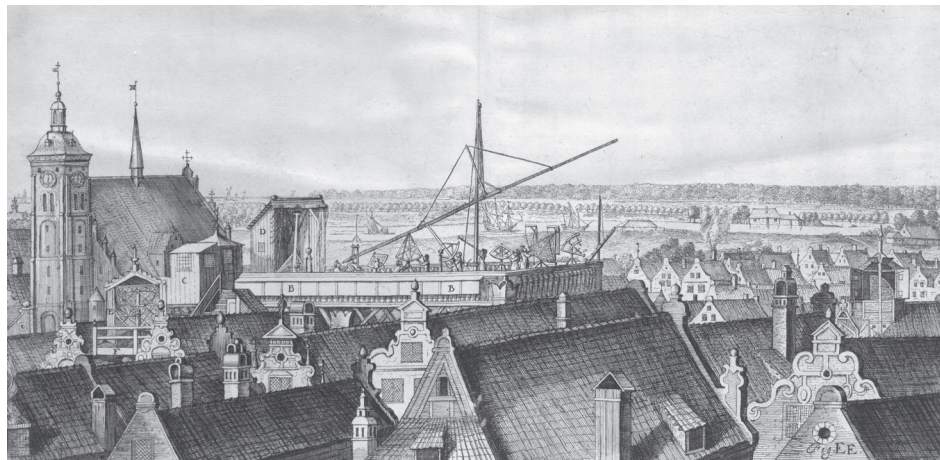


Fig. 2. Isaak Saal after Andreas Stech, *Observatorium at Korzenna*, from *Machina Coelestis*

For many years the astronomer also cooperated with Andreas Stech (1637–1697) and Isaak Saal: the two men, possibly also with the participation of other artists, but undoubtedly of the astronomer himself, executed representations of Hevelius's scientific instruments and the observatory on the roof of the houses (Fig. 2) at Korzenna Street (Pfefferstadt).⁵ Hevelius must have learnt drawing from one of the Gdańsk artists, since he himself was able to skilfully draw maps of respective fragments of the hemisphere as well as made other illustrations for his works and was an amateur printmaker. Copies of books with the drawings that the astronomer personally made can be found at the Gdańsk Library of the Polish Academy of Sciences and the National Library in Paris.

Daniel Schultz (1615–1683) – a court painter of the Polish kings – is the author of the best-known portrait of the astronomer.⁶ A work of high artistry, it depicts a scientist proud of his accomplishments, sitting at a table covered with an exquisite Oriental carpet. The Scientist is manifesting his status both as a researcher and collector. In the portrait, Schultz clearly echoed the long-standing tradition of representations of scientists. The early examples of such are numerous works by Hans Holbein, showing, for instance, Erasmus of Rotterdam. Such a model of presenting scientists lasted in painting in the Netherlands and other countries until the 19th century. Thus, the Gdańsk painter resorted to the iconographic scheme

⁵ Johannes Hevelii, *Machinae coelestis pars prior; organographiam, sive instrumentorum astronomicorum omnium quibus auctor hactenus sidera rimatus accuratam delineationem et descriptionem, plurimis iconibus aeri incisus illustratam & exornatam exhibens...* (Gedani: Auctoris Typis & Sump-tibus, Imprimebat Simon Reiniger, 1673), <https://pbc.gda.pl/dlibra/publication/41404/edition/35304>, accessed on 24 XI 2021.

⁶ Anna Sobecka, *Obrazowanie natury w nowożytnym Gdańsku. O kulturze kolekcjonerskiej miasta* (Gdańsk: słowo/obraz terytoria, 2021), il. 130.

valid throughout the whole of early modernity, yet at the same time he applied elements that individualise the subject and define both the figure and present the tools of the scholar by selecting objects whose choice was not accidental. Displayed on the table is the main work by the astronomer, *Machina Coelestis*, beneath which a print from *Selenographia* can be glimpsed. Behind the astronomer is a bookcase and an ancient bust. Next to him there is a celestial globe, the preserved work by the cartographer Willem Blaeu. One of the copies of this composition together with *Winter Landscape* by Andreas Stech was sent to the Royal Society in London of which Hevelius became a member in 1664.

As of 1663 Hevelius's co-worker was his second wife Elisabeth née Koopmann (1647–1693), thoroughly educated and like Johannes, dedicated to science. The couple were shown together at work in two of the prints from the first volume of *Machina Coelestis* (Fig. 3). This engraving made by Isaak Saal after the drawing of Andreas Stech is both self-presentation of the scholars⁷ and the presentation of their scientific instruments. *Machina Coelestis* – a richly illustrated great work of the history of astronomy and a description of astronomical observations, including solar and planetary eclipses and astronomical calculations – was published in two volumes in 1673 and 1679 in Hevelius's private printing house.⁸ Some of Hevelius's findings were questioned by the English researchers: neither Robert Hooke (1635–1703) nor John Flamsteed (1646–1719); could believe that using simple instruments, without any telescopes, the Danzig astronomer could make correct measurements observing the sky. Thus Edmond Halley (1656–1742) arrived in Gdańsk; having spent a month here, he confirmed that Hevelius's calculations were correct.

Unfortunately, shortly afterwards, in 1679, a fire devoured the observatory and the collection and destroyed the astronomer's printing house. Following that disaster, Hevelius found it extremely hard to restore his research lab. In this effort he was supported by monarchs; Luis XIV allocated a yearly remuneration to him and Hevelius obtained some financing from John III Sobieski. The astronomer exchanged correspondence with four hundred respondents throughout Europe. He had the intention of publishing the set of his letters, of which 2,800 have been preserved.⁹

Elisabeth continued their work following the death of her husband; she corrected calculations and published *Prodromus astronomiae* and *Firnamentum Sobiescianum* containing numerous prints showing maps of various celestial sections. Although Elisabeth was one of the first females in the world dealing with astronomy, unfortunately she was not yet sufficiently appreciated.

⁷ Janet Vertesi, "Instrumental images: the visual rhetoric of self-presentation in Hevelius's *Machina Coelestis*," *The British Journal for the History of Science* 43/2 (2010): 209–243.

⁸ Anna Siemiginowska, "Prywatna oficyna wydawnicza Jana Heweliusza (1662–1679)," *Bibliotekarz Gdański* [special issue] (1975): 33–52.

⁹ See: *Correspondance de Johannes Hevelius*, vol. 1–3.

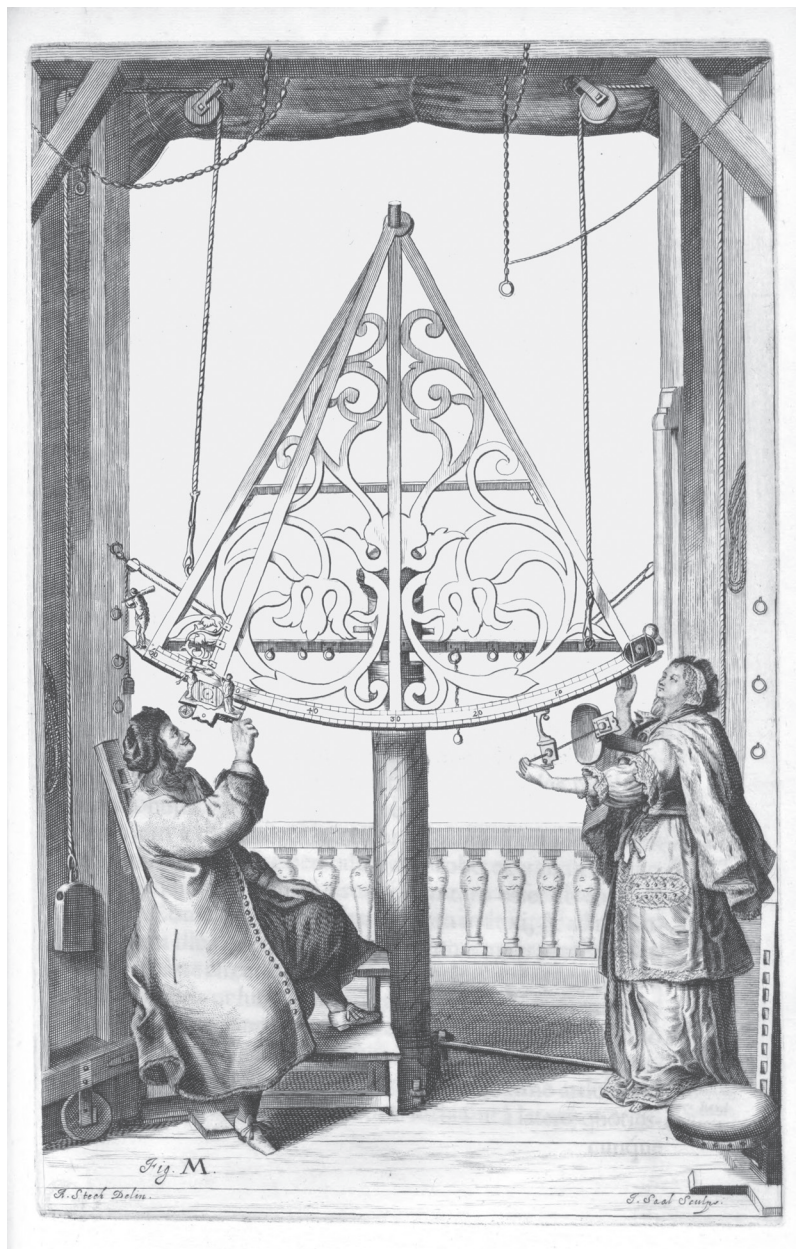


Fig. 3. Isaak Saal after Andreas Stech, *Observatorium at Korzenna*, from *Machina Coelestis*

In this extensive work, the maps of the sky with the constellations Hevelius had recently discovered enchant: Shield, Sextans, Hunting Dogs, Lizard, Little Lion, Lynx, and Fox.¹⁰ Scientific passion in Hevelius went hand in hand with his care for the works’ typography, and Elisabeth must have shared his sense of aesthetics. They collected paintings, drawings, prints, and scientific as well as natural specimens. Their collection was dynamic, and was consistent with the emerging idea of a “theatre of nature and art” developed at the time by Gottfried Leibniz.¹¹

What is more, we know that apart from observing the planets, stars, and comets, and next to collecting scientific instruments and most likely works of art, Hevelius was also a keen naturalist fascinated with exotic plants. He astounded the Warsaw court by sending the lemon he had grown to John III Sobieski. We know for sure, though, that another scientist in Gdańsk had a garden by his house.

Jacob Breyne (1637–1697) went to Leiden as a merchant trainee; there, he attended botany courses as an unenrolled student. All through his life he conducted his scientific activities, cooperating with artists; like Hevelius, he set up his own printing house. His works proved extremely important for the development of scientific botanical illustrations.¹²

Breyne described and systemised different plants which he either grew himself or received dried from befriended scientists. Jacob also made an herbaria based on which artists prepared drawings and prints for him. Andreas Stech was among Breyne’s main co-workers: he made sketches for scientific illustrations in his books and painted other works of art. Drawings, graphics and even works of craftsmanship were sometimes a substitute for research objects that were not available, but were also works in their own right (Fig. 4).¹³ Jacob collected both the drawings that served as models for engravers as well as other of the collector’s works, and even printing plates. Breyne focused on investigating exotic plants and was also planning to publish a work related to Pomeranian flora. His son made plans to publish the materials he collected in *Viridarium Prussiae occidentalis* but

¹⁰ Johannis Hevelij, *Prodomus Astronomiae cum catalogo fixarum et firmamentum Sobiescianum* (Gedani: Johannis-Zachariae Stollii, 1690), 412–468, <https://pbc.gda.pl/dlibra/publication/2229/edition/858/content>, accessed on 13 X 2021.

¹¹ See: H. Bredekamp, “Leibniz’s Theater of Nature and Art and the Idea of a Universal Picture Atlas,” in: *The artificial and the Natural. The Evolving Polarity*, eds. Bernadette Bensaude-Vincent, William R. Newman (Cambridge Massachusetts: MIT Press, 2007), 211–223.

¹² *Jacobi Breynii Icones Exoticarum aliarumque Minus Cognitarum Plantarum Centuria Prima: cum Figuris Aeneis Summo studio elaboratis...* (Gedani: Imprimebat David-Fridericus Rhetius, 1678); Jakob Breyne, *Prodromus Fasciculi Rariorum* (Gedani: Sumptibus auctoris, imprimebat David Fridericus Rhetius, 1680); published by his son with father’s biography: Johann Philipp Breyn, *Icones rariorum et exoticarum plantarum... quibus praemittuntur Vita et effigies auctoris... cura et studio Joannis Philippi Breynii... cuius adiicitur ad calcem Dissertatio olim edita, de radice Gin-Sem seu Nisi et herba Acemella* (Gedani: Thom., Joh. Schreiberi, 1739).

¹³ Robert Felfe, *Naturform und bildnerische Prozesse. Elemente einer Wissenschaftsgeschichte des 16. und 17. Jahrhunderts* (Berlin–Boston: DeGruyter, 2015), *passim*.



Fig. 4. Andreas Stech, *Orchis militaris* L. *Ophrys apifera* L, FB. Gotha, Chart A 783 a, 94

were never completed. Nevertheless, thanks to contacts with other naturalists, Breyne's discoveries were taken into account in the scientific discourse, e.g., by Carl Linneaus (1707–1778). The role Breyne played in the development of science and painting which drew its inspiration from scientific studies cannot be questioned. Like Hevelius, Breyne maintained wide-reaching contacts with the most important scientists of his times. He exchanged letters with, e.g., Dutch botanists Jan Commelin (1629–1692) and Frederik Ruysch (1638–1731) and the Director of the Paris Botanical Garden, Joseph Pitton de Tournefort (1656–1708). Jacob's son and granddaughters continued his scientific and collecting endeavours.



Fig. 5. Samuel Niedenthal, *Seal*, 1665, Kupferstich-Kabinet, Staatliche Kunstsammlungen Dresden

Jacob must have also been interested in the realm of fauna, since Samuel Niedenthal (1620–1665), collaborated with him by designing botanical illustrations. In one drawing Niedenthal noted that he had depicted a pair of colourful “West-India” woodpeckers basing the sketch on the specimens he had received from Breyne. Niedenthal was also the first artist who travelled to study different species. He noted down detailed information about the animals he observed regarding, for example, their size, sex or colouration. A perfect example is the seal he sketched during a trip to the Hel Peninsula (Fig. 5).

Scientists' collections and cabinets (rooms dedicated to intellectual pursuit) in Gdańsk provided a platform for the exchange of ideas. The artists interested in observing nature were incorporated into the circle of discussants. A special place should be given to the artist Samuel Niedenthal who studied both the fauna of remote countries and the local species. His drawings are kept in Dresden, Erlangen and Gotha.¹⁴

¹⁴ Anna Sobecka, Jacek Szewdo, *Samuel Niedenthal and the Legacy of Zoology in the 17th Century*, in preparation.

Another Danzig scientist working with Niedenthal was Christopher Gottwald (1630–1700). His portrait shows him in the convention typical of scientists’ representations, against a backdrop of books and surrounded with other attributes of science. As a doctor of medicine Gottwald was fascinated with anatomy. He was also well acquainted with zoology. Moreover, he was one of the first illustrious conchologists in the Baltic region. He was also a great collector of nature specimens.¹⁵

The first to describe selected items of this collection was Carl Arndt, a student from Rostock.¹⁶ A printed auction catalogue released in 1714 was put together by Johann Philipp Breyne, who recommended the Gottwald collection to his respondents by sending them the catalogue and most likely also the prints of the so-called “Museum Gottwaldianum” showing anatomical specimens and shells. He sent one of the copies to, among others, Hans Sloane (1660–1753), who was sorry to have received it too late. The collection was purchased from the widow of the younger Gottwald – bought by Tsar Peter the Great.

What can be found extremely interesting is the representation of Gottwald’s cabinet called “Museum Anatomicum.” The album is composed of two parts: anatomical illustrations and an engraved “inventory” of the shell collection (Fig. 6 and 7). Gottwald may have patterned himself on the publication of Nehemiah Grew’s “Museum Regalis Societatis” from 1681 describing the collection of the Royal Society.¹⁷ In the last quarter of the 17th century, the need to systemise collections, also anatomical ones, was enormous among English intellectual circles.¹⁸ He could also be under the influence of the ideas of Gottfried Leibniz, who considered making, drawing documentation in the course of experiments to be an important part of scientific research.¹⁹

Christoph Gottwald was familiar with the drawing oeuvre of Niedenthal and took over the painterly utensils of his probable master. He was not only a fierce researcher, but also a talented author of drawings and works of handicrafts. The painting utensils visible in his “theatrum” indicate that he made drawings while autopsies were being carried out. His sketches from Gotha²⁰ proves the analytical

¹⁵ Mary Malloy, “The Museum of the Gottwalds: Collecting and Connecting in the Baroque Gdańsk,” in: *Opus Opificem Probat. Festschrift dedicated to Jerzy Litwin*, eds. Robert Domżał, Maria Dyrka, Anna Ciemińska (Gdańsk: National Maritime Museum, 2019), 167–185; Sobecka, *Obrazowanie natury*, 252–268.

¹⁶ Gustav Kohfeld, “Eine Akademische Ferienreise von Rostock bis Königsberg im Jahre 1694,” *Baltische Studien* 9 (1905): 3–51.

¹⁷ Nehemiah Grew, *Musæum regalis societatis, or, A catalogue and description of the natural and artificial rarities belonging to the Royal Society and preserved at Gresham College* (London: Printed for Tho. Malthus..., 1685), <https://quod.lib.umich.edu/e/eebo/A42108.0001.001?view=toc>, accessed on 16 I 2021.

¹⁸ Marjorie Swann, *Curiosities and Text The Culture of Collecting in Early Modern England* (Philadelphia: University of Pennsylvania Press, 2001), 87–90.

¹⁹ Gottfried Wilhelm Leibniz, *Sämtliche Schriften und Briefe*, Reihe VIII, 2 (Berlin: Akademie Verlag, 2016), e.g., *Directiones ad rem Medicam pertinentes*, 649–664.

²⁰ See: Sobecka, *Obrazowanie natury...*, 265, fig. 136.

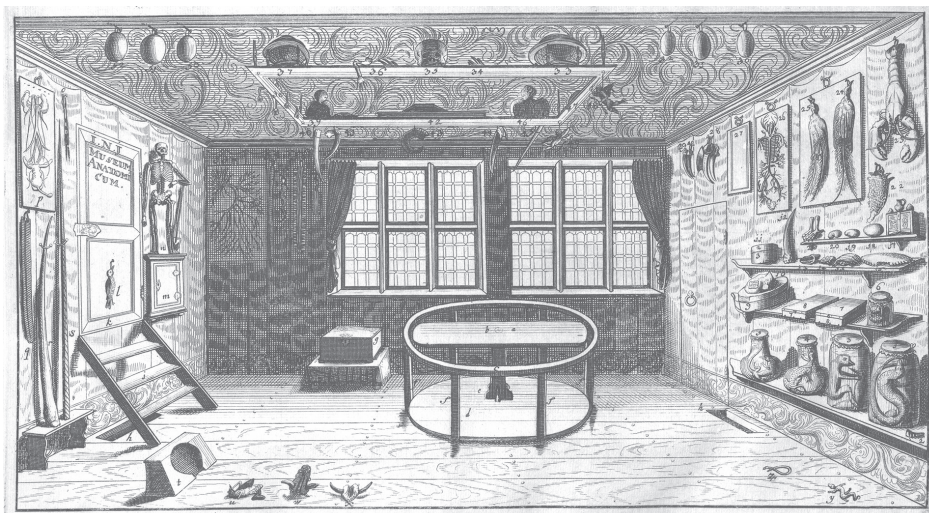


Fig. 6. Samuel Donnet, *Museum Anatomicum, Museum Gottwaldianum*, before 1700

determination of the author and his skills, demonstrating a loose line and author's capacity to render the features characteristic of a given animal. He performed autopsies of animals, and on humans, as well.

Gottwald's single works and those by his master, Niedenthal, reached Gotha, which may point to the role played by yet another Gdańsk scientist, Johann Philipp Breyne (1680–1764), son of Jacob Breyne. Johann was sent to study to the Leiden that was so well-known to his father. He also made a three-year trip across Europe. Among other places, he visited England, including London and Cambridge (this well testified to by the entries of John Covel, Christopher Green, Thomas Hobart, and John Loughton in his friendship book).²¹ Johann Philipp also travelled southwards. Upon the return to his native City of Gdańsk, he developed the family collection and the garden which undoubtedly ranked among the few most interesting in Europe. The younger of the Breyne, working as a medical practitioner, conducting his paleontological and botanical research, and also published and systemised works of other scientists. He particularly appreciated the works of Georg Andreas Helwing (1666–1748) of Węgorzewo, to whose drawings of local flora he wrote an introduction in 1724,²² as well as those of Nathaniel Sandelius (1686–1757) of Elbląg. Johann Philipp also purchased the engraving plate of the Museum Gottwaldianum.

²¹ Johann Philipp Breyne, *Reisetagebuch 30. Mai bis 27. November 1703*, Forschungsbibliothek Gotha [hereafter: FB Gotha], Chart. B 858, J.P. Breyne, *Reisetagebuch 1. Januar bis 31. December 1702*, FB Gotha, Chart B 966, J.P. Breyne, *Reisetagebuch 1. Januar bis 3. Januar 1704*, FB Gotha, Chart. B 968.

²² *Icones variorum plantarum In Borussia sponte nascentium, quorum potissimum fit mentio In flora quasimodogenita, coloribus ad vivum adumbratae*, curante Georgio Andrea Helwig, Phil: Mag: Pastore Angerburg, A Reg: Scient: Societ: Berolin. Membro, 1724; FB Gotha, Chart A 787.



Fig. 7. Christoph Gottwald, *Nautilus-goblet*, *Museum Gottwaldianum*, before 1700

Furthermore, he maintained extensive contacts with scientists throughout Europe.²³ For example, he would send on a regular basis natural specimens to England, among others to James Petiver (1665–1718), member of the Royal Society,²⁴ and he would receive from him different ones in exchange. Fauna and flora specimens were most often shipped by sea. Johann Philipp and Hans Sloane enjoyed an abundant correspondence that has been preserved (38 letters Sloane were sent to Breyne and several went in the opposite direction).²⁵ Johann Philipp supported the education of his daughters. Constantia Philippina (1708–?) (Fig. 8), Anna Renata (1713–1759) (Fig. 9)

²³ Cf. Stefan Siemer, *Geselligkeit und Methode. Naturgeschichtliches Sammeln im 18. Jahrhundert* (Mainz: Von Zabern, 2004), *passim*.

²⁴ Six letters from Breyne to Petriver have been preserved. Gotha Chart. B 857b. As well as twelve letters from Petriver to Breyne. Gotha Chart. B 787, 471–493.

²⁵ FB Gotha Chart. B 788, 609–685. See also: Helmut Roob, Cornelia Hopf, *Jacob und Johann Philipp Breyne, zwei Danziger Botaniker im 17. und 18. Jahrhundert: Nachlaßverzeichnis* (Gotha: Forschungsbibliothek, 1988).

and Johanna Henrietta (1715–1797) [Fig. 10] were especially talented in depicting plants, birds and sea creatures.²⁶ They had a personal drawing teacher – David Schultz. They also had an extensive collection of drawings by Stech, Niedenthal and other artists, available in the family collection. Perhaps the sisters were preparing illustrative material for the publication of a kind of universal atlas.

The Breyne collection was dispersed in the 18th century. The majority, and actually the most precious works, were bought by Catherine the Great, Empress of Russia. Grigory Orlov got them as a gift. The rest stayed with Johanna Henrietta, the longest-living daughter of Breyne Jr; following her death, the rest of the collection was purchased by Ernst II, Duke of Saxe-Gotha, and is now at the Forschungsbibliothek in Gotha; this actually happened to be the most private part of the legacy, since it contained manuscripts, letters, and diplomas of the Breynes as well as numerous drawings by Niedenthal and Stech, sketches by Gottwald, the Breyne sisters, and by Dorothea Julianna Klein (1718–1788), daughter of yet another Gdańsk scientist.

Jacob Theodor Klein (1685–1759) was a highly regarded naturalist and member of the City Council who exchanged letters with scientists around Europe. His most famous work is “*Verbesserte Historie der Vögel.*” Klein acquired a substantial set of drawings of birds executed in the 17th century by Niedenthal, and employed contemporary artists to execute further representations. He used also depictions of birds made by the Breyne sisters.

Klein made an effort to provide an education in the arts to his daughter as well; Dorothea Julianna made illustrations for her father’s works. The representations of amber with inclusions have been preserved in the manuscript “*Succini collectio*”



Fig. 8. Constantia Philippina Breyne, *Bird-of-paradise*, FB Gotha, Chart 784, 63

²⁶ Sobeca, “Drawings by the Breyne sisters as an unknown part of the eighteenth century collection of a Gdansk family of scholars,” in: *Collections. Development, History, Lost Heritage*, ed. Magdalena Mielnik (Gdańsk: Muzeum Narodowe, 2020), 259–273.



Fig. 9. Anna Renata Breynne, *Banana*, FB Gotha, Chart 782, 9

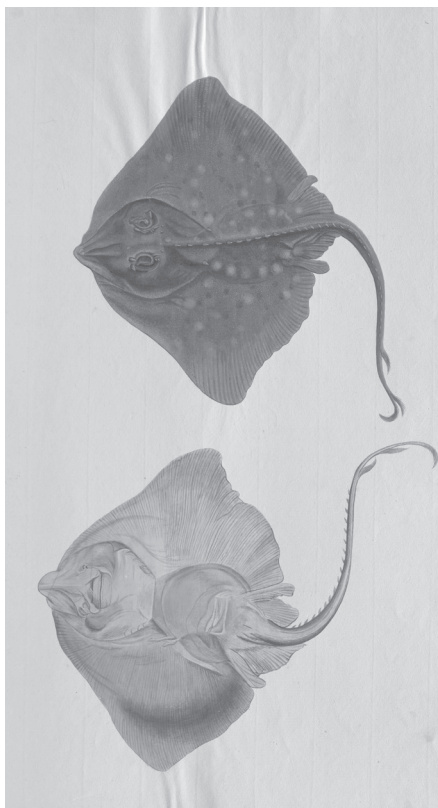


Fig. 10. Johanna Henrietta Breynne, Ray fish, FB. Gotha, Chart A 783 a, 1

(Fig. 11) seem the most interesting. Many natural lumps, inclusions, and cut lumps representing the structure of petrified resin drawn by Dorothea were used as designs for prints in the work “*Succini historia*” by Nathaniel Sendelius.²⁷ This talented lady also depicted the garden of her family house in Długie Ogrody. Klein sold his zoological collection to the Margrave of Brandenburg for Bayreuth, the fossils to King Augustus II, and his amber collection to his son, the future Augustus III, while he donated the remaining museum objects to the Research Society in Gdańsk. Thus, collecting was for him a way of “appropriating the world”: once identified, the research object no longer mattered to him. The illustrated inventory of Klein’s legacy, his ten-volume “*Museum Kleinianum*,” ended up in the collection of the University of Erlangen.

²⁷ Nathanael Sendel, *Historia Succinorum Corpora Aliena Involventum Et Naturae Opere Pictorum Et Caelatorum* (Leipzig [Lipsiae]: apud I.F. Gleditschium, 1742), <https://dlibra.bibliotekaelblaska.pl/dlibra/publication/7307/edition/6844/content>, accessed on 21 I 2021.

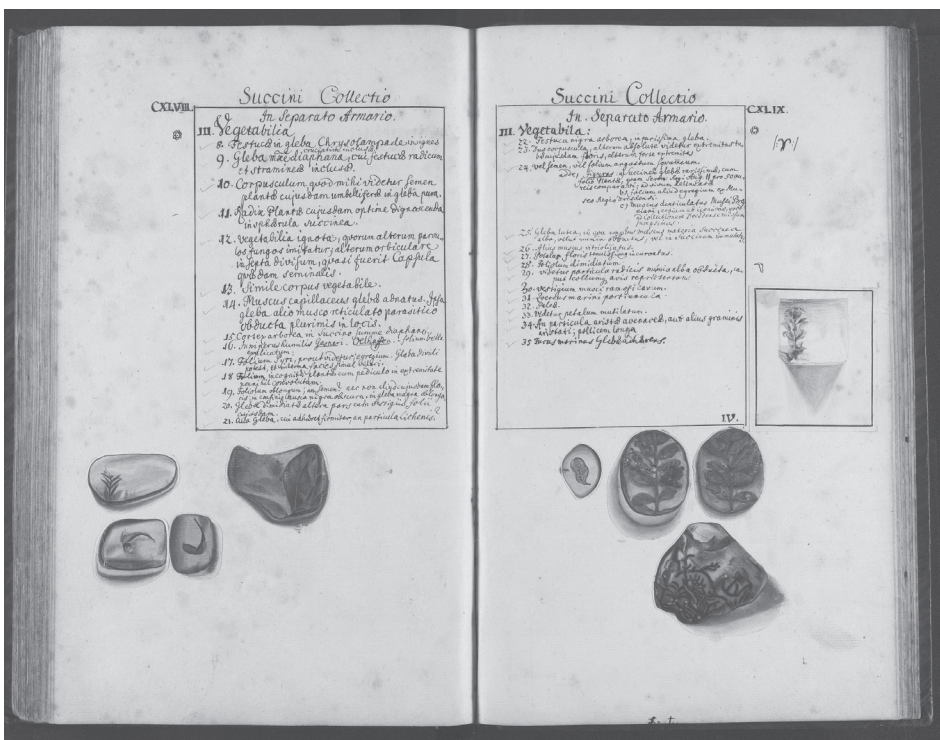


Fig. 11. Dorothea Julianna Klein, *Succini Collectio*, Ms 2680, Universität Erlangen

As an example in this respect let us use here the collection of the ornithologist and ichthyologist Daniel Gottlieb Messerschmidt (1685–1735), who was recommended to the Tsar by Breyne Jr; he later spent eight long years in Siberia, conducting research and collecting natural specimens for the Academy being established in St Petersburg.²⁸ Messerschmidt's greatest discovery were the remains of a mammoth. In his diary we can find drawings of flowers, birds, and of his own, personal archaeological finds.²⁹

The direction of research concerning human anatomy was continued in Gdańsk by Johann Adam Kulmus (1689–1744). The frontispiece of Kulm's "*Tabulae Anatomicae*" demonstrates that anatomical issues are treated as a part of Leibniz's *theatrum* of knowledge,³⁰ combining a library, collections of natural specimens, artefacts, and scientific instruments (Fig. 12). The key to understanding the phenomenon of the Gdańsk scholars and artists is the need to visualise the results

²⁸ Siemer, *Geselligkeit und Methode...*, 88.

²⁹ V[ladimir] S. Sobolev, "The first scientific journey in Siberia. On the 300th anniversary of D.G. Messerschmidt's expedition," *Вестник Российской академии наук* 89/1 (2019): 83–88, doi: 10.31857/S0869-587389183-88.

³⁰ Bredekamp, *Leibniz's Theater of Nature and Art*, 214.

of their research. Kulm's collection of anatomical tables made by the author himself became so popular that it was translated and published in many languages. It was a fundamental scientific anatomical textbook in the medical training not only in Europe but also in Japan.³¹

In Gdańsk, great collections were established: they evidently echoed the vision of a collection as the "theatre of nature and art" developed by Leibniz.³² Nature was intensively studied by scholars who collaborated with the best artists of their



Fig. 12. Johann Kulmus, *Tabulae Anatomicae*, 1731

³¹ Axel Sakula, "Kaitai Shinsho: the historic Japanese translation of a Dutch anatomical text," *Journal of the Royal Society of Medicine* 78 (July 1985): 582–587.

³² Leibniz, *Sämtliche Schriften und Briefe*, Reihe IV, no. 9, 86.

time. They often worked together on representations of animals, plants, and fossils as well as planets, etc. Scientists (such as Hevelius, Breyne or Gottwald) acquired artistic skills and artists (Niedenthal) conducted their own observations on fauna. In the families in which the passion for collecting and science was cherished, there was increased interest in learning to draw and amateur attempts at printmaking. The key to understanding this culture of the shared worlds of art and science that came to the fore in the 17th century is the exchange of thought within the realm of the *respublica litteraria*, as well as the development of a shared passion for collecting natural specimens and artefacts.