

Review of *George Fabyan* by Richard Munson

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George Fabyan was a businessman, a millionaire, a collector, a patriot who donated time and energy to helping the United States during World War I, and the founder of one of the first private research laboratories in the United States. He was also a bit obsessive, a great salesman and self-promoter, something of a megalomaniac, a believer in the idea that Francis Bacon hid secret messages in the works of Shakespeare, and by most accounts, a pretty terrible and controlling boss. He was alternately generous and miserly where his employees were concerned, and he regularly took credit for their research work. Richard Munson has written a panegyric of Fabyan in the form of a biography. An idea of how Munson feels about Fabyan may be seen in the subtitle of the biography: “The Tycoon Who Broke Ciphers, Ended Wars, Manipulated Sounds, Built a Levitation Machine, and Organized the Modern Research Center.” While Munson does a good job of covering Fabyan’s entire life, in this review I will place emphasis on Fabyan’s running of the Riverbank Laboratories in Geneva, Illinois, and his involvement in cryptology and his relationship with William and Elizebeth Smith Friedman.

George Fabyan was born in 1867 near Boston. His father owned a prosperous textile company that George inherited, along with a \$3 million trust fund. Fabyan was a restless soul, dropped out of school, wandered for several years, and finally settled into management at his father’s Chicago office beginning in 1893. George was an astute businessman and took an already well-off company and made it even more prosperous and successful.

Beginning in 1905, Fabyan bought the first plot of what was to become a 325-acre estate along the Fox River in Geneva, about 40 miles southwest of Chicago. Split roughly in half north-to-south by Illinois Route 31, the estate, called Riverbank, would become Fabyan’s home and the site of one of the first private research facilities in the United States: Riverbank Laboratories. Riverbank includes a Japanese garden, a windmill (Figure 1), a lighthouse (Figure 2), bridges over the Fox River, two swimming pools, the Laboratory buildings, and the Villa, the Fabyan’s country house, expanded and remodeled, beginning in 1907, by Frank Lloyd Wright (Figure 3).

Fabyan began to create the Laboratories around 1912 to satisfy three interests of his: sound, Shakespeare, and ciphers. All of these interests emerge from Fabyan’s

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Figure 1. The windmill at Riverbank today.

fascination with Sir Francis Bacon, the seventeenth century philosopher, scientist, and politician. Fabyan's interest in sound and acoustics comes from a suggestion in one of Bacon's writings for the construction of an acoustical levitating machine. Fabyan engaged an engineer who built it according to Fabyan's specifications, from the Bacon reference, only to discover it did not work. Not to be deterred, Fabyan went to Harvard to enlist the services of first Wallace and then Paul Sabine to help with the device. Not only did Fabyan convince these two physicists to come work for him, he built a state-of-the-art acoustical laboratory for them so they could continue their own researches. The Riverbank Acoustical Laboratory continues to exist today, primarily turning out a line of exquisite tuning forks for industry.

Fabyan's interest in Shakespeare emerged from his fascination with Sir Francis Bacon and with an early and constant interest in secrecy, and will lead us directly into the work in cryptology. As a businessman, Fabyan was concerned with secrecy in communications. This led him to an interest in codes and the use of codes in the telegrams and other communications for his textile company. His interest in Bacon and the Baconian theory of the authorship of Shakespeare at the turn of the twentieth century led him to the books of Ignatius Donnelly [4], Orville W. Owen [12], and finally Mrs. Elizabeth Wells Gallup [9]. Fabyan eventually brought Mrs. Gallup



Figure 2. The lighthouse on the north side of the island in the Fox River.

to Riverbank and provided her with workspace and a staff in order to continue her work on proving that Sir Francis Bacon wrote the plays of William Shakespeare and left enciphered messages hidden in the texts in his bi-literal cipher. Among her staff was one Elizebeth Smith, who would become Elizebeth Smith Friedman in May 1917 (Figure 4).

Mrs. Gallup and others on the Riverbank staff [13] would continue to publish about the Baconian theory for years. In their book, *The Shakespeare Ciphers Examined* [8], the Friedmans finally (?) debunked the theory four decades later.

Munson's writing is engaging. He is a good storyteller, and with George Fabyan he has an excellent subject and a large number of stories to tell. He does a very good job of setting up Fabyan's early life and career and moving him along to the creation of the Riverbank Laboratories. Fabyan is a complex character. He is an excellent salesman and a successful businessman. He is that best kind of tycoon, one who is interested in many things outside of his business, is interested in giving back to the community, but who is also determined to make a name for himself in every field of endeavor in which he engages. Fabyan is never shy about publicity, either for himself or for Riverbank Labs. Unfortunately, many times this interest in publicity is at the expense of giving credit to his employees who do the real work at Riverbank.



Figure 3. The Riverbank Villa today.

His relationship with William Friedman is a classic example of this character trait of Fabyan's.

Munson does a very good job of examining Fabyan's complexity, giving us the social and historical background in which he lived, and making us take an interest in Fabyan and his accomplishments. Where he falls down, though, at least in the



Figure 4. William and Elizebeth Friedman in the Riverbank swimming pool. From the collection of the Preservation Partners of the Fox Valley. Used with permission.

chapters on ciphers, World War I, and the Friedmans, is in a close attention to the facts. Those middle chapters are riddled with many minor and some major errors that could have easily have been remedied by better editing and research.

He begins by getting dates related to Elizebeth Smith and William Friedman's early life and their appearance at Riverbank incorrect. Munson states that Elizebeth Smith was already at Riverbank when Friedman was hired to work in the Department of Genetics. This is incorrect. William Friedman began work at Riverbank in September 1915. Elizebeth Smith graduated from Hillsdale College in 1915 and began work at Riverbank in 1916. Elizebeth and William were married on 21 May 1917 [2, pp. 16–39; 6]. On page 113, Munson incorrectly states Friedman's birth year as 1881 when it is 1891. Later on, at the start of the section on Friedman's first forays into cryptanalysis, he misspells "Plett": It should be Pletts. Although, he does get the story of the decryption of the Pletts cipher machine correct [3]. On page 123, he attributes the discovery of word frequency analysis to the Riverbank staff, something that the Arabs had well in hand by at least the fourteenth century [10, pp. 97–98].

In the section on World War I, the minor mistakes continue. Munson correctly states that in 1917 Fabyan volunteered the services of Riverbank to both decrypt enemy messages and to train U.S. Army cryptanalysts. This generous and patriotic gesture may be Fabyan's most important contribution to American cryptology. Friedman's work in teaching the classes at Riverbank led to the Riverbank Publications, and especially to Riverbank Publication No. 22, *The Index of Coincidence and its Application to Cryptography*, his classic work in practical and theoretical cryptanalysis [7]. However, the details then elude Munson. On page 125, one reads, "Almost eighty officers—most of who[m] would later be sent to General Pershing's headquarters in France—arrived at Riverbank in October 1917 and were housed at the nearby Aurora Hotel." Not quite. Four officers (including J. Rives Childs) were trained in October–November 1917. About 70 more were trained during January–February 1918; these are the ones housed at the Aurora Hotel and the students who posed for the famous "Knowledge Is Power" photograph. Another half dozen were trained in March–April 1918. At that point, Yardley's operation—MI-8 in Washington—took over all training. Friedman joined the Army and was shipped off to France in June 1918 to be the head of the code section of the AEF Radio Intelligence Section G.2.A.6.

On page 128, Munson implies that Friedman broke the *Schliesselheft* German code. There are two problems with this: (1) The *Schliesselheft* was introduced in March 1918, before Friedman got to France, and (2) the break into the *Schliesselheft* code came on 11 March 1918 and was accomplished by American cryptanalyst, Lieutenant Hugo Berthold [10, pp. 335–336]. Later on the same page, during the discussion of the ADFGVX cipher solution, Munson says, "Most credit for finding a solution went to French Captain Georges Painvin, although Friedman devised the mechanical solution for translating messages containing similar endings." This is true, but Friedman's solution came in 1919, after the Armistice [2, p. 68], and the general solution to ADFGVX would have to wait until the cryptanalysts at the Signal Intelligence Service (Frank Rowlett, Solomon Kullback, and Abraham Sinkov) developed one in 1934 [15].

A major error occurs on page 135 where, in the discussion of the Friedman's first year at the War Department in 1921, Munson says, "Although the Friedmans found their initial assignments to be 'very interesting and useful,' those tasks tended to be the routine development of low-level codes. Yet William in 1922 was promoted to

direct the Black Chamber's Research and Development Division, and a few years later became the War Department's chief cryptanalyst." However, William Friedman never had anything to do with Yardley's Black Chamber, and he was appointed the Signal Corps chief cryptanalyst in 1922, a position he held until 1930 when he was appointed the director of the new Signal Intelligence Service.

Finally, in a last chapter describing Fabyan's legacy and what happened to the various projects and people from Riverbank Laboratories, Munson makes two other serious errors of fact. First, Munson repeats Ronald Clark's erroneous story about Friedman basically working alone breaking the Japanese Purple cipher system. While Friedman put in an enormous amount of effort in helping to break Purple, at this point in his career he was doing much more administrative work than cryptanalysis. Frank Rowlett, Genevieve Grotjan, and Leo Rosen put in much of the work on breaking the Purple system, with Grotjan coming up with the key insight. There is barely a mention of Frank Rowlett's team or any other SIS personnel involved in the nearly two-year effort to break Purple [2, pp.138–146; 14]. Lastly, on page 154, he attributes to Friedman and SIS the victory at Midway: "Friedman's team in mid-1942 also decoded Japan's attack plan for the Battle of Midway, allowing Admiral Chester Nimitz to preempt Tokyo's strategy." This is not correct. It was Commander Joe Rochefort's Naval cryptanalytic organization at Station Hypo in Hawaii and Station Cast in the Philippines that did the yeoman's work of breaking the Japanese Navy JN-25b enciphered code system and decrypting the Japanese messages about the Midway invasion in April and May 1942 [1].

Fabyan and Friedman's relationship was always turbulent, and it became even more so as Friedman's confidence in his own abilities in cryptology grew and were reinforced by successes and commendations from outside Riverbank. This led first to Fabyan famously intercepting Friedman's mail and delaying his entry into the U.S. Army in 1917 and early 1918. Then, after the Armistice in November 1918, Fabyan demanded Friedman's immediate return to Riverbank: "The facts in the case are that you are practically loaned for the (war) emergency. The emergency no longer exists, and in justice to yourself, your own future, and myself, I think the sooner you return to Riverbank the better" [5]. This sounds like the demand of a feudal baron who wants his servant back, or possibly it was the desperate request of a man who sees his biggest chance for fame slipping away. Finally, late in 1920, William and Elizebeth Friedman had to pack their belongings in secret and sneak off the Riverbank property in order to take up their life again in Washington [6, p. 70; 2, p. 79].

Before finishing, I would be remiss in not mentioning two more facts with regards to George Fabyan. The first is a letter that was sent from Colonel Ralph van Deman, Chief of the Military Intelligence Section of the U.S. Army in November 1917, thanking Fabyan for Riverbank's help during the early part of America's involvement in the War. In part, this letter says,

The services you have rendered are not to be estimated in terms of money, and it is a source of regret to me that I am wholly unable to devise a method by which the sense of obligation, by the Intelligence Section in particular, may be fittingly evidenced. I trust that in the future I may have the opportunity of expressing more fully in person my sense of the great service you have rendered, and I am sure the sentiments expressed are entertained by the several Departments and will be conveyed to you in due course. [11, p. 92]

Lastly, in 1993 the NSA officially recognized Fabyan's and Riverbank's contributions to the war effort in 1917 with a letter and a plaque that now resides in the Laboratories [16].

Overall, while flawed in a number of places, Munson's biography of George Fabyan is worth the read and a nice remembrance of a strange but interesting figure in American cryptology.

About the Reviewer

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