PROJECT MUSE®

Location Verification: Siting Tyson's 1863 Photograph of Camp Letterman General Hospital

Tom Danninger

Gettysburg Magazine, Number 52, January 2015, pp. 46-51 (Article)

Published by University of Nebraska Press

DOI: <https://doi.org/10.1353/get.2015.0003>

➔ *For additional information about this article*

<https://muse.jhu.edu/article/566386>

Location Verification

Siting Tyson's 1863 Photograph of Camp Letterman General Hospital

TOM DANNINGER

Using spatial methods and buildings visible in the background of the 1863 Tyson Letterman Hospital *carte-de-visité* (CDV), this article describes an attempt to verify the location of the scene as identified by William A. Frassanito by comparison to modern photographs and new technological approaches.

The Tyson Brothers exposed a series of plates and a CDV in September 1863.¹ In the background of the CDV a portion of the city of Gettysburg is visible. Visible in the background are several buildings (the German Reformed Church, a public school, the county courthouse, etc.) that remain in Gettysburg to this day.

In *Early Photography at Gettysburg* Frassanito determined the camera location by studying the buildings relative to the distant mountains and the 1863 Bachelder and 1874 Warren maps.² At the suggestion of Curt Musselman, National Park Service Cartographer at Gettysburg National Military Park, I looked for a second and hopefully more precise technique for verifying the camera position.

After some study, I employed a technique based upon measuring the relative distance between two points on the CDV print and GIS (geographic information system) tools to match the measured distance against the actual distance between the same two points on the ground. Had the focal length of the lens used by Tyson been known, the technique would result in two solutions for the camera location—one in front of the points selected and one behind them. Since I was unable to find a reference to the focal length, it was necessary to perform

additional calculations to arrive at a solution. It is accomplished by choosing four points and matching the absolute value of the difference in the calculated focal length for each pair of points. Since all the reference points are from the same print, the focal lengths, though unknown, must be the same. Instead of producing two candidate points for the resulting camera position, the technique produces two continuous lines for which the difference in calculated focal lengths is near zero. The intersection of the two lines represents the candidate camera position.

In order to validate the technique, I chose two observation locations close to the 1863 camera position specified by Frassanito northeast of the town center. The first position was on the fourth floor of the Hilton hotel just east of York Road. The second position was at a high point near the intersection of Natural Springs Road and Camp Letterman Drive. I used my Canon EOS Rebel electronic camera and a 100–300 mm lens to take pictures of the set of buildings visible in the background of the Tyson print.

Details of the modern photos contain much of the same area contained in the background of the Tyson print. I selected and marked nine identifiable Gettysburg locations. Photoshop was used to mark and measure the distances between pairs of locations. The nine locations, left to right, are the southeast corner of the German Reformed Church, the northeast corner of the German Reformed Church, the northwest corner of the German Reformed Church, the southeast corner of the public school, the elevator shaft of the public school, the Gettysburg Presbyterian Church steeple, the United

¹ William A. Frassanito, *Early Photography at Gettysburg* (Gettysburg PA: Thomas Publications, 1995), 354.

² Frassanito, *Early Photography at Gettysburg*, 361.

Tyson Brothers *carte-de-visité* dated September 1863. Original print at Gettysburg National Military Park. Digital copy courtesy of Garry Adelman.

Close-up of the Tyson cdv with prominent locations identified. Courtesy of the author.

A modern photograph taken by the author with the prominent landmarks from the Tyson csv identified. Courtesy of the author.

The 1863 Bachelder map. Courtesy of the Library of Congress, Geography and Map Division.

Methodist Church steeple, the St. Xavier Catholic Church cupola, and the Adams County Courthouse cupola. The location not marked in the modern photograph taken by the author is the northwest corner of the German Reformed Church.

Not all pairs of locations can be used in the analysis. In order to produce a good result, the triangle produced by the viewing site and the pair of points must not have a large obtuse angle. ESRI's ArcMap version 9.3.1 was used to display and manipulate the on-the-ground Gettysburg data. An aerial view of the observed locations with the modern camera locations is also provided. After validating the research technique by using the two known modern camera locations, I applied it to the Tyson print. Again using Photoshop, I marked five locations corresponding to buildings that are still in existence. I also marked the line bisecting the principal point

of the lens (assuming my print is not unreasonably cropped). Then I measured the distances between the various locations on the print and between them and the vertical line through the principal point. Anyone interested in the mathematical calculations and the geometric relationship between the distances on the ground of the observed points and the two dimensional distances on the print when viewed through the lens of a camera are welcome to contact the author (porteralexander@nc.rr.com) for this technical detail.

The Bachelder map clearly shows the two woods flanking Letterman Hospital. The 1874 Warren map indicates that the smaller woods southwest of the hospital and the larger woods were no longer in existence. In his analysis, Frassanito states that the woods visible in the foreground of the 1863 CDV are the smaller woods. Based on Frassanito's analysis

The 1874 Warren map. Courtesy of the Library of Congress, Geography and Map Division.

An aerial view of the location of the camera angles in relation to the location of the sites identified in the cgv photograph. Courtesy of the author.

and on my own work, an area three hundred by four hundred feet southwest of the larger 1863 woods contains the 1863 CDV camera location.³ Since the surrounding area has changed significantly since Frassanito took his modern photo, it is not clear exactly how far this is from his designated site, though it is clearly in the same general area. The resulting site is about four hundred feet northeast of the Hilton hotel, in what appears to be an open field.

³ Frassanito, *Early Photography at Gettysburg*, 361.

.....
Tom Danninger has a master's degree in nuclear physics and works as a research associate for North Carolina State University in the College of Design. He earned a bachelor of science in physics and mathematics and a master of science in theoretical nuclear physics from Marquette University and a certificate in geographical information systems from North Carolina State University. As a research associate in the College of Design, Tom provides mapping, statistical, and software development in support of design and architectural development projects. His research interests include computer modeling and the use of photogrammetric methods in the investigation of historical events.