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Cranach on Paper
An exploration of the graphic oeuvre

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'The graphic work of Lucas Cranach the Elder, his sons and the works' is currently being studied as part of an interdisciplinary research project (2023-2026), that focuses on about 400 drawings and over 700 woodcuts and engravings associated with Cranach and his workshop. It builds on the results of an earlier research project (2018-2022), which catalogued the Luther portraits of the early Reformation period.

In addition to the coloured and drawing media, the paper is also being examined and identified. The aim of the project is to date and classify the works, which include around 3,000 prints from c. 1500 to c. 1586. Transmitted light is used to analyse the paper structure and the watermarks, which are then measured and described according to accepted standards and recorded using high-resolution photographs.

Furthermore, the chain line intervals and the density of the wire lines are measured. When possible, the watermarks will be digitally processed to facilitate their interpretation. Our research team not only expects new insights into the workshop practice and the paper used, but also significant advances with regard to the dating and attribution of these graphic works.

It is already evident that about a third of the examined Cranach sheets exhibit watermarks. For the first time on this scale, they are being systematically documented, catalogued and analysed. The accumulated data is supplemented by c. 200 tracings and beta-radiographs of watermarks (primarily from German and Anglo-Saxon collections) compiled by the Cranach scholar Armin Kunz.

The project, which is funded by the Deutschen Forschungsgemeinschaft and the Ernst von Siemens Kunststiftung, is being carried out by the Cologne Institute of Conservation Sciences (Cologne University of Applied Sciences) in collaboration with the Kupferstichkabinett, Staatliche Museen zu Berlin, Deutschen Dokumentationszentrum für Kunstgeschichte - Bildarchiv Foto Marburg (Philipps-Universität Marburg), the Kupferstich-Kabinett, Staatliche Kunstsammlungen Dresden and the Museum Kunstpalast Düsseldorf. Around 25 other important collections in Germany and Europe are involved in this research network.

The results will be integrated into the Cranach Digital Archive (cda_) www.lucascranach.org, a database that already contains around 2,570 paintings from 350 cooperating museums, church communities and private collections. It also offers access to over 25,000 high-resolution images, more than 2,000 infrared and X-ray images as well as numerous documents and bibliographic references on Cranach's oeuvre.

The aim of this project is to make the data on the recorded watermarks and paper structure searchable within the cda_, allowing users to retrieve specific information. To this end the structure and classification systems already established by the Watermark Information System will be used. Furthermore, we are preparing for the integration of the data into the Bernstein Portal.

This proposal explains the methods used for the visualisation of paper structure and watermarks, how these are made accessible in the Cranach Digital Archive and how they can be used to answer interdisciplinary research questions such as the date of origin of an artwork. The latter is illustrated using the case study of the only portrait of Martin Luther as Junker Jörg printed in the Cranach workshop.

In the future, the possibilities of developing models/neural networks with the help of AI will be explored and discussed. It is hoped that these will enable the automated detection of watermarks and paper structures, the extraction of the relevant information, their millimetre-precise measurement as well as their identification and contextualisation within the Cranach corpus and beyond.

Keywords: Lucas Cranach the Elder, Lucas Cranach the Younger, Hans Cranach, Workshop of Lucas Cranach the Elder, artist's papers, hand drawings, prints, woodcut, engraving, etching, photographic methods, recognition of paper structure and watermarks, imaging, image processing, classification in a database structure, research options