

Scientist and Crusader

Alice Hamilton saved many lives in a field she all but created herself

BY JAMES TOBIN

ON THE NIGHT BEFORE HER

first classes at the Medical School in 1892, Alice Hamilton, 22, sat at her new desk on South Ingalls Street and composed a long letter to her cousin and best friend, Agnes.

She was not lonely, she said, “not very,” for “things are so interesting that I have not time to be.”

To-morrow I am going to my first lecture, on Materia Medica, at half past nine. Then comes one on Surgery, then one on Obstetrics ... After that I suppose I shall drag what is left of me to dinner and study during the afternoon, if I have any courage left to study with. I have not the slightest idea ... whether I shall find myself utterly deficient or pretty well advanced. It is so queer to be one of so many and of such very little importance. I am absolutely nobody, for the first time in my life ...

Yet she was determined to leave behind “some definite achievement, something really lasting ... to make the world better.”

This “nobody” — a strikingly beautiful young woman from a provincial, prosperous family in Fort Wayne, Indiana, so petite that she seemed “almost fragile” — would become one of the great figures among Michigan’s medical graduates, a fighter for public health credited with saving countless

lives in a field of medicine she all but created by herself.

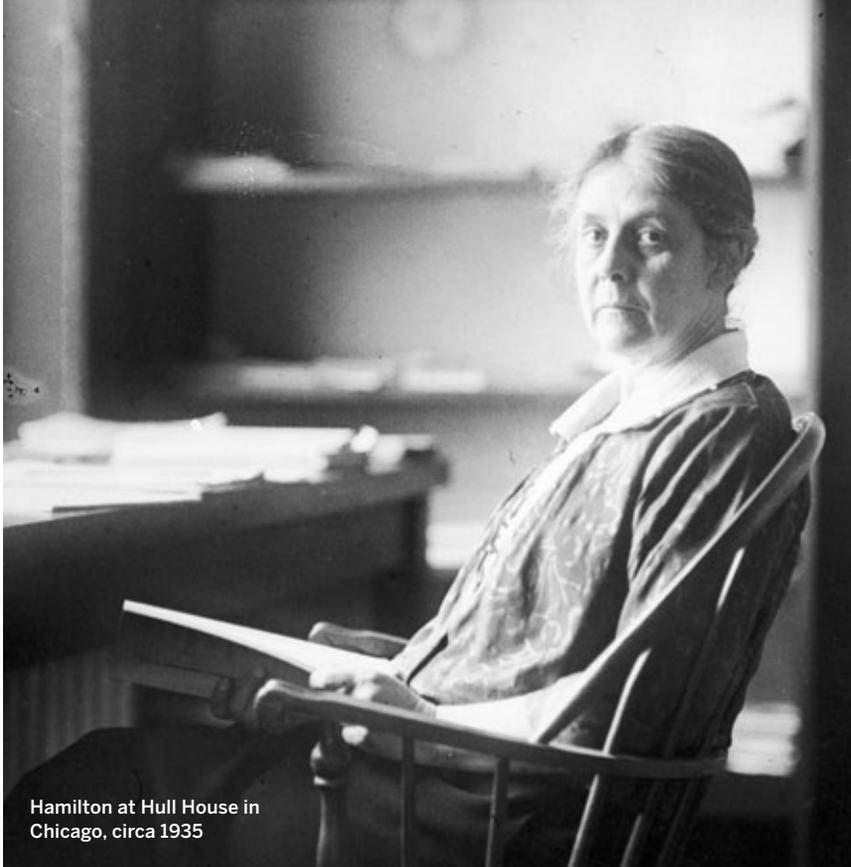
She did well enough in class that she earned her diploma in three semesters instead of the usual four. The mysteries of disease enchanted her, but she could not shake her unease about caring for patients. “I don’t mind chemicals or frogs even, or cats,” she said, “but when it comes to living, feeling people, then I grow frightened.”

She believed that a woman must choose a family or a career, and she unhesitatingly chose the latter. Then, after internships in Minneapolis and Boston, she left clinical care to pursue a career in the laboratory. After more training in the U.S. and Germany, she accepted a teaching post in pathology at the Woman’s Medical School of Northwestern University.

The move to Chicago proved to be the hinge of her career, for she took lodging at Jane Addams’ Hull House, a mecca for social reformers, and in the city’s struggling immigrant neighborhoods, she began to see connections between disease and its environment. She captured flies suspected of carrying typhoid; surveyed boys addicted to cocaine; puzzled over the spread of tuberculosis. In 1907 and 1908 she led an investigation of “phossy jaw,” a grim malady that deformed the faces of men exposed to white phosphorus in the match industry. Her work caught the eye of the state’s reform governor, who appointed her lead investigator on a survey of workplace diseases.

She led the investigation of lead poisoning, which was “like trying to make one’s way through a jungle ... Of

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Hamilton at Hull House in Chicago, circa 1935



Hamilton and a classmate in the U-M physiology lab, circa 1893

course the foremen deny everything and the men will not talk.” But she persisted, talking to labor leaders, druggists, inspectors, neighborhood doctors. Her survey — along with findings on arsenic, brass, zinc, turpentine, cyanide, and carbon dioxide — led to a state law to protect workers from workplace toxins, one of the first of its kind.

Moving to the new Department of Labor just before World War I, she studied dangers in armaments factories, airplane manufacturing, and TNT production. She published the first book on industrial toxicology.

When David L. Edsall, M.D., the new dean of medicine at Harvard, created a program in industrial hygiene in 1918, he recommended a faculty appointment for Alice Hamilton. She would be the first woman on Harvard’s faculty, Edsall reminded President A. Lawrence Lowell, who said it was all right with him as long as “she is really the best person for it in the country.” Edsall assured him she was.

“Going to Harvard is very grand,” she wrote. “If one could wear it as a decoration, like the Order of the Gar-

ter, I would love it.” Yet even in her delight she noted that “I am not the first woman who ought to have been called to Harvard.”

She gave Harvard 16 years as an untenured assistant professor. For a time her old self-doubts reemerged. “I came brashly into a milieu to which I was not adequate,” she wrote, “and tried to fill a place which needed more brains than I have.” She was more than adequate. Her chairman said she knew more about industrial toxins than anyone in the world. But the focus of toxicology was shifting to the laboratory, and many of her male colleagues scoffed at her field work. “I have so often felt myself pushed into obscurity and passed over that I have almost ceased to fuss over it,” she wrote her sister.

Her work continued. She exposed dangers in the electrical and watch-dial industries, expanded her investigations of lead, and forced regulation of the lethal solvent benzene. In the end, even industrialists joined her admirers. In 1933, an old hand in the chemical industry wrote to a friend about Hamilton in “the old days,”

when “some of your boys used to think that she was a plain nuisance and just picking on you for luck.” But by now, he wrote, they’d be fools to ignore “the debt that society owes her for her crusade. I am pretty sure that she has saved the lives of a great many girls in can-making plants ...”

Hamilton retired from Harvard in 1935. (Her formal career was closing just as her older sister Edith was rising to worldwide fame as the author of bestselling books on ancient history, including *The Greek Way*.) She continued to survey industrial dangers for the Department of Labor; supported disarmament (until the Nazi conquest of Europe); and published a memoir, *Exploring the Dangerous Trades*, in 1943.

She died in 1970 at the age of 101. The Occupational Safety and Health Act became law three months later. Alice Hamilton had built its foundation. [M]

Sources include Barbara Sicberman, *Alice Hamilton: A Life in Letters (Harvard, 1984)* and Howard Markel, “Exploring the Dangerous Trades With Dr. Alice Hamilton,” *JAMA*, vol. 298, no. 23 (December 2007).