A STUDY OF THE MATERIALS AND TECHNIQUES OF MAURICE GALBRAITH CULLEN

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INTRODUCTION

Maurice Galbraith Cullen (1886-1934) seen in Figure 1, is an important 20th century Canadian painter who adopted and modified the Impressionism technique to suit the Canadian landscape. This research collected information regarding the techniques and materials employed by Cullen in order to enrich the understanding of the history of art, provide comparative data for attributing artworks and aid the development of appropriate conservation treatments.

EXPERIMENTAL

The Agnes Etherington Art Center in Kingston provided four paintings by Cullen, shown in Figure 2, 3 and 4, which were examined using normal illumination, microscopy, ultraviolet and infrared radiation as seen in Figure 5. Two paintings, Study and Sketch for “Spring Break-up at Beaupré” were subject to scientific analysis to identify the materials present in the paintings and to compare the results with information found in the literature. Samples of fibers, wood, ground, paint and varnish were extracted from the paintings and were analysed using X-ray Diffraction (XRD), Fourier Transform Infrared Spectroscopy (FTIR), transmitted and reflected light microscopy and Scanning Electron Microscopy/Energy Dispersive X-ray (SEM/EDX). The results from the examination and the instrumental analysis were compared with the information found in the literature concerning the use of materials and techniques by Cullen.

RESULTS

Study

28-189

Finely woven canvas with linen fibers. The canvas was commercially prepared and corresponded to the information found in the literature. Robert W. Pilot mentioned that Cullen purchased commercially prepared canvases prior to 1900.

Sketch for “Spring Break-up at Beaupré”

38-040

Thin wood panel likely made of yellow-poplar, Liriodendron tulipifera. Certain characteristics of the wood samples corresponded to the identification features of yellow-poplar like the dimension and distribution of the pores as seen in Figure 6. Oil was found to be present on the surface of the wood panel on the verso which indicate that the panel might have been immersed in oil during its fabrication as declared in the literature by Hugues De Jouvanccour.

PAINT

The thin and even ground layer appears to have been commercially applied onto woven material. Lead white, iron oxide and locally applied likely by the artist. Lead white, iron oxide pigments and oil were identified in the ground layer. According to Hugues De Jouvanccour, Cullen employed a mixture of lead white, linseed oil and a little bit of burnt umber to prepare the surface of his wood panels.

GROUND LAYER

The paint likely made of linseed oil is thinly applied onto the canvas. Oil was identified in the paint samples; although it was impossible to determine if it was linseed oil. Only a few pigments were identified such as lead white, cobalt blue, red lead, chrome yellow and lazurite.

VARNISH

No protective layer.

Figure 6: A cross-sectional view of the wood panel showing the small and radial pores.

CONCLUSION

The study of materials and techniques of Maurice Galbraith Cullen permitted a comparison of the results from the instrumental analysis with reference to the literature. The information found in the literature appears to be accurate and explicit. The knowledge gained from this research permitted a more thorough understanding of the techniques and materials used by Cullen.

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Figure 8: Comparison of a spectrum of discoloured varnish from the painting Sketch for “Spring Break-up at Beaupré” and a reference spectrum of beeswax from the Gettins FTIR Library.

Figure 7: Microscopic image of the paint cross-section extracted from an impasto area analysed under 40x magnification.