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# The Canadian Artists Painting Materials Research Project

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One of the principal activities of the Analytical Research Services Division at the Canadian Conservation Institute is to examine paintings of uncertain attribution. In order to do this, conservation scientists rely upon several examination techniques and on analyses of the materials that make up a painting. Conclusions are based on knowledge of materials and techniques and of their use over the centuries. For example, the date that several pigments were introduced as artists' materials is well known from reports made to scientific societies during the 18th and 19th centuries or, in our own era, from the patent literature. Similarly, the use of certain wood species is typical of particular geographic areas. Consequently, identifying the wood of a panel painting sometimes helps in supporting the attribution of the painting.

Conclusions are also based on data available in specialized literature about the palette of a given artist, if his or her paintings have been studied by scientific techniques. The paintings of numerous artists have been studied in museum laboratories around the world. These include Rembrandt, Rubens, and Picasso, to name just a few. When a painting attributed to a European artist is submitted for scientific examination, it is often possible to find published data that can be used as a reference. However, when the painting is attributed to a Canadian painter, it becomes clear that our knowledge is limited.

To address this situation, the staff of the Analytical Research Services Division have undertaken a major project, the Canadian Artists' Painting Materials Research Project, to study the materials and techniques of Canadian artists. The data collected may be used, among other



Figure 1. Marie-Claude Corbeil examines a painting by Pellán to determine sampling locations.



Figure 2. Elizabeth Moffatt and David Miller take samples from a painting by Pellán before it is treated at the Centre de conservation du Québec.

things, for comparison purposes when a painting of questionable attribution is examined, and to explain or predict the deterioration of a work of art for conservation and treatment purposes.

The project focuses on 20th-century Canadian painters. A study of the paintings of Paul-Émile Borduas's (1905-1960) Parisian period is near completion. Two studies, on David Milne's (1882-1953) and Alfred Pellán's (1906- 1980) work, are underway. A study will be done on the work of Tom Thomson (1877-1917).

The approach, in general, consists of taking a large number of samples from as many paintings by the artist as possible. However, it is important that the paintings from which samples are taken be well documented and that the attribution of these paintings be reliable. Both the Milne and Pellán studies were initiated in conjunction with retrospective exhibitions, at the request of the curators and conservators in charge of the exhibitions. This is an ideal situation because it provides access to a large number of paintings at one time and because these paintings are carefully researched before being included in the exhibition.

Most of the samples are of paint, but canvas, ground, and varnish samples, as well as cross-sections, are also examined. To the greatest extent possible, samples are taken of all colours present, and are taken from areas that are not easily visible, such as the tacking margins or the edges of the painting that are usually hidden by the frame's rabbet. If samples, even minuscule ones, must be taken from a visible portion of the image, scientists are careful not to disfigure the work; in fact, samples can often be obtained from damaged areas.

The project is primarily concerned with the materials used by a given artist, such as pigments, paint media, and varnishes. In addition, depending on the artist being studied, particular aspects of the work may be focused upon. For example, in the case of Pellán, who often painted with pure, unmixed colours, the focus is on the great variety of pigments he used. In the case of Milne, special attention is being paid to mixtures and to the superimposition of paint layers. The Borduas study was initiated because of conservation problems encountered with some of his paintings, and this influenced the approach selected for that study.

Technical details are also examined, such as the preparation of canvases, the types of supports used, and the signatures. It is particularly interesting to know whether these artists preferred a particular type of support, if they prepared their own canvases or used commercially prepared canvases, and whether or not they mixed their colours.

The data obtained from the analyses and from other information will be entered into a database, which will serve several purposes: to plan treatments, to respond to possible questions about attribution, to predict a painting's behaviour, and so on. These results have already made it possible to explain the unusual behavior of certain paintings, behavior that has given rise to specific

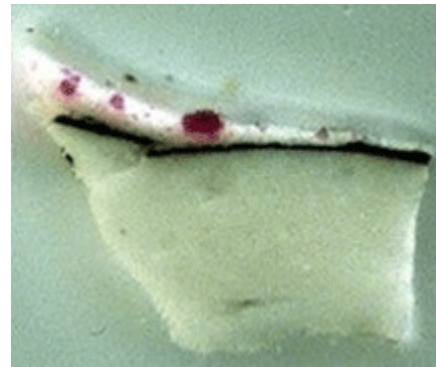


Figure 3. A sample of purple paint taken from a painting by Pellán entitled *Citrons ultraviolets* has been prepared as a cross-section to reveal all paint layers present. A thin black layer and a thin purple layer are observed over a white ground. The black paint has been used to draw a fine network of lines on the painting; purple paint was applied afterwards.

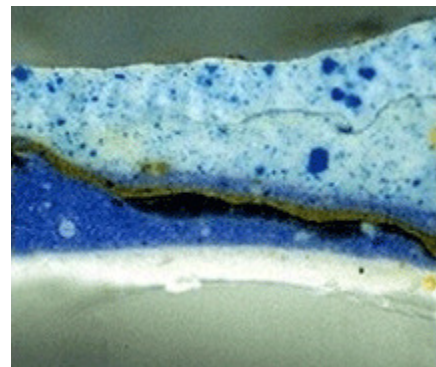


Figure 4. The structure of a cross-section of a sample from the painting *The Blossom Pickers*, by David Milne, is very complex. Green and blue layers are superimposed over a white ground.

recommendations for the conservator in charge of treatment with regard to display and storage of the works.

It is important to recognize that the Canadian Artists' Painting Materials Research Project cannot progress without the essential contribution of curators, conservators, and art historians. It is the special understanding that these professionals have of the work of an artist that guides these studies. The results of this research, on the other hand, will enrich their experience. Therefore, this is a good example of sharing of knowledge.

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