

A Study of Examination and Photo-Documentation of Iron-Gall Ink and Other Inks

SUMMARY

Old Master drawings are popularly identified by the brown color of their inks. All such drawings are commonly described today as “pen and brown inks” or “brush and brown wash,” although a number of different inks were used. This broad descriptive term does not indicate the richness of variety of tones of the inks.

The history of inks used to make pen-and-ink drawings is a topic that has been researched in the past but is not yet well documented. The identification of these inks is a complicated matter for conservators, curators, and collectors due to the similarities in their appearance. This research covers recent advances in paper conservation made from a technical study of Italian master drawings at the National Gallery of Canada in Ottawa. It focuses on observations obtained from the examination and documentation of several drawings in which the artists used iron-gall inks and other brown inks, such as bistre and sepia, as well as carbon black ink.

During this project both the MuSIS 2007, a multispectral imaging system, and ultraviolet fluorescence light were used to differentiate iron-gall ink from other inks on paper substrates. MuSIS 2007 is a tool manufactured by Art Innovation in the Netherlands, which has been built upon the innovative combination of two interchangeable optical sensors that allow the system to operate in a wide spectral range. It works in the area between ultraviolet and near infrared that extends from 320 nm to 1550 nm and can be used in seven separate bands. This camera can capture images in various bands of the light spectrum: ultraviolet radiation (320–400 nm), visible fluorescence and visible reflection (400–700 nm), false color infrared (700 nm), near infrared band 1 (700–950 nm), near infrared band 2 (950–1150 nm), and near infrared band 3 (1150–1550 nm).

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These features are immediately available in multiple images modes viewed on a computer screen and can then be recorded. Both the near infrared bands 1 and 2 imaging modes (700–1150 nm) have proved to be very useful during the examination and identification of various inks. Most of the findings are in near infrared band 2 due to the fact that in this area of the light spectrum the inks differ mostly from each other. Ultraviolet light digital photography is another tool that can be used to record the ultraviolet fluorescence and compare the results obtained to characterize these inks. The digital camera used with two gelatin filters (Kodak 2E and Kodak CC40R) captures the ultraviolet radiation produced and resembles closely what the naked eye sees. This is also a quick and easy way to carry out photo-documentation and the results can be viewed immediately.

The use of a combination of these new imaging techniques is promising to become a powerful tool in nondestructive analysis and documentation in the field of conservation. This study does not cover permanence issues related to these new technologies or the production of consistent color management and calibration of the images obtained.

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