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Using X-ray Radiography in the Documentation of Watermarks on Paper

Abstract

Watermarks are useful tools for dating manuscripts (archives) as well as artwork on paper, for identifying forgeries, for studying the history of paper, paper mill and moulds and of watermarks themselves. Non-destructive methods of documentation are crucial in the identification and reproduction of watermarks. The chosen method should incur no changes to the paper object or the watermark. In view of this, the International Association of Paper Historians (IPH) has published a standard (Version 2.0, 1997) for the determination of watermarks. In a comprehensive study, the methods recommended by the IPH, e.g. Dyluxâ, beta-radiography, X-ray radiography and scanning through transmission, were applied to visualize watermarks.[1] The studies have shown that X-ray radiography, using low energy X-ray radiation (5–10 kV), is a valuable tool for the determination of watermarks: it's non-destructive, the devices can be transported into libraries and museums and – considering the safety instructions – can also be used in such collections.

In this paper, new developments in the instrumental devices used and applied to several case studies will be discussed:

- paper from a 17th century bible, where text was printed on both recto and verso
- Rembrandt etchings from the Gallery of Old Masters, Joanneum Graz (Alte Galerie, Landesmuseum Joanneum, Graz, Dr. K. Leitner-Ruhe)
- drawings and prints from the 19th century (Kupferstichkabinett, Academy of Fine Arts Vienna, Dr. C. Reiter).

1 Holle/Schreiner (2004); Schreiner/Holle (2004)

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