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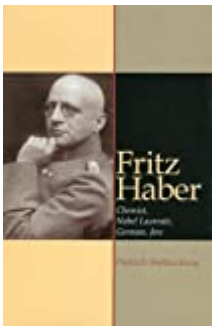

Dietrich Stoltzenberg. *Fritz Haber: Chemist, Nobel Laureate, German, and Jew.* Philadelphia: Chemical Heritage Press, 2004. 336 pp. $40.00 (cloth), ISBN 978-0-941901-24-6.

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A Life in German Science

Fritz Haber's life is a study in contrasts. Considered the primary inventor of the ammonium nitrate synthesis, which arguably saved Europe from starvation in the early twentieth century, Haber is also known as one of the modern fathers of gas warfare. This exhaustive biography, first published in Germany in 1996, captures Haber's complexity well. Based on diligent research, it offers significant detail on Haber's professional life for both specialists and generalists. At the same time, the book's complex structure masks a somewhat uncritical assessment of the scientist.

For the son of a chemical merchant, the choice of an academic career was daring at a time when most junior academics survived on family money not available in Haber's case. After his studies in electrochemistry and thermodynamics won him the position of Professor of Physical Chemistry at the Technische Hochschule in Karlsruhe, Haber published his most important work, beginning in 1904, on the synthesis of ammonia from hydrogen and nitrogen. By 1908, Haber was able to convert nitrogen from the atmosphere into liquid ammonia (NH3), the raw material for making nitrogen fertilizer (N2). Without the Haber-Bosch process, as it became known (Carl Bosch was the industrial chemist who converted the discovery into a large-scale operation), the green revolution of the early twentieth century would not have been possible. Indeed, Vaclav Smil, author of a recent study of the Haber-Bosch process, has argued that Haber's work represents one of the most stupendous technological innovations of recent centuries.[1]

Such an achievement hints at how driven Haber was. As Stoltzenberg makes clear, work dominated the chemist's life and bordered on the obsessive. In 1911, Haber became Director of the Kaiser Wilhelm Institute for Physical Chemistry in Berlin. With the outbreak of World War I in 1914, he placed himself and his laboratory at the service of the government and played a major role in the development of poison gas as a weapon. After the war, Haber's institute became the world's leading center of research in physical chemistry. The breakup of his institute began in 1933. Although he was spared early dismissal thanks to his friend Max Planck and to his status as a World War I veteran, he chose to resign when ordered to fire Jewish co-workers. Offered a position as

head of the Physical Chemistry Department of a new institute in Palestine, he decided to accept an invitation to Cambridge, but suffered a heart attack and died in January 1934.

Stoltzenberg's work is perhaps as rich a biography as can be written on Haber's achievements. A more recent endeavor by Daniel Charles may be an easier read, but it lacks depth.[2] Proceeding thematically and chronologically, Stoltzenberg documents thoroughly Haber's formative years, including his conversion from Judaism to Christianity at twenty-four. Just as Paris was worth a mass, a chemistry chair was worth a baptism and Haber's conversion seems to have been inspired more by ambition than by religious doubt or intimate experience with antisemitism. The matter of Haber's religious background would not come up again until 1933, when he chose to resign in protest over the treatment of fellow scientists persecuted by the National Socialists as Jews.

Stoltzenberg's work offers insight into Wilhelmine science politics from the vantage point of a young scientist. It also includes an entire series of vignettes on the Weimar-era scientific community. Haber did not limit himself to involvement in and development of a new Kaiser Wilhelm Institute. Stoltzenberg clarifies well, for example, Haber's effort to bring Albert Einstein to Berlin in 1912, and how the two remained on amicable terms despite their diametrically opposed views on World War I. After the Great War, Haber also contributed significantly to restoring the reputation of German scientists abroad. All this, however, ended with the arrival of the Nazis.

Stoltzenberg provides as thorough a chronicle as one could hope for, but occasionally chooses to avoid controversy by emphasizing a single reading of the evidence. One example concerns Haber's relationship with his first wife, Clara. The latter had earned a doctorate in chemistry and had become disillusioned in marriage by her husband's intellectual and social distance, his obsession with work, and his preference for a traditional housewife. When Clara learned about her husband's gas warfare experiments, she committed suicide. Here, opinions diverge. Recent feminist interpretations of Clara's life emphasize her pacifism and explain the suicide as a rational act in a world gone mad. While Stoltzenberg does present briefly the different interpretations of the suicide, he stresses Clara's instability. A more balanced effort, especially in the context of the scientist's obsession with his work, would have been preferable to simply dismissing Haber's conflict with his wife as a function of female insanity.

Stoltzenberg also works hard to defend Haber's contribution to gas warfare. Stressing the scientist's drive to break the deadlocked front as logical, the author concludes his discussion by quoting a Red Cross report of 1928 that qualified gassing methods as less dreadful than the future threat of fire bombings (p. 169). This conclusion, however, overlooks the fact that the use of gas in military operations has been so thoroughly condemned that it has been employed in very few theaters since the Great War ended.

This is an excellent biography, yet one that suffers from a complicated structure. That the author jumps back and forth and inundates the reader with detail may also be responsible for occasional confusions in the chronology. It is unclear, for example, whether Haber was promoted to captain so he could carry out his gas warfare tests more efficiently (p. 136) or if he received the promotion after the German gas attack on Ypres (p. 138). Such confusion, however, is forgivable in light of the extensive primary research the author has conducted. The result is a work that brings to light important facets not just of the life of Fritz Haber but of several decades of evolution of the German scientific milieu.

Notes

[1]. Vaclav Smil, *Enriching the Earth: Fritz Haber, Carl Bosch and the Transformation of World Food Production* (Cambridge: MIT Press, 2001).

[2]. Daniel Charles, *Master Mind: The Rise and Fall of Fritz Haber, the Nobel Laureate Who Launched the Age of Chemical Warfare* (New York: Harper Collins/Ecco, 2005).

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