The Best Forensic Scientist You’ve Never Heard Of

Wilmer Souder and the Early History of Forensic Science at the National Bureau of Standards

Kristen M. Frederick-Frost, PhD
Robert M. Thompson, BS
John M. Butler, PhD

LW1: Last Word Society
American Academy of Forensic Sciences
Las Vegas, NV (February 25, 2016)
<table>
<thead>
<tr>
<th>Individuals</th>
<th>Affiliation or Role</th>
<th>Assistance provided</th>
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<tbody>
<tr>
<td>Mark Falzini</td>
<td>New Jersey State Police Archivist</td>
<td>NJSP memos related to the Lindbergh kidnapping case</td>
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<tr>
<td>John Fox</td>
<td>FBI Historian</td>
<td>FBI memos related to early FBI Laboratory</td>
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<tr>
<td>Caleb Gills</td>
<td>NIST summer intern</td>
<td>Initial review of notebooks</td>
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<tr>
<td>Kathy Leser</td>
<td>Souder’s granddaughter and only living</td>
<td>Shared photos, articles, July 1951 Reader’s Digest, …</td>
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<tr>
<td></td>
<td>direct relative</td>
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<tr>
<td>Jason Long &amp;</td>
<td>ATFE Laboratory Librarian &amp; ATFE Historian</td>
<td>Located “new” Souder book in ATFE holdings</td>
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<tr>
<td>Barbara Osteika</td>
<td></td>
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<td>Patricia Manzolillo</td>
<td>US Postal Service Laboratory</td>
<td>USPS records on Souder</td>
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<td>Michael Sampson &amp;</td>
<td>US Secret Service Archives and Laboratory</td>
<td>Transcript of Souder’s talk at 1941 USSS conference</td>
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<td>Kathleen Storer</td>
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<tr>
<td>Adiva Sotzsky</td>
<td>Former ATFE Librarian (National Laboratory Center)</td>
<td>Preserved Souder notebooks and returned them to NIST in 2003</td>
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<tr>
<td>Peter Tytell</td>
<td>Questioned documents &amp; typewriter examiner</td>
<td>Historical perspective; some helpful articles about Souder</td>
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<tr>
<td>Billy Wade</td>
<td>National Archives (Photographic Division)</td>
<td>Enabled scans of Souder photos from NBS collection</td>
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Examples of handwriting used for identification, May 1929
NBS records held by NARA
To the Bureau of Nov.

Dear Sirs,

I would like to submit to you this matter.

I am going to kill myself tonight, and please for my six months' pay, I would like you to deliver to this woman as I love her very much and till the end of my life.

Very truly yours,

[Signature]

Handwritten: To the Bureau of Nov.

Handwritten: Dear Sirs.

Handwritten: I would like to submit you this matter.

Handwritten: I am going to kill myself tonight, and please for my six months' pay, I would like you to deliver to this woman as I love her very much and till the end of my life.

Handwritten: Very truly yours.

Handwritten: [Signature]

Handwritten: [Name]

Handwritten: [Address]

Handwritten: [City, State]

Handwritten: [Date]
Handwriting identification for Dept. of State, November 1934
NBS records held by NARA

Department of State

Natl. Bur. Std's T 73166

11/20/34

George Matthews

Jours very best
Lindbergh kidnapping ransom note, May 1932

NBS records held by NARA

Act accordingly.

after 3/4 of a hour be
in the place, bring the money with you.
Ideals for firearm identification

There should be adopted:
1. Minimum standards of equipment to be used.

2. Standards for records of evidence to accompany and substantiate the expert’s opinion; these to include photographs, metrological data and interpretations in permanent form.

3. Standards for qualification of experts which will include actual tests made against secretly designated materials and reported in compliance with item 2.

4. Methods for… following up [with] experts testifying in court to guarantee the highest efficiency.

Wilmer Souder, Army and Navy Journal, March 19, 1932
Wilmer Souder’s Impact in His Day

“This country is indeed fortunate in having a man such as Dr. Souder in his capacity. I think we can look upon him as the most outstanding expert on the continent in the last one hundred years.”

-Deputy Chief Inspector John J. O’Connell, New York City Police Department, after Souder’s keynote talk
Rediscovery of Wilmer Souder’s Notebooks

Transferred to NIST Archives in 2003
by Alcohol, Tobacco, Firearms, and Explosives Laboratory

Detailed analysis started in May 2015
Content of Souder Notebook Entries

- Date for Evidence Submission
- **NBS** Test Number
- Submitting Agency
- Submitting Agent
- Summary of Findings
- Disposition of evidence (chain-of-custody)
- Case court outcome if known
- Newspaper Clippings from cases

_NBS_: National Bureau of Standards (name changed to NIST in 1988)
1931 Work to Help Indict a Gang
Associated with Al Capone
A page from one of Wilmer Souder’s notebooks (rediscovered June 2015)

**Typewriting** casework received from the Department of *Justice* – Charles Appel (first FBI Laboratory employee) on October 28, 1933 (10-28-33)

All [material returned] to Appel on October 30, 1933 (10-30-33)

Convicted on Appel’s testimony
Log Book from the end of Wilmer Souder’s career at the National Bureau of Standards (July 1950 to February 1954), which details his daily activities.
Summary of information from Souder’s logbook that tracked his daily activities

65%

Legend
- Yellow: forensic
- Green: forensic + other
- Blue: dental
- Gray: general
- Gold: conference
- Red: annual/sick leave
- White: holiday

261 week days total

32 days
120 days
45 days
26 days
13 days
22 days
6 days

Reader's Digest article
Number of Cases Worked by Wilmer Souder based on entries in his notebooks

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<thead>
<tr>
<th>Year</th>
<th>Total Cases</th>
<th># ballistics</th>
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<td>24</td>
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<tr>
<td>1930</td>
<td>42</td>
<td>13</td>
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<tr>
<td>1931</td>
<td>45</td>
<td>9</td>
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<tr>
<td>1932</td>
<td>65</td>
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<td>10</td>
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<tr>
<td>1953</td>
<td>0</td>
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838 cases over 25 years

During World War 2, Souder was Security Officer for the National Bureau of Standards. From 1946-1950, he was NBS Metrology Division Chief with heavy administrative responsibilities. He retired in early 1954 at age 70.
Submitting Agencies
(Handwriting, Typewriting, and Ballistics Casework)

Total Number of Cases Submitted (1929-1953)

~70% of total cases (592 of 838) from these six agencies

Remaining 30% of cases were from >75 additional agencies including:

- Census Bureau
- Civil Service
- Department of Agriculture
- Department of Commerce
- House of Representatives
- Library of Congress
- Senate Judiciary Committee
- State Department
- DC Health Department
- DC Office of Weights & Measures
- DC Supreme Court
- National Labor Relations Board
- New York Police Department
- Office of Civil Defense
- Patent Office
- Security & Exchange Commission
- Bureau of Prisons
- Federal Housing Admin.
- Federal Trade Commission
- General Accounting Office
- Government Printing Office
- Military Intelligence Division
- US Secret Service
- War Department
Photographs of Wilmer Souder and His National Bureau of Standards Identification Laboratory

Circa 1925

11 April 1935

From NIST files

Rediscovered at National Archives (5 August 2015)
ATTACKED AND MURDERED

WASHINGTON, Oct. 24—\textit{It} took a jury only a little more than half an hour today to free Herbert M. Campbell of a charge of killing clerk.

There was a mild demonstration in the court room and the usual handshaking and congratulations. Campbell, a Virginia real estate dealer, had been number-faced during the last days of the trial, but he grinned after the verdict was announced.

"I still say," he told those about him, "that my gun did not kill Mary Baker."

The government's case against Campbell depended to a small degree upon the testimony of Calvin Goddard, Chicago criminologist, and Dr. Wimper Kuyper of the Bureau of Standards, that the defendant's gun killed the girl.

Mr. Goddard offered to prove ballistics was an exact science. Five revolvers and ten bullets were turned over to him last Tuesday, and when he had not traced the missile back to the barrel from which they came, it was decided to continue the trial without awaiting his results. Defense attorneys were confident in their closing arguments and asked the jury for a speedy acquittal.

\textbf{Campbell Acquitted in Murder of Girl}

Washington Jury Swiftly Freees Virginia as Test of Ballistics as Science Is Abondoned.

\textbf{Navy Clerk's Body Stuffed Into Culvert}

\textbf{Washington Post, April 13, 1930}
Enlargements Shown.

The photographs submitted by Dr. Souder appeared to be more intelligible to lay members of the jury than any other bullet photographs so far shown them. Comparison of the scratches were shown on certain photographs introduced by Col. Goddard Friday by means of superimposing portions of photographed test bullets on photographs of the fatal slugs, whereas the Bureau of Standard pictures showed the jury enlargements of the actual scene which would greet their eye if they looked into the special comparison microscope. The photographs appeared to represent one bullet, with a black line around the circumference at the center.

One of five composite land impressions displayed by Souder | top image from body (B); bottom image from test (T)
Lindbergh Case 1932-1935

1932
- Kidnapping (March 1)
- Ransom Paid (April 2)
- Body Found (May 12)
- Hauptmann Arrest (Sept 19)
- Trial Begins (Jan 2)
- Trial Ends (Feb 14)

1933
- Souder examines ransom letters in Hopewell, NJ (April 1)

1934

1935
- Hauptmann executed April 3, 1936

Discover documents regarding Souder’s examination of handwriting

8,000—10,000 documents examined

Charles A. Lindbergh, Jr. born June 22, 1930

Souder examines ransom letters in Hopewell, NJ (April 1)

Lindbergh testifying, Wikimedia Commons

Hauptmann testifies (Jan 16)
Lindbergh Case 1932-1935

1932
- Kidnapping (March 1)
- Ransom Paid (April 2)
- Body Found (May 12)

1933
- May 9-14, 1932
  Lieut. R. A. Snook at NBS
  - Examination and photography of notes
  - Fabrication of alphabet key
  - Coded as Adamson Case/T-67194

1934
- Hauptmann Arrest (Sept 19)

1935
- Trial Begins (Jan 2)
- Trial Ends (Feb 14)

Hauptmann executed April 3, 1936
FBI Laboratory and Wilmer Souder 1934

1932
- Kidnapping (March 1)
- Ransom Paid (April 2)
- Body Found (May 12)

1933
- FBI Lab (Nov 24)

1934
- Souder advisor to FBI laboratory
  - Hauptmann Arrest (Sept 19)

1935
- Trial Begins (Jan 2)
- Trial Ends (Feb 14)

Hauptmann executed April 3, 1936

Charles A. Lindbergh, Jr. born June 22, 1930

Suggested equipment and arrangement of laboratory
Reviewed lab findings
Provided training for agents

Typewriting identification for Division of Investigation Jan 12, 1934, NARA
Summary & Lessons Learned

• A study of Wilmer Souder has revealed that **NIST has a more extensive history in forensic science (with casework experience) than previously appreciated**
  – Prior to this project, we had a single paragraph in a footnote of a book on NIST history describing Souder’s activities in early forensic science

• **High-quality scientists can make a difference in the quality of work performed in forensic science**

• **What are we recording today in our work** to capture the history of our efforts to change and improve the practice of forensic science in our day?
Graduate Work at the University of Chicago

Wilmer Souder completed his PhD dissertation in April 1916

Souder’s graduate work on the photoelectric effect verified Albert Einstein’s 1905 theory and helped Robert Millikan receive the 1923 Nobel Prize in Physics

Robert Millikan and Wilmer Souder published two articles together:


Dear Dr. Millikan,

I am enclosing a clipping from today’s Herald. I want to tell you how proud I am to learn of the award.

Really I believe I have grounds for personal pride, since I can claim two [Nobel] prize winners as former teachers.

Sincerely,
Wilmer Souder
“The honest expert never looks upon the outcome of his work as a result of luck, the reward of a game, or victory in a battle of wits. He has built his qualifications through hard work. He establishes his conclusions through exacting procedures; he presents his testimony in the face of keen opposition and asks no favor beyond an honest consideration of the facts disclosed. Having done so, he has fulfilled the high obligations of his profession.

“Justice is sometimes pictured as blindfolded. However, scientific evidence usually pierces the mask.”

Become an Honorary Souder Buff!

• We are looking for any information about early forensic laboratories and their possible intersection with Wilmer Souder and the National Bureau of Standards

• Please contact us at john.butler@nist.gov if you have any information to share

Thanks for your attention!