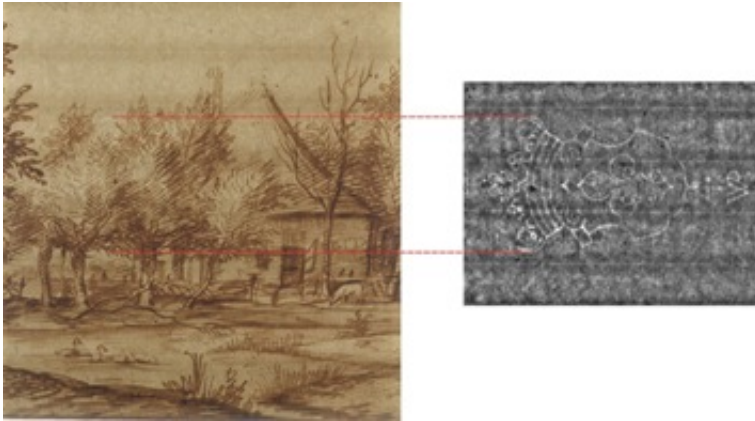


Original or fake?

July 3 2007



Screening paintings (left picture) with infrared light reveals the watermarks (right picture) of the paper mills. These enable works to be dated and examined for authenticity without risk of damage. © HAUM, Braunschweig Museumsfoto Claus Cordes

Even for art historians, it can be difficult to distinguish original works of art from fakes. Research scientists now screen the pictures with infrared radiation. This shows up the watermarks of the paper mills, which allows them to date the works without risk of damage.

Rembrandt experts have a hard time of it: Not only were many of the paintings, etchings and drawings attributed to the artist actually created by his pupils, but several of “his” pictures were also painted by imitators many decades after the master’s death.

It has always been a painstaking task to distinguish genuine Rembrandts

from the works of his pupils. Not so in the case of later forgeries: In collaboration with colleagues from the TU Braunschweig, research scientists at the Fraunhofer Institute for Wood Research, Wilhelm-Klauditz-Institut WKI, have developed a simple way of exposing them for what they are.

Their method takes advantage of the watermarks in the paper. The blueprints for these marks of quality were woven into the wires of the screen molds that were used to scoop paper fibers out of the pulp.

“Every paper mill had several different watermarks at any one time – often a different one on each screen mold,” says WKI project manager Peter Meinschmidt. “Over the years, the screen molds were replaced by skilled vatmen. We know a lot about which watermarks were used by which paper mill at which period of time.” Paper can be dated even more accurately by studying tiny changes in the watermarks that were caused as the screen molds progressively wore out.

Art historians usually hold the drawings against the light to see the watermark. However, the marks are often obscured by ink, handwriting and paints on the front and back of the painting to the point where they are indecipherable. The former solution was to trace them, which may leave pressure marks on the picture. X-rays also reveal the watermark, but the x-ray technique is not usually possible in museums for technical reasons and for the sake of radiation protection. On the other hand, it is risky to remove the works of art from their air-conditioned environments and take them to a laboratory.

“Most inks are transparent in infrared light,” says Meinschmidt, explaining the crucial feature of the new method, “so we put a warm plate with a temperature of 35 to 40 degrees behind the picture and use an infrared camera to register how much heat the picture allows to pass through. This shows up the differences in paper density, and thus also

the watermark.” This exposure to heat is perfectly safe for the picture: As it is placed at a distance of one centimeter from the hot plate for the duration of only one second, it absorbs less heat than if it were touched briefly by someone’s fingers. The Bavarian state library in Munich is considering using this method to file the watermarks with the respective pictures in its digital archive.

Source: Fraunhofer-Gesellschaft

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