

Vincent's Wool: Dyestuff and mordant analysis of wool used by Vincent van Gogh for the development of his colour theory

Maarten van Bommel¹, Ella Hendriks and Sjaara van Heugten².

1- Netherlands Institute for Cultural heritage, Research department, P.O. Box 76709, 1070 KA, Amsterdam, the Netherlands.

M.van.Bommel@cultureelerfgoed.nl

2- Van Gogh Museum, P.O. Box 75366, 1070 AJ, Amsterdam, the Netherlands, Hendriks@vangoghmuseum.nl and Heugten@vangoghmuseum.nl

Abstract

During the development of his colour theory, Vincent van Gogh used woollen yarns to compile different combinations of colour, as we know by a published testimony by Emile Bernard. The yarns are twisted into balls and consist of two or three different colours. In some balls, just one colour was used. The wool balls show contrasting colours, sometimes complementary contrasts, sometimes simultaneous contrast. Although the balls were probably made in his atelier, it is possible that he brought the wool with him when he worked outside his atelier. Interestingly, on some of his paintings he used the same colour combination in his brush strokes.

The wool was stored in a wooden lacquer box, which he probably left at his brother's place in Paris when he moved to the south of France. This box stayed in the family and is now kept at the Van Gogh Museum. As it was protected from light, most of the colours are still bright although some discolouration has occurred.

For Vincent it was probably not relevant which dyestuffs were used to dye this yarns, also for the development of the colour theory the identification of the dyestuff is not important. However, this set of yarns is very relevant for dyestuff identification. Many different colours were used, varying from yellow, orange, red, blue, purple to green. The set is assembled in an interesting period and dates from around 1887. In this period, mainly synthetic dyes were used although the presence of natural dyes can not be excluded. So dyestuff analysis could reveal important information about dyestuffs used in that period. In addition, the colours are well preserved. So these colours can be compared to other objects in which these dyestuff were found, but are now often discoloured.

In the presentation, the results of dyestuff and mordant analysis will be discussed. Prior dyestuff analysis, mordant analysis is done with SEM-EDX. Dyestuff analysis is performed by HPLC-PDA. Each sample is analysed twice. First with a gradient of water, methanol and phosphoric acid was used, suitable for natural and basic dyestuffs. Next a gradient with water, methanol and tetra butyl ammonium hydroxide (TBA) was used, which shows better results when acid dyes are analysed. The results will be compared with the results of dyestuff analysis from objects previously analysed.

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