



Smithsonian
National Air and Space Museum

Edward Wellman Serrell Aeronautical Papers

Allan Janus

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National Air and Space Museum Archives
14390 Air & Space Museum Parkway
Chantilly, VA 20151
NASMRefDesk@si.edu
<http://airandspace.si.edu/research/resources/archives/>

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Collection Overview

Repository:	National Air and Space Museum Archives
Title:	Edward Wellman Serrell Aeronautical Papers
Identifier:	NASM.2011.0040
Date:	1865-1867
Extent:	0.73 Cubic feet (2 boxes)
Creator:	Serrell, Edward Wellman
Language:	English .
Summary:	The Edward Wellman Serrell Aeronautical Papers contains material related to the efforts, during and after the American Civil War, of Brigadier General E. W. Serrell of the U.S. Army Corps of Engineers to design and build the <i>Valomotive</i> , a steam-powered helicopter.

Administrative Information

Acquisition Information

Allison Serrell, Gift, 2011

Processing Information

Arranged, described, and encoded by Allan Janus, 2018.

Preferred Citation

Edward Wellman Serrell Aeronautical Papers, Accession 2011-0040, National Air and Space Museum, Smithsonian Institution.

Restrictions

No restrictions on access.

Conditions Governing Use

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Biographical / Historical

Edward Wellman Serrell (1826-1906), a civil engineer and Union Army general, was born in London on November 5, 1826. His family immigrated to the United States in 1831, settling in New York City. Serrell

became a civil engineer, working in railroad and bridge design and construction. He worked at times for the Erie Railroad, the Northern Railroad of New Hampshire, the New Jersey Central Railroad, and the Union Pacific Railroad. He also assisted in the 1848 Panama Survey. Serrell prepared plans and supervised the construction of several bridge projects: the Niagara River suspension bridge at Lewiston in 1850, the St. John, New Brunswick bridge, and the St. Lawrence bridge at Quebec. He served as chief engineer of the Hoosac Tunnel (1855-56).

At the beginning of the Civil War, Serrell organized the 1st New York Volunteer Engineer Regiment (1st NYVE). In October 1861, Serrell was appointed lieutenant colonel of the regiment. He was promoted to full colonel in command of the unit in February 1862. The 1st NYVE took part in the 1862 South Carolina campaign, beginning with the expedition to Port Royal, October 21 to November 7, 1861. Serrell served as chief engineer of the 10th Corps and of the Army of the James, and also served as chief of staff of the Army of the James as a brevet brigadier general. While at Port Royal, General Ormsby Mitchell, commanding the 10th Corps, became interested in the possibilities of aerial reconnaissance. Serrell demonstrated a wind-up toy helicopter to Mitchell, and proposed building a full sized flying machine. Mitchell died soon thereafter, but Serrell later demonstrated in 1864 an improved toy to Major General Benjamin Butler, commanding the Army of the James. Serrell's toy helicopter reached an altitude of over one hundred feet. Butler ordered Serrell to build a full-sized machine. Moving to New York, and with funding provided by wealthy oilmen, Serrell designed a fifty-two foot cigar-shaped craft, equipped with a high-pressure steam boiler and "gliding planes" (wings), and four "fans" -- two for lift and two for propulsion. The rear fan was designed to swivel, thus serving as a vectored thrust propeller. The craft, variously called the *Valomotive* and the *Reconoitere*, was assembled in Hoboken, New Jersey. Serrell contacted with the firm of Bennett and Risley of New York City to build a powerful but light steam engine; the design and construction of their engine was delayed until the Confederate surrender in April 1865 ended Army interest in Serrell's project, though he continued to work on the project into 1866. After the war, Serrell worked as a consulting engineer to many corporations, and served as president of the Washington County Railroad. Edward Wellman Serrell died on April 25, 1906, at Rossville on Staten Island, New York.

Scope and Contents

The collection consists of a draft of Serrell's report on his activities and on the design of the *Valomotive*, February 10, 1865; his undated memorandum on the design of the *Valomotive*; Serrell's undated notes for a pamphlet "On the Subject of Navigating the Air by Steam;" a drawing of rotors and machinery of the *Valomotive*; and a drawing of a flying machine designed by F. H. Raffey. Also included is a draft of an agreement or contract between Serrell and an unnamed correspondent for the sale of the British patent rights to the *Valomotive*, dated March 26, 1866. Correspondence in the collection includes eleven letters to Serrell from Mortimer Nelson (January to August 1866), an early aeronautical researcher who patented an *Aerial Car* in 1861; two letters from F. W. Brearey, the secretary of the Aeronautical Society of Great Britain; a letter from aeronautical pioneer F. H. Wenham of the Aeronautical Society to Brearey; a letter from Sir William Fairbairn of the Aeronautical Society of Great Britain; and a photocopy of a letter to Serrell from P. T. Barnum, dated May 10, 1866, in which Barnum proposes exhibiting Serrell's *Valomotive*. The collection also includes several invoices or receipts from Serrell's project.

Arrangement

The Edward Wellman Serrell Aeronautical Papers collection has been arranged by document type - Serrell's descriptions and reports on the *Valomotive*, correspondence, invoices and receipts, and drawings.

Names and Subject Terms

This collection is indexed in the online catalog of the Smithsonian Institution under the following terms:

Subjects:

- Aeronautics
- Aeronautics -- History
- Serrell Helicopter (1861)
- Steam-engines
- United States -- History -- Civil War, 1861-1865

Types of Materials:

- Contracts
- Correspondence
- Invoices
- Notes
- Technical drawings

Container Listing

- | | |
|------------------|---|
| Box 1, Folder 1 | Serrell's draft report on the <i>Valomotive</i> to Gen. Richard Delafield, Chief of Engineers, U.S. Army, February 10, 1865
Image(s) |
| Box 1, Folder 2 | Serrell's description of the <i>Valomotive</i>
Image(s) |
| Box 1, Folder 3 | Serrell's outline for "Pamphlet for private Circulation on the Subject of Navigating the Air by Steam"
Image(s) |
| Box 1, Folder 4 | Correspondence - P. T. Barnum to Serrell on exhibiting the <i>Valomotive</i> , May 10, 1865
Image(s) |
| Box 1, Folder 5 | Correspondence - Bogg to Serrell, July 29, 1867
Image(s) |
| Box 1, Folder 6 | Correspondence - F. W. Breary, Aeronautical Society of Great Britain, to Serrell, 1867
Image(s) |
| Box 1, Folder 7 | Correspondence - Sir William Fairbairn, Aeronautical Society of Great Britain, to Serrell, March 8, 1867
Image(s) |
| Box 1, Folder 8 | Correspondence - Mortimer Nelson to Serrell, January 12 - August 7, 1866
Image(s) |
| Box 1, Folder 9 | Draft of an agreement to sell British patent rights to the <i>Valomotive</i> , March 26, 1866
Image(s) |
| Box 1, Folder 10 | Invoices and receipts, 1865
Image(s) |
| Box 1, Folder 11 | Written description of Camille Vert's <i>Dolphin</i> airship
Image(s): Written description of Camille Vert's "Dolphin" airship |
| Box 1, Folder 12 | Drawing of Serrell <i>Valomotive</i> rotor and drive mechanism
Image(s) |
| Box 2, Folder 1 | Detail drawing - Serrell <i>Valomotive</i> (?) |

[Image\(s\)](#)

Box 2, Folder 2

Drawing of F. H. Raffey flying machine, November 25, 1864

[Image\(s\)](#)