

## Harry G. Brittain, PhD, FRSC

Center for Philatelic Forensics  
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### **Education**

B.A. (Chemistry)	Queens College (June, 1970)
M.A. (Physical Chemistry)	Queens College (June, 1972)
Ph.D. (Physical Chemistry)	City University of New York (February, 1975)

### **Center for Philatelic Forensics**

The Center for Philatelic Forensics was formally known as the Center for Pharmaceutical Physics until its conversion to the Center for Philatelic Forensics in 2020. Prior to this, the Center provided consultation in all areas of pharmaceutical physics and physical pharmacy, having special areas of expertise in the crystal forms of drug substances and in the physical characterization of pharmaceutically related materials. Over the past 10 years, this expertise has steadily been turned to the physical and chemical characterization of postage stamps, specifically the ink used to print stamps and the paper on which they are printed.

The Center for Philatelic Forensics provides a range of on-site, non-destructive, analytical testing methodologies for the characterization of the ink and paper of postage stamps. The technologies used are those that are most suitable for the chemical identification of the actual compounds present in those stamps. The most important techniques available for such work include X-ray diffraction (Rigaku MiniFlex-II diffraction system) for the characterization of crystalline materials in the ink and paper, and Fourier-transform infrared (Shimadzu model 8400S spectrometer) spectroscopy coupled with attenuated total reflectance (Pike MIRacle™ single reflection horizontal ATR sampling) sampling. A variety of optical microscopes (binocular and polarizing systems) are also available for the evaluation of surface characteristics, as well as visible spectroscopic instrumentation (Varian DMS-200 system, with diffuse reflectance sampling) for the evaluation of color.

### **Awards**

Teacher-Scholar of the Camille and Henry Dreyfus Foundation, 1980-85  
Fellow, American Association of Pharmaceutical Scientists, 1991  
Research Achievement Award, APQ Section of the American Association of Pharmaceutical Scientists, 1998  
Fellow, Royal Society of Chemistry, 2009  
Research Scholarship from the National Postal Museum of the United States Smithsonian Institution, 2012  
Confederate Philatelist Writers Award, Confederate Stamp Alliance, 2014  
Walker M. Hopkinson Memorial Literature Award, United States Stamp Society, 2019

**Books edited by H.G. Brittain Related to Philatelic Forensics**

- (1) ***Physical Characterization of Pharmaceutical Solids***  
ISBN: 0-8247-9372-2 [Marcel Dekker, New York, 1995]
- (2) ***Polymorphism in Pharmaceutical Solids***  
1<sup>st</sup> edition, ISBN: 0-8247-0237-9 Marcel Dekker, New York, 1999]  
2<sup>nd</sup> edition, ISBN: 978-1-4200-7321-8 [Informa Healthcare Press, New York, 2009]
- (3) ***Spectroscopy of Pharmaceutical Solids***  
ISBN: 978-1-57444-893-1 [Taylor & Francis, New York, 2006]

**Review Articles Published by H.G. Brittain Related to Philatelic Forensics**

- (1) H.G. Brittain, "X-ray Diffraction of Pharmaceutical Materials", Chapter 7, in ***Profiles of Drug Substances, Excipients, and Related Methodology***, Volume 30, H.G. Brittain, ed., Elsevier Academic Press, Amsterdam, 2003, pp. 273-319.
- (2) H.G. Brittain, "Electromagnetic Radiation and Spectroscopy", Chapter 1, in ***Spectroscopy of Pharmaceutical Solids***, H.G. Brittain, ed., Taylor and Francis, New York, 2006, pp. 1-32.
- (3) H.G. Brittain, "Ultraviolet/Visible Reflectance Spectroscopy", Chapter 5, in ***Spectroscopy of Pharmaceutical Solids***, H.G. Brittain, ed., Taylor and Francis, New York, 2006, pp. 121-149.
- (4) H.G. Brittain, "Luminescence Spectroscopy", Chapter 6, in ***Spectroscopy of Pharmaceutical Solids***, H.G. Brittain, ed., Taylor and Francis, New York, 2006, pp. 151-204.
- (5) H.G. Brittain, "Molecular Motion and Vibrational Spectroscopy", Chapter 7, in ***Spectroscopy of Pharmaceutical Solids***, H.G. Brittain, ed., Taylor and Francis, New York, 2006, pp. 205-233.
- (6) D.E. Bugay and H.G. Brittain, "Infrared Absorption Spectroscopy", Chapter 8, in ***Spectroscopy of Pharmaceutical Solids***, H.G. Brittain, ed., Taylor and Francis, New York, 2006, pp. 235-269.
- (7) D.E. Bugay and H.G. Brittain, "Raman Spectroscopy", Chapter 9, in ***Spectroscopy of Pharmaceutical Solids***, H.G. Brittain, ed., Taylor and Francis, New York, 2006, pp. 271-312.
- (8) H.G. Brittain, "X-Ray Diffraction and X-Ray Fluorescence", Chapter 7 in ***Modern Instrumental Analysis***, (Comprehensive Analytical Chemistry, Volume 47), S. Ahuja and N. Jespersen, eds., Elsevier, Amsterdam, 2006, pp. 177-226.

**Presentations**

- (1) “The Use of Instrumental Analytical Technology for the Study of Postage Stamps of the Confederacy”, lecture presented at NAPEX 2012, June 2, 2012.
- (2) “A Forensic Study of the Ink and Paper of the Typographed 5-cent Blue Jefferson Davis Stamps Issued by the Confederate States of America”, lecture presented at the *First International Symposium on Analytical Methods in Philately*, organized by the National Postal Museum of the Smithsonian Institution, November 13, 2012.
- (3) “Forensic Study of Stamps of the Confederacy: The Engraved 2-Cent Andrew Jackson Issues”, lecture presented at the Garfield-Perry Annual Stamp Meeting, March 15, 2013.
- (4) “Ink Composition of the United States 3¢ Large Banknote Stamps of 1870-1881”, lecture presented at the *Second International Symposium on Analytical Methods in Philately*, organized by the National Postal Museum of the Smithsonian Institution, November 18, 2015 (co-authored with John H. Barwis).
- (5) “Progress Report on the U.S. 24¢ Purple Stamp Enigma of 1870-75”, lecture presented at the *Third International Symposium on Analytical Methods in Philately*, organized by the National Postal Museum of the Smithsonian Institution, October 14, 2017 (co-authored with John H. Barwis).
- (6) “Use of X-Ray Diffraction and Infrared Absorption Spectroscopy for the Study of Paper and Ink in Postage Stamps”, lecture and short course presented at the *Fourth International Symposium on Analytical Methods in Philately*, organized by the National Postal Museum of the Smithsonian Institution, October 13, 2020.

**Research Publications**

- (1) H.G. Brittain, "Infrared Spectroscopic and X-Ray Diffraction Studies of the Typographed Confederate 5-Cent Stamps", *Proceedings of the First International Symposium on Analytical Methods in Philately*, T. Lera, J.H. Barwis, and D.L. Herendeen, eds., Smithsonian Institution Scholarly Press, Washington D.C., 2012, pp. 47-55.
- (2) H.G. Brittain, "Forensic Studies of Stamps Issued by the Confederate States of America. I. The Typographed 5-cent Blue Jefferson Davis Issues", *The Confederate Philatelist* (2013) 58(2): 5-15.
- (3) H.G. Brittain, "Forensic Studies of Stamps Issued by the Confederate States of America. II. The Engraved 2-cent Andrew Jackson Issue", *The Confederate Philatelist*, (2013): 58(3): 5-13.
- (4) H.G. Brittain, "Forensic Analysis: Composition of Ink and Paper of the 1¢ 1861 Stamp", *The Chronicle of the U.S. Classic Postal Issues*, (2013) 65(3): 264-271.
- (5) H.G. Brittain, "Forensic Studies of Stamps Issued by the Confederate States of America. III. The Copper-Plate Engraved Ten-cent Jefferson Davis Issues", *The Confederate Philatelist*, (2013) 58(4): 5-12.
- (6) L.H. Hartmann and H.G. Brittain, "The 2-cent Red Andrew Jackson: Stamp or Plate Proof?", *The Confederate Philatelist*, (2013) 58(4): 32-34.
- (7) H.G. Brittain, "Forensic Studies of Stamps Issued by the Confederate States of America. IV. The Steel-Plate Engraved Ten-cent Jefferson Davis Type-I Issue", *The Confederate Philatelist*, (2014) 59(1): 5-11.
- (8) H.G. Brittain, "Forensic Studies of Stamps Issued by the Confederate States of America. V. The Steel-Plate Engraved Ten-cent Jefferson Davis Type-II Issue", *The Confederate Philatelist*, (2014) 59(2): 5-11.
- (9) H.G. Brittain, "Forensic Studies of Stamps Issued by the Confederate States of America. VI. The Steel-Plate Engraved Twenty-cent George Washington Issue", *The Confederate Philatelist*, (2014) 59(4): 5-11.
- (10) H.G. Brittain, "Use of Infrared Absorption Spectroscopy as an Adjunct in the Differentiation of the 1¢ Franklin Bank Note Stamps", *The Chronicle of the U.S. Classic Postal Issues*, (2015) 67(1): 74-84.
- (11) H.G. Brittain, "FTIR-ATR Spectroscopy as a Forensic Method to Determine the Composition of Inks used to Print the United States One-Cent Blue Benjamin Franklin Postage Stamps of the Nineteenth Century", *Applied Spectroscopy*, (2016) 70(1): 128-136.
- (12) H.G. Brittain, "Can a Frame-Line Stamp Still be a Frame-Line Stamp Even if it Does Not Have a Frame-Line?", *The Confederate Philatelist*, (2016) 61(1): 24-27.
- (13) H.G. Brittain, "Forensic Analysis of the Paper and Inks Used by the Bureau of Engraving and Printing in the 1894 Printing of the 1¢ Franklin and 2¢ Washington Stamps", *United States Specialist*, (2016) 87(4): 153-165.

- (14) H.G. Brittain, "X-Ray Diffraction Study of the Paper Used by the Bureau of Engraving and Printing to Produce 1¢ and 2¢ Stamps Between 1894 and 1913", *United States Specialist*, (2016) 87(8): 345-361.
- (15) J.H. Barwis and H.G. Brittain, "Ink Composition of the United States 3-Cent Stamps, 1870-1883", *Proceedings of the Second International Symposium on Analytical Methods in Philately*, J.H. Barwis and T. Lera, eds., Institute for Analytical Philately, Akron OH, 2016, pp. 49-56.
- (16) H.G. Brittain, "X-Ray Diffraction Study of the Kaolin Content in Paper Used to Produce Stamps During 1903 – 1908", *United States Specialist*, (2018) 89(9): 403-416.
- (17) H.G. Brittain, "Kaolin Content in the Paper Used by the Bureau of Engraving and Printing to Produce 1¢ and 2¢ Stamps between 1894 and 1908", *United States Specialist*, (2019) 90(2): 61-71.
- (18) H.G. Brittain, "Ink Composition of the Typographed 5-cent Blue Jefferson Davis Issues – Revisited", *The Confederate Philatelist*, (2019) 65(1): 24-28.
- (19) H.G. Brittain and K.G. Lowther, "FTIR Spectroscopy Used to Analyze Brown-Yellow Washington-Franklins", *United States Specialist*, (2019) 90(2): 61-71.
- (20) J.H. Barwis and H.G. Brittain, "Progress Report on the U.S. 24¢ Purple Stamp Enigma of 1870-75", *Proceedings of the Third International Symposium on Analytical Methods in Philately*, S. Smith and J.H. Barwis, eds., Institute for Analytical Philately, Akron OH, 2020, pp. 51-62.
- (21) H.G. Brittain, "A Cautionary Tale: Know Your Stamps Before you Soak Them", *United States Specialist*, (2020) 91(6): 248-260.
- (22) H.G. Brittain, "Further Investigation into the Printing Ink Pigments of Scott #416 and Scott #416a", *United States Specialist*, (2020) 91(8): 346-353.
- (23) H.G. Brittain, "Use of X-Ray Diffraction and Infrared absorption Spectroscopy for the Study of Paper and Ink in Postage Stamps", *Proceedings of the Fourth International Symposium on Analytical Methods in Philately*, T. Lera and J.H. Barwis, eds., Institute for Analytical Philately, Akron OH, 2020, pp. 1-6.
- (24) H.G. Brittain, "Evolution of the Ink and Paper Composition in the Stamps of the 1893 Columbian Issues", *Proceedings of the Fourth International Symposium on Analytical Methods in Philately*, T. Lera and J.H. Barwis, eds., Institute for Analytical Philately, Akron OH, 2020, pp. 7-11.