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Article: Forensic Proof that the 2c and 10c Charleston Provisional "essays" are Fakes

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- **PREVIOUSLY UNKNOWN PROVISIONAL DISCOVERED SALEM, MISS., ITEM COMES TO LIGHT!**
- **FORENSIC PROOF THAT THE 2¢ AND 10¢ CHARLESTON PROVISIONAL "ESSAYS" ARE FAKES**

Commencement of Confederate Postal System

FORENSIC PROOF THAT THE 2¢ AND 10¢ CHARLESTON PROVISIONAL “ESSAYS” ARE FAKES

PLUS FORENSIC COMPARISON OF GENUINE AND FAKE 5¢ CHARLESTON PROVISIONALS

Harry G. Brittain, PhD; Steven A. Feller, PhD; and Patricia A. Kaufmann

Introduction

Recent articles on the Charleston provisionals,^{1,2} spurious and genuine, have led to this new study using Fourier Transform Infrared Spectroscopy (FTIR) and X-ray diffraction (XRD). This has produced definitive results about the origins of these philatelic items.

FTIR spectroscopy consists of using pulses of infrared light of multiple frequencies to detect specific IR frequencies that actively cause vibrations of molecules or groups of atoms within molecules. This part of the electromagnetic spectrum is vibrant with such activity and can be used to trace the molecular makeup of the items under study. These spectra are then used as fingerprints of the kinds of paper and inks present in the medium under study, such as stamps and envelopes. It is able to very clearly select out differences in the spectra needed to make conclusive statements about the historical origins of stamps and entires. XRD uses another part of the electromagnetic spectrum, with much shorter wavelengths, to complement the results from FTIR. Neither technique injures the stamps.

In this study we have examined genuine individual stamps and entires of the well-known 5¢ Charleston provisionals, as well as bogus 5¢ entires and the enigmatic 2¢ and 10¢ provisionals, long described as essays.

Background

In a number of previous papers published in this journal, the ink and paper compositions have been profiled of the lithographed, letterpress or “typographed” (obsolete) and engraved stamps issued by the Confederacy. In the present work, the scope of these studies has been expanded to the study of the genuine and fake Charleston provisional stamps. Here, the forensic studies are largely focused on the use of Fourier-transform infrared spectroscopic³ analysis to identify pigments and other ancillary compounds in the various printing inks, while XRD⁴ is used to study the printing paper to identify pigment responsible for the reddish color of the 2¢ issue.

Detailed explanations regarding the utility of these techniques in philatelic forensics are available in the literature.^{5,6} Here, it will suffice to note that since FTIR spectroscopy originates from the absorption of infrared energy by patterns of molecular vibration that are intimately associated with the bonded atoms in molecules, it follows that each and every compound will exhibit an FTIR spectrum that is an absolute fingerprint for that molecule. Similarly, since XRD originates from planes of molecules in a crystal, and since very few compounds have identical crystal structures, it also follows that an XRD pattern is also an absolute fingerprint for that molecule.

As long as the forensic philatelist has access to a library of reference data for comparison purposes, use of these methods enables one to deduce unequivocal identifications of the chemical components in either the printing ink or printing paper of an analyzed stamp. Note that the FTIR technique is qualitative and sensitive. It is not inherently quantitative unless a laborious calibration is

A BRIEF HISTORY OF THE CHARLESTON 5¢ POSTMASTER PROVISIONAL ADHESIVE STAMPS

The Charleston 5¢ postmaster provisional adhesive stamps (CSA CHA-SC-A01, Scott 16X1) were announced for sale in the *Charleston Mercury* newspaper in its edition of Sept. 6, 1861. An unused example is shown in Figure A. Nevertheless, the earliest-recorded use is two days before, indicating the paper was a few days late with that news.¹

Charleston 5¢ Postmaster Provisional Postal Stationery

The Charleston press-printed provisional entire envelopes (CSA CHA-SC-E01, Scott 16XU1-16XU5) were offered earlier. A used example is shown in Figure B. The first mention of these envelopes was in the *Charleston Mercury* on Aug. 15, 1861. The earliest-recorded use is Aug. 16, 1861. The design is very similar to that of the adhesive. Charleston Postmaster Alfred Huger contracted with the Evans & Cogswell Co. to prepare both the envelopes and, due to the great similarity of design, it is believed the company printed the adhesives as well. They were printed on various colored envelopes.

Huger offered local stamps later than many other southern cities and towns, apparently believing the official government issues would be available sooner than they were. It was not until Dec. 9, 1861, that Huger announced the availability of the Confederate general issue stamps. He announced that after Dec. 13, all letter postage was to be paid by stamps. Charleston provisionals already purchased would be recognized but no more would be sold.²

Uses of the Charleston, S.C., provisionals are recorded into February 1862. A number of the provisionals are also recorded used on covers in June 1862. There is more than one theory as to why this occurred. Some attribute the late use of provisionals to a shortage of Confederate postage stamps and the reintroduction of the provisionals as substitutes. However, there is another potential reason. With the universal rate increase to 10¢ becoming effective on July 1, people who still had provisional stamps may have decided to use them in the mistaken belief that the rate change would make them worthless. All unsold stamps were either destroyed when the rate changed on July 1, 1862, or when the post office relocated on Aug. 26, 1863.³

For an in-depth dive into the Charleston provisional issues, refer to the exhaustive work of preeminent Charleston collector Rick Calhoun. His 2012 self-published book on the Charleston provisionals provides a comprehensive background on these stamps, an illustrated chart of Charleston postmark types, an interesting biography of Postmaster Huger, a thorough description of the printing process and printer Evans & Cogswell Co., the most comprehensive census of both Charleston postmaster provisionals envelopes and adhesives on cover, a detailed plating of the 5¢ Charleston adhesive and a review of known fakes and fantasies.

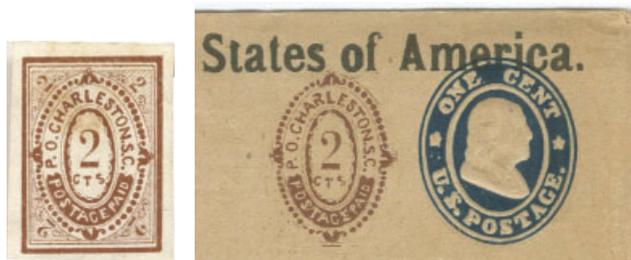


Figure A. Genuine unused 5¢ Charleston postmaster provisional adhesive (CSA CHA-SC-A01).

Continued on page 11

performed. However, in this case quantification of each compound is not needed.

The approach taken in this paper differs from that previously used in that the characteristics of stamps to be used as references are the known fake entires, rather than the profiles of genuine stamps. So, rather than determining whether a given stamp is genuine or not through comparison of its properties with those of an authentic stamp, the



Figures 1a and 1b. The 2¢ "essay" stamp and the 2¢ entire studied in this work. The envelope entire has been photographically cropped to better view the stamp.

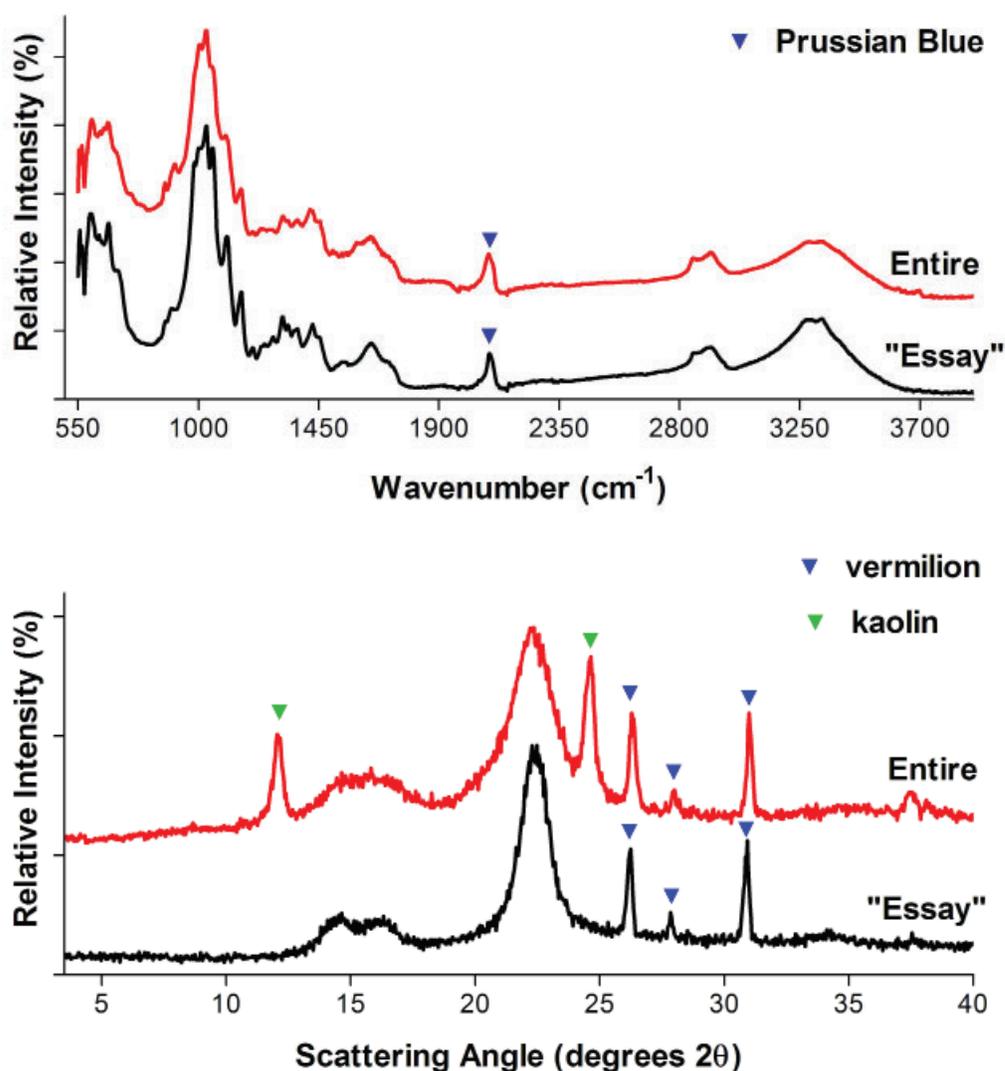


Figure 2. Forensic results obtained on the 2¢ "essay" stamp and the 2¢ entire. The upper panel contains the FTIR spectra of the two stamps, with the diagnostic peak for Prussian blue pigment being marked by the blue wedge symbol. The lower panel contains the XRD patterns of the stamps; the diagnostic peaks for dehydrated kaolin and vermillion have been marked by the respective green and blue wedge symbols.



Figure B. Genuine used 5¢ Charleston postmaster provisional entire (CSA CHA-SC-E01).

Charleston 2¢ and 10¢ Unadopted Essays

After the war, 2¢ and 10¢ Charleston “essays” were reported with acclamation. Shown in Figure C, they appeared to be close cousins of the issued 5¢ values.

In 2015, Peter Powell and John Kimbrough published *Confederate States of America: Philatelic Fakes, Forgeries, and Fantasies of the 19th and 20th Centuries*. In this indispensable work, these problematic stamps were briefly discussed under the heading “Charleston Unadopted Essays – or Not?” Two different sets were illustrated in the book. They are quite scarce and have passed through some of the finest philatelic collections. They have been described at auction as being printed on the same paper as the issued 5¢ Charleston provisional adhesives, which has now been forensically proven to be incorrect (please see accompanying article). While it may appear to be the same paper, it is not.

One set sold as unadopted essays in a U.S. auction in 1997, accompanied by a 1988 Philatelic Foundation certificate ambiguously declaring them “Genuine Dietz Essays.” They are listed as essays in the 1986 *New Dietz Catalog* with designations E11 and E12 and values of \$400 each, but they do not appear in the 2012 *CSA Catalog*, as the editors at that time remained unconvinced of their proper status.^{4,5}

A canceled set of the 2¢ and 10¢ stamps was sold in 2013 in a German auction. It was attributed to well-known 19th-century forger and



Figure C. Purported 2¢ and 10¢ Charleston unadopted essays that are now proven to be high-quality bogus productions.

status of an analyzed stamp will be determined on the basis of its equivalence, or non-equivalence, to one of the known fake stamps.

(A) Analysis of 2¢ Provisional Essays

The subjects studied in this part of the investigation were the 2¢ “essay” discussed by Steve Feller in his article (*CWP Q1, 2023*),⁷ and a corresponding 2¢ stamp appearing on an entire known to be fraudulent. Both subjects studied in the present work are illustrated in Figures 1a and 1b. The envelope entire has been electronically cropped so as to better view the stamp.

Both FTIR and XRD studies were required to establish the identity of the “essay,” and these data are shown in the panels pictured in Figure 2.

The XRD pattern of the 2¢ “essay” demonstrated the presence of vermilion pigment, which would account for its reddish color. The paper of this stamp consisted entirely of cellulose that did not contain kaolin as filler. The XRD pattern of the entire stamp also demonstrated that the stamp was printed using vermilion as the reddish pigment. The XRD pattern of the entire also contained peaks associated with dehydrated kaolin; XRD studies on blank sections of the envelope showed that this compound was part of the envelope paper and therefore not part of stamp ink used for the entire. It is to be noted that the dehydrated version of kaolin represents the result of paper manufacture that dehydrates kaolin during the drying process.

The FTIR spectra of both the “essay” and stamps on entires contained a highly surprising result, namely that the printing ink also contained a significant amount of Prussian blue pigment. Presumably, this compound would effect a darkening of the red color of the image.

While the use of vermilion was known in various stamps of the Civil War era, its combination with Prussian blue is out of the ordinary. The close identity of the FTIR spectra of these two 2¢ stamps is strong evidence that the printing inks used in their production is the same.

As a result of the forensic studies, it is concluded that the 2¢ “essay” stamp and the 2¢ stamp on the press-printed entire cover were printed using the same ink composition. Further, since it is known that the stamp on the entire is not a genuine issue, it follows that the 2¢ “essay” stamp is fraudulent as well.

(B) Analysis of 10¢ Provisional Essays

The subjects studied in this part of the investigation were the 10¢ “essay” discussed by Feller in his article, and the corresponding 10¢ stamp appearing on six entires that are known to be fraudulent. The 10¢ “essay” stamp is illustrated in Figure 3a, along with one representative example of the stamp on one of the entires, shown cropped in Figure 3b. XRD analysis demonstrated that the “essay” stamps were printed on paper consisting only of cellulose, and that the stamps on these entires were printed on envelopes manufactured using cellulose containing dehydrated kaolin. No evidence for any crystalline pigments could be gleaned from the XRD studies. However, the FTIR studies proved to contain the conclusive results concerning the nature of the 10¢ “essay” stamp. It was found that the FTIR spectra of the stamps on the six entires were all exactly the same, allowing the calculation of a



Figures 3a and 3b. The 10¢ “essay” stamp and one of the 10¢ entires studied in this work. The envelope entire has been photographically cropped to better view the stamp.

former Union Army officer James A. Petrie, who served as an assistant surgeon in the U.S. Navy during the war.⁶ Many of Petrie's fakes were sold in Europe rather than the United States.

The purported 2¢ and 10¢ Charleston essays have been greatly discussed in philatelic literature since their first appearance. Philatelic forensics conclusively settled the matter. They are not unadopted essays. We may never know their true origin.

Acknowledgement: Robert A. Siegel Auction Galleries, Inc. for sidebar illustrations and John L. Kimbrough for peer review.

Endnotes

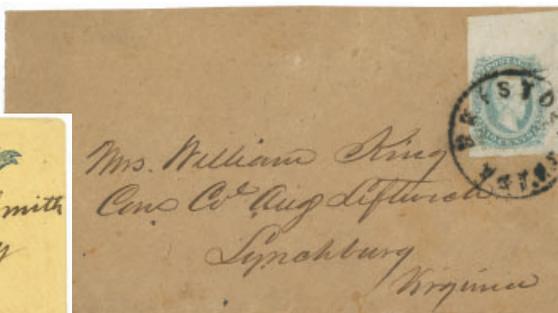
1. Patricia A. Kaufmann, Francis J. Crown, Jr., and Jerry S. Palazolo, *Confederate States of America: Catalog and Handbook of Stamps and Postal History*, Confederate Stamp Alliance (2012), page 258.
2. Richard L. Calhoun, *Charleston, South Carolina and the Confederate Postmaster Provisionals*, (Henrico, Va., Alpha Graphics), pp. 57-121.
3. Census of Charleston, S.C., Adhesive Provisionals, compiler Francis J. Crown, Jr., <https://www.civilwarphilatelicsociety.org/wp-content/uploads/2023/09/Res-Cen-CHA-SC-A01-v13230917.pdf> (Accessed May 3, 2025)
4. Hubert C. Skinner, Erin R. Gunter and Warren H. Sanders, *New Dietz Confederate States Catalog and Handbook* (Miami, Fla., Bogg & Laurence Publishing Co., Inc.), page 153.
5. Kaufmann, Crown, and Palazolo.
6. Peter W.W. Powell and John L. Kimbrough MD, *Confederate States of America: Philatelic Fakes, Forgeries, and Fantasies of the 19th and 20th Centuries* (self-published), page 137.



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characteristic FTIR spectrum of the 10¢ entire by digitally averaging the spectra of the stamps on all six covers. The averaged 10¢ entire FTIR spectrum and the FTIR spectrum of the 10¢ “essay” stamp are shown in Figure 4.

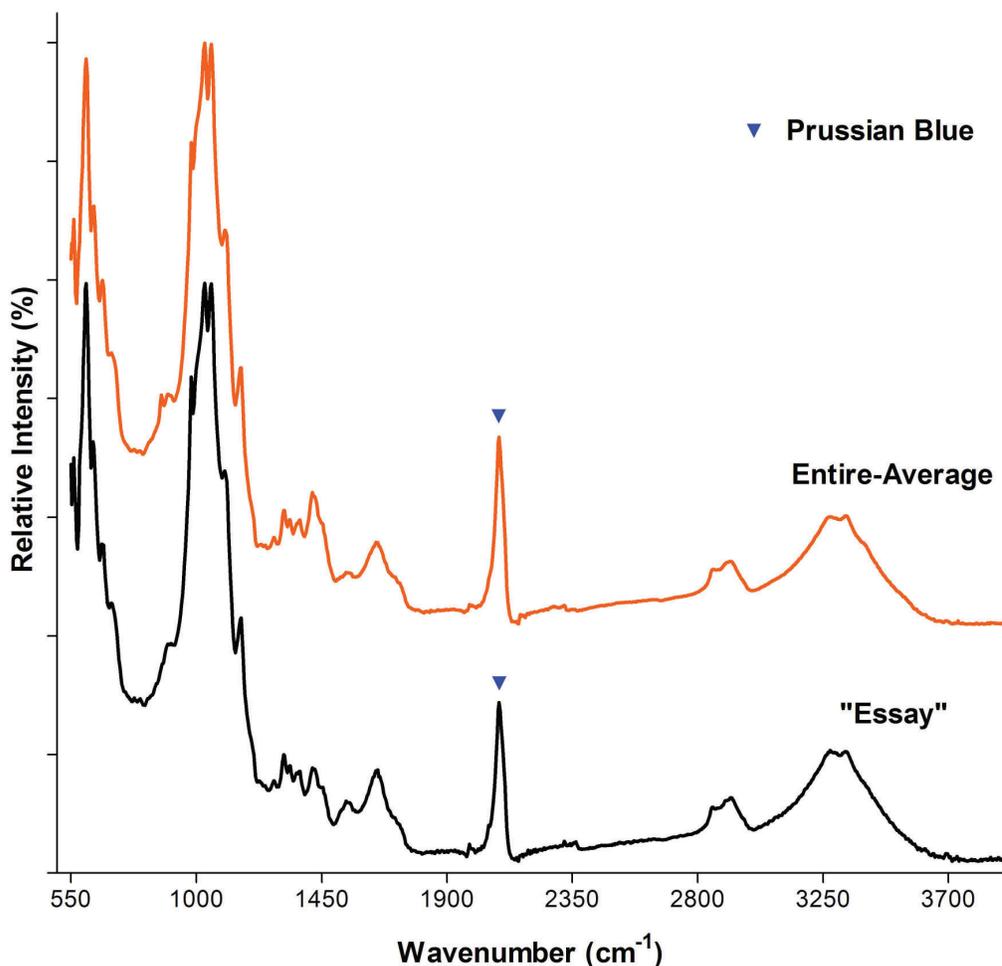


Figure 4. FTIR spectra obtained for the 10¢ “essay” stamp and the 10¢ entires. The displayed FTIR spectrum of the entires was obtained by digitally averaging the spectra of the stamps on six different covers. In the figure, the diagnostic peak for Prussian blue pigment is marked with a blue wedge symbol.

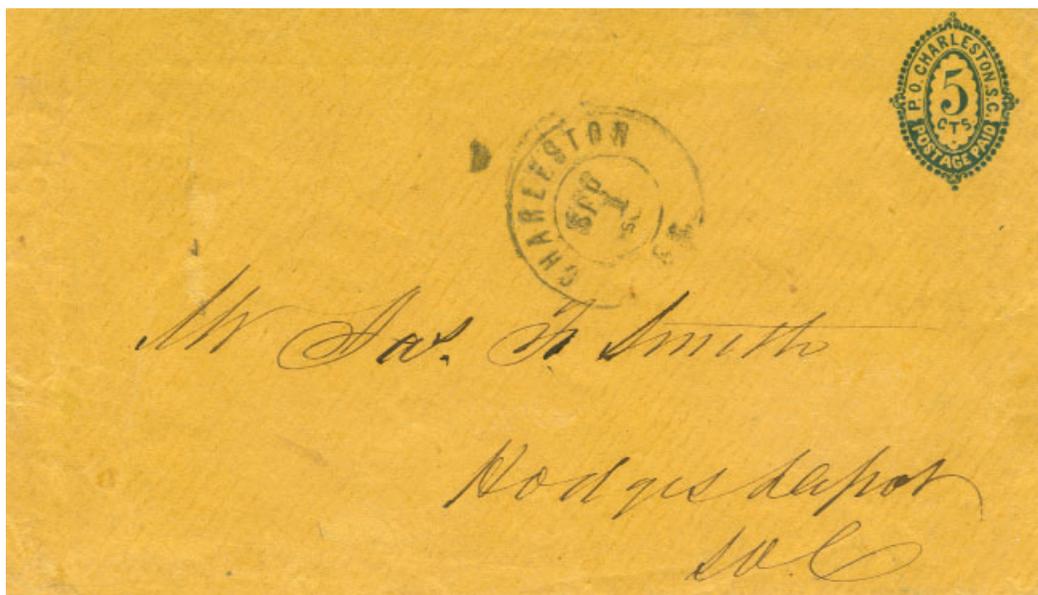
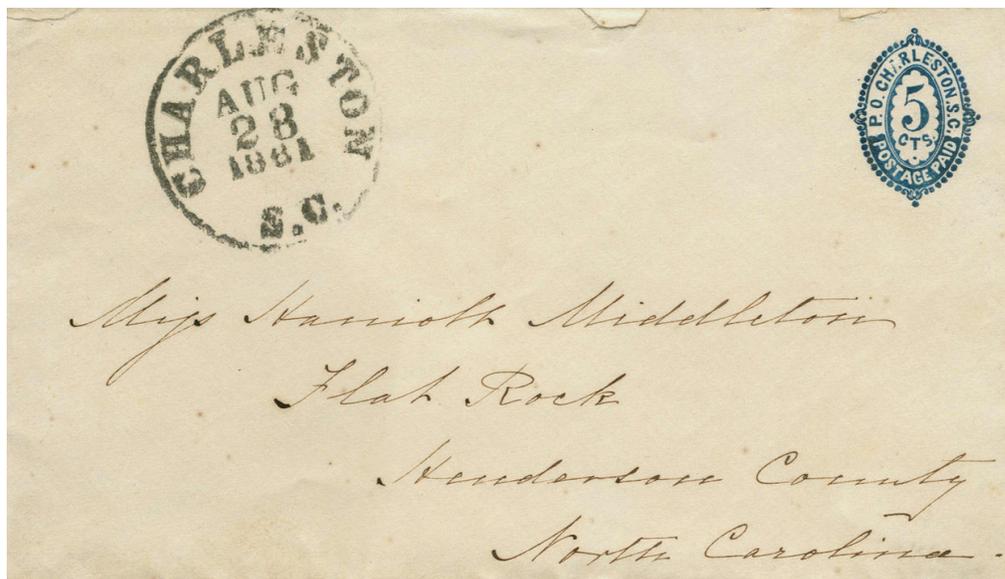
The complete equivalence of the FTIR spectra in Figure 4 demonstrates that the same ink composition that was used to print the bogus 10¢ stamp images on entires was also used to print the 10¢ “essay” stamp. Since it is known that the stamps on the 10¢ cover entires are not genuine, it necessarily follows that the 10¢ “essay” stamp must be fraudulent as well.

(C) Analysis of 5¢ Provisionals

This segment of the current investigation differs from those of the preceding, in that genuine 5¢ Charleston provisional stamps are known as both stand-alone adhesive stamps (CSA CHA-SC-A01, Scott 16X1) and as press-printed entires where the stamp image is printed on envelopes of different colors (CSA CHA-SC-E01, Scott 16XU1-16XU5).⁸



Figures 5a-5c. Three of the genuine 5¢ Charleston provisional stamps studied in this work.



Figures 6a and 6b. The two genuine 5¢ Charleston provisional entires studied in this work, including CSA CHA-SC-E01 (Scott 16XU1) and CSA CHA-SC-E01 (Scott 16XU3).

During the course of this study, data were collected on four genuine adhesive stamps, two genuine 5¢ entires and four fraudulent 5¢ Charleston entires.

Figures 5a-5c show three of the four genuine 5¢ Charleston adhesive provisionals studied in this work. The stamp images have been electronically cropped from their covers.

Figures 6a and 6b show the two genuine 5¢ Charleston provisional entires studied here.

XRD analysis of the four genuine 5¢ Charleston adhesive provisionals (CSA CHA-SC-A01) demonstrated that they were printed on paper composed of cellulose and dehydrated kaolin. It was possible to reach an unequivocal conclusion for the genuine 5¢ adhesive provisionals in that the paper of all four envelopes upon which they were used consisted only of cellulose, allowing the kaolin in the stamp paper to be easily detected. By contrast, the envelopes of the four studied fraudulent 5¢ Charleston entires all consisted of paper manufactured using only cellulose. Photographically cropped stamp images from the four fraudulent 5¢ Charleston provisional entires studied in this work are shown in Figures 7a-7d.

The most interesting aspects of the study on the 5¢ provisionals were found in the FTIR spectra. Since the FTIR spectra obtained for the four genuine adhesive provisional stamps were all equivalent to each other, it was possible to generate an FTIR spectrum that is characteristic for the genuine 5¢ stamps through the use of digital averaging. The FTIR spectra of the two genuine 5¢ entires were averaged to obtain a characteristic FTIR spectrum of this type, and the FTIR spectra of the four 5¢ fraudulent entires were used to develop the characteristic FTIR spectrum of this type. The superimposition of these characteristic spectra is found in Figure 8.

The major difference between the FTIR spectra of the genuine and the fraudulent stamps consists in the ink composition. The FTIR spectrum of the genuine 5¢ Charleston adhesive stamps clearly contained the seven diagnostic peaks for hydrated kaolin, namely 750, 787, 910, 937, 1001, 3818 and 3688 wavenumbers. None of these peaks were detected in the FTIR spectra of the fraudulent 5¢ entires, marking a distinct and defining difference. In addition, the amount of Prussian blue ink pigment (as evidenced by its peak height at 2085 wavenumbers) was significantly higher for the genuine 5¢ stamps, as opposed to the amount found in the 5¢ entires.

It is determined that FTIR spectroscopy is a superior forensic method to differentiate between genuine 5¢ Charleston provisional stamps – on or off cover – and the fraudulent 5¢ entires. The



Figures 7a-7d. The four fraudulent 5¢ Charleston provisional entires studied in this work. The stamp images have been photographically cropped from their covers.

presence of hydrated kaolin in the printing ink of the genuine stamps represents the defining proof, while an XRD pattern would serve as a secondary tool.

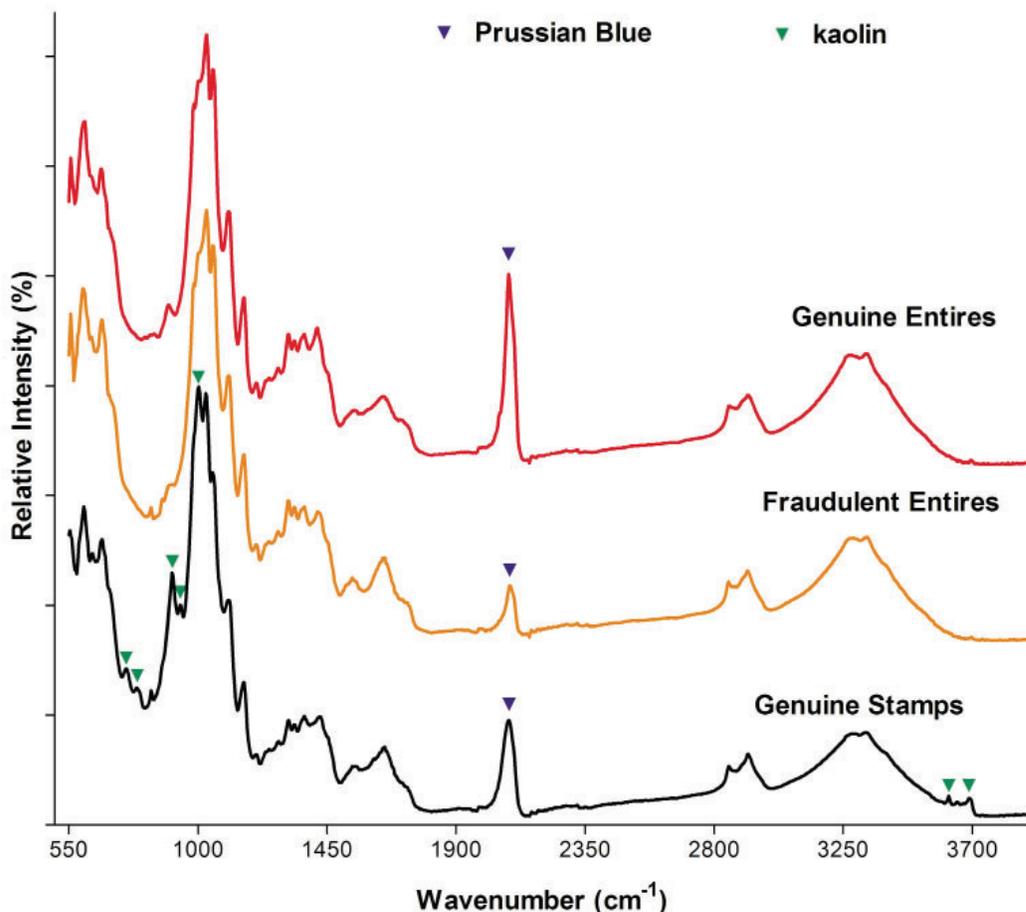


Figure 8. Characteristic FTIR spectrum obtained for the genuine 5¢ Charleston adhesive provisional stamps, the characteristic FTIR spectrum of the 5¢ fraudulent entires and the FTIR spectrum characteristic of the genuine entires. The diagnostic peak for Prussian blue pigment is marked by the blue wedge symbol, while the diagnostic peaks for hydrated kaolin are marked by green wedge symbols.

Those “Essays”

The forensic deductions reached in this study leave no doubt as to the true nature of the 2¢ and 10¢ Charleston “essays.” Despite coming to light and presumably being produced after the war, they are rare philatelic items. Who produced them is still a mystery. There are far fewer of them known, for example, than the remarkable *objets d’art* of master Italian stamp forger Jean de Sperati. Sperati reproductions often sell for more than the genuine stamps they purport to be.

The combination of FTIR and XRD is a potent and definitive physical test for authenticity for many circumstances in American Civil War philately. In effect, it is checking the subjects at the molecular level in a very sensitive manner.

Acknowledgements: Our thanks to John L. Kimbrough for his peer review, and to Jim Montich for loaning his 5¢ entires for analysis in this study.

Endnotes

1. Steve Feller, "The Enigmatic Charleston 2¢ and 10¢ 'Provisional Stamp Essays,': A Review of the Literature and Some Observations," *Civil War Philatelist*, First Quarter 2023, pp. 34-39.
2. Patricia A. Kaufmann, "Charleston Fake Postmaster Provisional Entire," the *Civil War Philatelist*, Second Quarter 2025, pp. 20-23.
3. Fourier-transform infrared absorption (FTIR) spectra were obtained at a resolution of 4 wavenumbers using a Shimadzu model 8400S spectrometer. The data were acquired using the attenuated total reflectance (ATR) sampling mode, where the stamps were gently clamped against the ZnSe/diamond crystal of a Pike MIRacle™ single-reflection horizontal ATR sampling accessory. The intensity scale for all spectra was normalized so that the relative intensity of the most intense peak in the spectrum 100%.
4. In this work, XRD patterns were obtained using a Rigaku MiniFlex-II powder diffraction system, where samples were scanned over the range of 3.0 to 40.0 degrees 2θ, at a scan rate of 2 degrees 2θ/min, and a step size of 0.01 degrees 2θ. The intensity scale for all diffraction patterns was normalized so that the relative intensity of the most intense peak in the spectrum 100%.
5. H.G. Brittain, "Color and Ink: Color Analysis Sheds Light on Classic Varieties," *American Philatelist*, March 2022, pp. 260-266.
6. H.G. Brittain, "Beyond the Visual: Utility of Scientific Technologies for the Study of Postage Stamps," *Kelleher's Stamp Collector's Quarterly*, First Quarter 2022, pp. 20-29.
7. Feller.
8. Patricia A. Kaufmann, Francis J. Crown Jr. and Jerry S. Palazolo, *Confederate States of America: Catalog and Handbook of Stamps and Postal History*, Confederate Stamp Alliance (2012), page 258.



RECORDING NEW CSA FINDS

New Confederate finds are still being documented for future editions of the *CSA Catalog*. In addition to new, unlisted finds, I am seeking quality images to replace old black and white tracings or poor-quality images that were used in earlier catalogs. It is important that new images be quality 300 dpi .tif or .jpg files if they are to be used in future editions.

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