

Network analysis of the herbarium collection of the Moravian Church from the 18th century

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The Herbarium Dresdense (DR), Germany, houses about 500 000 specimens of worldwide origin. One of the oldest collections is the *Herbarium Barbiense* of the Moravian Church from the mid to the late 18th century. On their mission to spread Christianity, the Moravians settled on many continents and took the advantage of exploring culture and nature of their new home countries. Being excellent observers and documentarists, they left a barely explored corpus of objects and texts of tremendous importance for natural sciences and humanities. Since 1754 the educational centre of the community was located in Barby, Saxony-Anhalt, Germany. To support the scientific training and to gather objects send home by the missionaries, a cabinet of natural curiosities was established in 1756. The collections of minerals, fossils, conchylia and plants were unique and soon attracted other European academics (Augustin 2005).

The Moravian Church teachers Friedrich Adam Scholler (1718–1785) and Johann Jakob Bossart (1721–1789) initiated the botanical education at the community's academy in Barby. Their various manuscripts and documents proof that both were excellent botanists who incorporated the latest contemporary concepts into their work. Bossart's catalog of the cabinet's botanical contents („Index Plantarum siccarum Systematicus eo ordine, quo sunt in Fasciculis dispositae“) testifies that an herbarium collection of about 3200 specimens was gathered in Barby until the end of the 18th century (Fig. 1). This collection fell into oblivion during the 20th century, but was recently rediscovered in Dresden (Ehlacher et al. 2023). In a current project the 1260 remaining herbarium samples from the cabinet of natural curiosities in Barby are being analysed. Within the collection specimens are found from the proximity of Barby, but also from India, Greenland, Labrador, Russia, North Carolina and Tahiti. Locality information is only given for about a quarter of the specimens, and collectors names apart from a few exceptions are not mentioned (Ehlacher et al. 2023). In order to enrich the specimens with additional metadata and contextualize the collection, the specimens are examined with respect to e.g., mounting techniques, original paper characteristics, such as size and watermarks as well as handwritings. Matchings between individual specimens allow conclusions to be drawn about secondary information, such as localities, collectors, or collection dates. This shows that beyond the plant material itself important additional information can be derived

Keywords

Barby, Johann Jakob Bossart, Herrnhuter Brüdergemeine, Plant specimen, Friedrich Adam Scholler

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Fig. 1. Specimen of the Herbarium Barbiense: *Anemone pulsatilla* L., today synonym to *Pulsatilla vulgaris* Mill., collected „Im Busche bei Friderikenberg“, a locality in Saxony-Anhalt, close to Barby (now housed in Herbarium DR, inventory number 024129; <https://dr.jacq.org/DR024129>).

from historical herbarium specimens. To link the specimen's metadata with further sources, TEI (Text Encoding Initiative) tools are being tested. Wikidata keys are applied as identifiers to link plant names, persons and localities with other sources, such as personal correspondence and botanical manuscripts. All specimens are digitized and available online in the herbarium database www.jacq.org and at www.gbif.org.

The Moravian's scientific heritage proves that they were strongly integrated into the scientific network of the 18th century. Letters in the collections of the Linnean Society prove that Friedrich Adam Scholler was in close contact with leading scientists, e.g., Carl von Linné, discussing questions of plant taxonomy, exchanging specimens and presenting own field work, such as his most important book, „Flora Barbiensis“, published in 1775 (Scholler 1775). The book lists 1007 species in the vicinity of Barby, a very thorough record of the known plants, along with characteristics, localities and uses. Matching the information on the herbarium specimens with the Flora Barbiensis and the information in a 40-page handwritten field trip diary allows verification of taxa listed and provides insights into the botanical practice in the mid-18th century (Ehrlacher et al. 2023).

The ongoing study aims to further contextualize and enrich the specimens of the *Herbarium Barbiense* with metadata, break up the anonymity of collectors and participants and to investigate the contribution of Moravian Church botanists to the 18th century scientific network and the development of modern natural sciences. Further anonymous herbarium collections and sources with a Moravian Church context will be analysed and integrated into the network analysis. The processing of data that is also relevant for other research areas (e.g., humanities, digital humanities, linguistics, history of garden monuments, cartography, data science, horticulture) will enable their interdisciplinary use and linkage.

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