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(1861,1864 and 1868). New binders for painting on wall,
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Re-enactment of Borromée's painting treatise (1861, 1864 and 1868).

New binders for painting on wall, canvas and plaster for the use of French artists.

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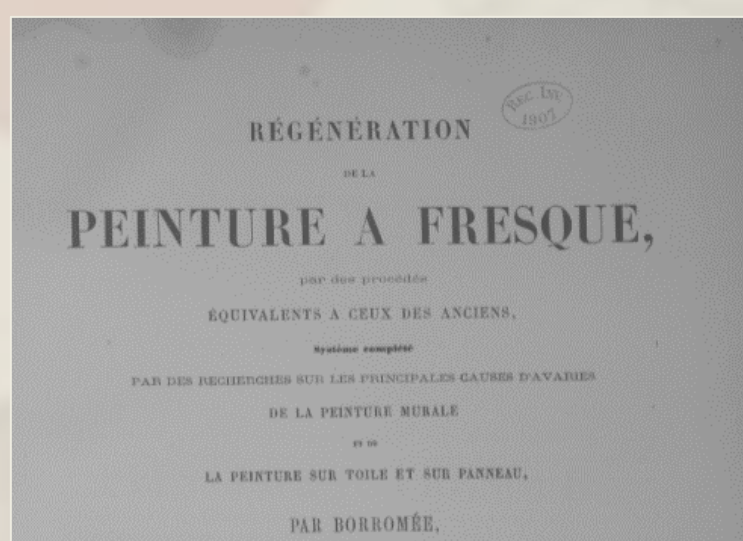
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Offer of new binders

In 1863, Charles Borromée, artist and employee of the Fine-Arts Ministry, patented paint binders. He filed two patents entitled "Artistic paint process" (1863, January 12; 56974) and "Various conservative coatings and bases for industrial painting" (1863, April 17, 60523). These new products were exclusively for sale in Edouard Pradel's shop (Rue Faubourg-Saint-Germain et Rue des Princesses, Paris).

At the same time, Borromée's treatise *Regeneration of fresco painting technique thanks to an equivalent process inspired by the Ancients*, printed in 1861, 1864 and 1868, explained the reasons for his project. Simultaneously, he gave the recipes for three binders: one to paint on walls (oil), one for wood and canvas (oil) and one for plaster (glue and soap). The recipes were also reproduced in press specialized in architecture.



Problems which arose from the study

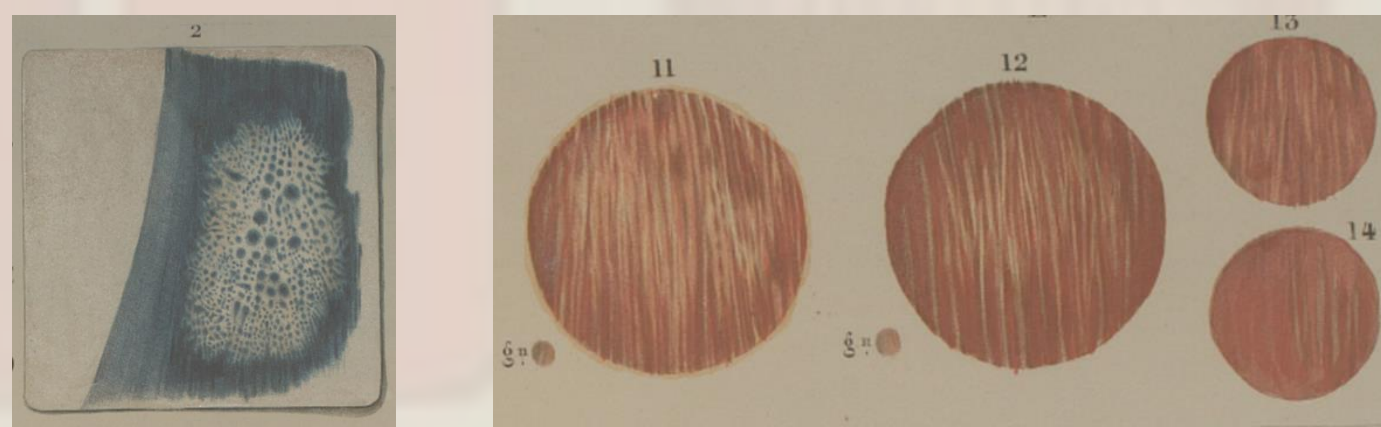
Re-enactment to understand Borromée's treatise: is the process as easy as it was claimed to be?

What are the optical features of the reconstituted colours?

Result of an innovative and modern process

If the aim was to offer products as durable as the ones used by artists in the past, Borromée intended to design a modern product. According to him,

"Intending to apply the old processes, even partially, would come down to renouncing the progress gained by modern painting".



Drawings of damaged paint layers, observed under microscope

Standing out from the tradition of Montabert and Mérimée who sought ancient artists' recipes, Borromée was representative of numerous forgotten French artists and engineers from the second half of the 19th century. They tried to design easy and durable paint materials, based on tempera medium. At the same time, for example, Leclerc elaborated an odourless binder based on soap; Cunningham, a soap and oil binder and Hussenot, a paint process with pre-prepared colour plates.

A new process for artists

Borromée's publication was for promotional purposes. His idea was to offer new, easy-to-use materials that would not change artists' habits. He spent thirty years elaborating his new binders, making them resistant to humidity variations and bad conservation conditions.

Nowadays, it is difficult to measure how the treatise and the products were received in the artistic community at the end of the 19th century. According to Borromée and the newspaper *Journal du Salon* (1863), the painter, Gaston Casimir Saint-Pierre, used Borromée's binders for two paintings: *The Release of saint Pierre* (fresco on canvas, n°1663) and *Borromée's portrait* (varnished painting on canvas, n°1716). At the same time, the binder for painting on plaster was used in the decoration of Pierrefonds Castle, the Opera Garnier and the Basilica of

Saint Denis, according to the *Gazette des Architectes*.

Re-enactment of one recipe.

Binder for paint on plaster

River soft water	1000 gr
Flander Glue	50 gr
Marseille Soap	50 gr
Alum	40 gr

For this, Borromée reused a recipe, traditionally used as glue for wall paper. The same mixture, called "base liquide", is mixed with the plaster and the pigments. The experimental conditions should be around 20°C. The result would offer visual properties of a tempera and a better resistance.

The four ingredients mentioned were common in the 19th century. River water is rich in carbonic gas. If it is often recommended for fresco, no affinity with plaster is known. Marseille Soap is a binder, an active surfactant, a siccative, a thickener and a fungicide. The glue from Flanders was commonly rabbit skin glue in the 19th century. With plaster, it will slow down the drying process and reduce its porosity. The alum was potassium alum.



Conclusion

Its re-enactment puts a spotlight on one of the many unknown French tempera recipes from the second half of the 19th century. In the future, it should change people's approach to the nature of French wall paintings. In that case, our tests will probably be used as a support for the identification of Pierrefonds' painting samples.