

A Spectroscopic Study of Three Canadian 'Aniline Ink' Stamps

Comparing Bleed-Through Causes: The Canadian 1911 2¢ Red Admiral, the 1938 \$1 dull violet Definitive and the Blue NFLD 1911 Royal Family 8¢ Prince George Issue

What is an 'Aniline Ink'?

'Aniline Ink' is a term used by philatelists to indicate stamps that show pronounced fluorescence usually in the presence of significant bleed-through of the ink to the gum side. This is generally not an intended feature and thus could be considered a defective printing. This exhibit will examine, through spectroscopic analysis, two possible causes from three prominent stamp issues: (1) The ink chemistry of the two forms is identical but the organic dye in the bleeding stamp has been improperly prepared. (2) The ink chemistry has intentionally changed and the new production run is defective.

What to look for in the graphs and plots that follow.

The four spectroscopies used in this study are non-destructive. Although all are capable of both qualitative and quantitative analysis of the inks, the main focus of this study is the singling of a *change* in ink chemistry by a noticeable change in the spectrum. Especially significant in this exhibit is the application of wavelength resolved laser induced fluorescence (LIF). It specifically targets the organic dyes in the ink and acts as a fingerprint for the organic dye or dyes in use.

The Flow of the Exhibit

- Page 1: Introduction, the issues studied and examples of the four spectroscopies.
- Page 2: The ink chemistry of the Chateau Ramezay issue as intended by the printer though a colour trial die proof, a colour issue die proof and a plate proof.
- Page 3: A correlation of the fluorescence intensity with degree of bleed-through in the Chateau Ramezay.
- Page 4: Fixing the date of the Chateau bleed-through.
- Page 5: The 2c Admiral red issue bleed-through, pre WW1
- Page 6: The 2c Admiral bleed-through during WW1
- Page 7: The Newfoundland Royal Family, Prince George issue of 1911: A side by side comparison of the spectra of four different printings.
- Page 8: A summary of the conclusions from this study.

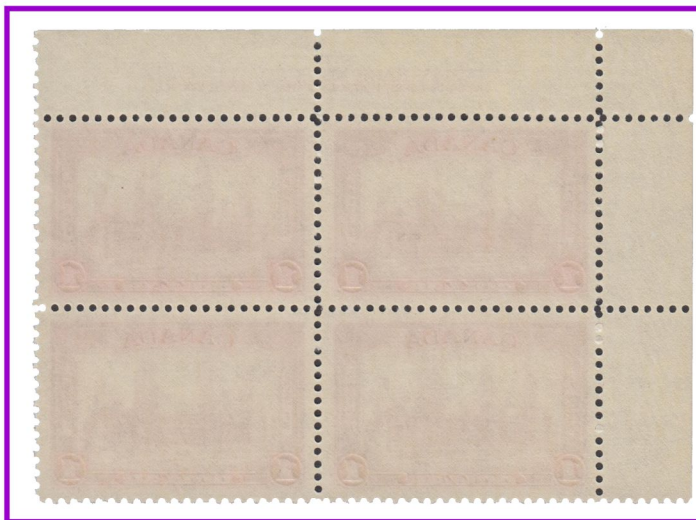
All spectroscopy shown in this exhibit is original research by the exhibitor. There is only one truly rare item in the exhibit and is surrounded by a double red box.



The Three Stamps Issues Studied



The 1938 Chateau Ramezay Issue of Canada



The 1912 Admiral 2¢ Red Issue of Canada



The 1911 Royal Family Issue of Newfoundland: Prince George



The Four Spectroscopies Used In this Study

