

The Indianapolis Literary Club 2012-2013: 137th Year ***Alice's Wonderland of Research into Dangerous Trades.***

Essayist: Stephen J. Jay M.D. Read on Tuesday, 8:00 P.M., January 22, 2013, at the regular meeting of the Indianapolis Literary Club, Park Tudor School

"I have done what was my duty...I believed that it would benefit the commonwealth of mankind if I should examine carefully the special diseases of workers and prescribe suitable remedies, a task that no one had undertaken hitherto."

---Bernardino Ramazzini, *Diseases of Workers (De Morbis Artificum, Latin text of 1713, revised with translation and notes by Wilmer Cave Wright. Chicago, Illinois: University of Chicago Press. P, 5,*

"It was while I was living in Hull-House and working in bacteriological research that the opportunity came to me to investigate the dangerous trades of Illinois—not those where violent accidents occurred, but those with the less spectacular hazard of sickness from some industrial poison.."

---Alice Hamilton (1869-1970) In "Exploring The Dangerous Trades: (Autobiography of Alice Hamilton, M.D., 1943, pp. 3

"The good we secure for ourselves is precarious and uncertain until it is secured for all of us and incorporated into our common life."

---Jane Addams (1860-1935) Nobel Peace Prize, 1931. See "Jane Addams: A Biography"; James Weber Linn. Univ. Ill. Press, 2000, p 107.

"Mankind does not of a sudden become sinless, but he knows little of history who thinks that our progress is downhill, not up."

---Alice Hamilton, In "Exploring The Dangerous Trades: (Autobiography of Alice Hamilton, M.D., 1943, pp. 427.

"Knowing is not enough; we must apply.

Willing is not enough; we must do."

---Attributed to Johann Wolfgang von Goethe (1749-1832)

"Again and again in history some people wake up. They have no ground in the crowd and they move to broader, deeper laws. They carry strange customs with them and demand room for bold and audacious action. The future speaks ruthlessly through them. They change the world."

--Attributed to: Ranier Maria Rilke (1875-1926)

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Introduction

Americans go to work with little concern they might suffer a work-related illness or injury, but in 1900, hazardous worksites were unregulated. Over the past century, work-related diseases and injuries have decreased 90%; in 2011, there were 4600 work-related deaths; 3.5 deaths per 100,000 workers. But compared with 1900, worksites are generally safe today. This success is attributed to efforts of workers, employers, unions, government, clinicians, and scientists, one of whom, Alice Hamilton, is credited with leading worker safety reform in 20th c America. Considered the "*Mother of Industrial Medicine*," Hamilton's inspiring life is the focus of this essay. My aims are to explore how Hamilton's unique upbringing in Indiana shaped her professional achievements; to suggest how her melding of science with advocacy and social reform improved the health of all workers; and to propose that her life story as physician, scientist, humanitarian, and a leader of progressive reforms last century, is a beacon for guiding America's responses to its 21st c challenges, where science, wisdom and public policy are often disconnected.

Early Life in Fort Wayne

Born in New York, raised in Fort Wayne in a wealthy family of Scotch-Irish, Dutch and English ancestors, Alice Hamilton called herself a Hoosier. She was the second eldest of four girls, born 1867 to 1872; brother, Arthur ("Quint") was born in 1886. Their paternal grandfather, Allen Hamilton and grandmother, Emerine Holman, were pioneers in 1823, "when Fort Wayne was an outpost in a land of Indians." Hamilton was a fur trader, land speculator, sheriff, county clerk, banking and railroad entrepreneur and member of Indiana's Senate. He befriended Miami Indian Chief, John Baptist Richardville and profited from acquisition of Richardville's estate, as the Federal Removal Act of 1830 was being implemented. Assessing Hamilton's life of accomplishments in Indiana, an early historian quoted Shakespeare: "There is a tide in the affairs of men, which taken at the flood, leads on to fortune."

Allen was 18 when he immigrated to Canada from Ireland. Near fatal ship fever and urging by his physician in Quebec to go south for a cure, led him in 1817 to Lawrenceburg, Indiana. When his health recovered, he married Emerine Holman in Aurora, where she was raised in a home overlooking the Ohio River, now called Veraestau and owned by Indiana Landmarks. The daughter of an Indiana Supreme Court Judge, Emerine was 17, and the newlyweds settled in the old decommissioned military fort in Fort Wayne. Their wealth accumulated; in 1840 they built the fifteen-acre Homestead, where their clan lived for several generations. Emerine bore eleven children; five survived. Alice remembered her

grandmother, as a "fascinating person," elusive but with affection for all seventeen cousins. Emerine was a tiny person, quick and wiry, an avid reader with a mind as quick as her body. She delighted in reciting poems, such as Walter Scott's, *Marmion*, "where the trial and walling up of Constance de Beverly in the monastery of Lindisfarne," enthralled Alice:

"The dark red walls'and arches'gleam.

And now that blind old abbot rose,

To speak the Chapter's doom

On those the wall was to enclose,

Alive, within the tomb

Emerine became a prominent philanthropist, educator and reformer, an advocate of women's suffrage, even hosting Susan B. Anthony at the Homestead. Emerine founded Fort Wayne's free public library, built a new church for the first African American congregation, and with her husband created the first Presbyterian Church services. Emerine and Allen led a successful effort to allow all women in Fort Wayne congregations to vote on church matters.

They sent their sons to Wabash, Princeton, Gottingen and Jena universities and to Harvard Law, their daughters, to Miss Porter's School in Farmington, Connecticut. Alice's father, Montgomery, left Princeton to join the Union Army in 1862. Dispatched to Germany to recover his health, he acquired a taste for wine and lavish spending. He met his wife, Gertrude Pond, in Europe, where she had spent much of her young womanhood, "free from the Victorian prudery...." The daughter of a Wall Street broker, Gertrude was remembered by Alice as "an extraordinary woman for her ...generation." Their troubled marriage remained intact, even as Montgomery's grocery business dissolved, creating fears of insolvency in the family.

Montgomery was more intellectual but less sentimental than his wife, which Alice considered "wholesome ...in a household of women." He was a Presbyterian, Gertrude an Episcopalian, whom Alice said shocked the Victorian Hamilton's with talk of pregnancy, childbirth, and suckling. The children were home-schooled: Latin, Greek, German, French, Italian, classic literature, history, but little science. But, Gertrude taught them to reason and to defend their statements. Alice said, "never was there a mother less possessive." Gertrude's motto was from the monks of Thelema: "*Fay ce que vouldras*" ("*Do what thou wilt.*") She taught that injustices of society were a personal concern for all: "There are two kinds of people, the ones who say 'Somebody ought to do something about it but why should it be I?' and those who say: 'Somebody must do something about it, then why not I?'" Montgomery insisted Alice learn the "whole of *The Lady of the Lake*" and to memorize the Westminster Catechism. Alice said the first research she undertook was at age 12; her father had her find proof of the doctrine of the Trinity.

The children lived an insulated but stimulating life of play and study; their Sunday outings to the Presbyterian Church were a welcome respite. As a young girl, Alice dreamed that one day she would be a medical missionary to Teheran, having been fascinated by the description of Persia in O'Donovan's

"The Merv Oasis." The girls read Charles Kingsley, Frederick Maurice and Richard Ely's books about the progressive movement and Christian social reform. Intrigued by these progressive viewpoints, Alice began to read about the settlement house movement.

Alice Hamilton's higher education

When she was 17, Alice attended Miss Porter's School for two years and, on her return, commented that she must train herself to earn a living, for the family finances were diminishing. The few careers open to women included teaching, nursing, or the practice of medicine; Alice chose medicine because as a doctor she could go overseas or to city slums—and be sure she could be of use anywhere. In 1890, she entered the Fort Wayne College of Medicine at Taylor University where her father was a trustee. Alice was an earnest student, and Montgomery sent her to the University of Michigan Medical School, where she graduated in 1893. After internship, she pursued laboratory rather than clinical medicine, receiving additional training at Pasteur Institute in Paris and pathology in Germany and Johns Hopkins University.

Now in her late twenties, in 1897, Alice's life changed dramatically; she became professor of pathology at the Women's Medical School at Northwestern University and a resident of the Hull House Settlement in Chicago. When Jane Addams, co-founder of Hull House in 1889, had come to Fort Wayne, Alice and her cousin Agnes attended the lecture at the Methodist Church and made the decision to choose settlement life. Alice resolved to combine medical science with social reform, the path to a "life full of human interest."

Hull-House

Alice Hamilton came to Hull-House during the *Progressive Era* of the late 1800's, drawn to contentious social and political issues: birth control, child labor laws, worker's compensation, health insurance, woman's suffrage, peace and international relations. Compassionate citizens with means moved into slum settlements, bringing knowledge, research and teaching skills, and commitment to serve the poor and bridge the classes. Hamilton established a well-baby clinic and taught families how to avoid cocaine and contagious diseases. She studied an outbreak of typhoid fever and published results in the *Journal of the American Medical Association* in 1903. Hamilton implicated flies, but it was a break in sewer pipes, covered up by the health department to save face, that caused the outbreak.

Early Interest in Dangerous Trades

Hamilton saw first-hand how dangerous trades affected the health of workers and realized the value of studying occupational diseases. To Hamilton, "industrial feudalism" in American democracy was incongruous. Whether carbon monoxide gassing in steel mills or potters' with lead palsies, or pneumonia and rheumatism among men in the stockyards, Hamilton recognized the hazards for poor immigrant workers; Hull-House became a center for the labor movement that sought relief from poverty, slum housing, inadequate nutrition, and inadequate medical care. At the time, no Illinois law provided compensation for occupational accident or disease, an issue Hamilton discussed with Upton Sinclair who was living in a stockyard settlement and writing, *The Jungle*. Three events prompted Hamilton to research the link between occupation and disease. First, she read an article by William

Hard, son of missionaries, who wrote of a tragic fire caused by negligence at a pumping station in Lake Michigan. The widows and orphans received funeral expenses, nothing more. Hard contrasted their treatment with the favorable treatment they would have received in Germany, where workers' compensation existed. By chance, Hamilton next read an encyclopedic work, *Dangerous Trades*, by Sir Thomas Oliver, a British expert in occupational diseases. European countries, but not America, considered industrial medicine a branch of medical science. Finally, Hamilton asked American physicians about industrial diseases- they denied their significance. She pointed out that "phossy- jaw," described in Europe's match industries, where breathing fumes of phosphorus caused abscesses in the mouth and jaw, existed in United States; still physicians and industries denied the problem. Hamilton decided to use science to inform physicians and industry and to advocate for improved workers' health.

Fortuitously, Professor Henderson, at University of Chicago, persuaded Illinois Republican Governor, Charles S. Deneen, to appoint an *Occupational Disease Commission* to survey industrial diseases, resulted from exposure to lead, arsenic, brass, carbon monoxide, cyanides and turpentine. Hamilton was chosen to manage the survey and upon visiting plants, reading hospital records, interviewing labor leaders, doctors and apothecaries, her team found 578 cases with 18 deaths from lead poisoning. Hamilton's sentinel report of the Illinois Survey in 1911 prompted passage of workers' compensation laws in Illinois (1911), Indiana (1915), and other states followed.

A Career is born: Research in the Dangerous Trades:

As Hamilton prepared the Illinois report, the U.S. Commissioner of Labor asked her to study the "poisonous trades". Hamilton accepted and the die was cast for her professional career. Hamilton never doubted the wisdom of her decision to forego laboratory medicine and devote herself to work which was partly scientific but also human and practical.

Over the next decade, Hamilton investigated hazards in the lead, munitions, pottery, rubber, and dye industries. She researched worker safety at the Indiana Mishawaka Woolen Manufacturing Company. Combining science with sleuthing, Hamilton studied industrial poison mysteries that would challenge Sherlock Holmes: for example, unsuspected lead poisoning in enamellers of bathtubs. Melding science with social reform advocacy, Hamilton created the specialty of industrial medicine in America; she emerged from her late-Victorian up-bringing in Fort Wayne to a brilliant reformer and pragmatist who used science to open previously closed doors of progress.

World War I

In 1915, WWI loomed. Jane Addams led the first International Congress of Women to protest against war; Alice Hamilton joined her and 1,100 women who met April 28-May 1 at *The Hague*, Netherlands. There, Jane Addams, Emily Balch, and Alice Hamilton set forth a plan for "*Continuous Mediation*" with belligerent nations to promote peace through personal diplomacy. Since America was neutral, they proposed the U.S. had a moral obligation to mediate a peace plan. The women met with leaders in war capitals, who listened to the proposal, but their efforts to convince President Wilson to lead the neutral nations in peace efforts failed. Addams, Balch, and Hamilton's proposal for *Continuous Mediation* is used

today in diplomatic negotiations among hostile nations. For their humanitarian efforts Jane Addams and Emily Balch received the Nobel Peace Prize in 1931 and 1946, respectively.

Ironically, when Alice Hamilton returned, in 1915, from her peace mission in Europe, Washington put her to work in the explosives industry to support Britain, France, and Russia. American scientists knew little of the dangers of exposure to picric and nitric acids and fulminate of mercury. When the Navy said they didn't have cases of trinitrotoluene or TNT poisoning, Hamilton knew better, having researched the poisoned, yellow-skinned workers- called "canaries"; she appealed to the young Assistant Secretary of the Navy, Franklin D. Roosevelt for support, he listened and acted, sending a resplendent Admiral, whom Dr. Hamilton thought was "...a gorgeous creature who made me feel like a drab peahen." When America entered WWI, Hamilton's work in munitions accelerated, and she pioneered researched into dope poisoning in the making of airplane wings.

At war's end, the second Congress of Women met in Zurich, in 1919; they disagreed with the Terms of Peace at Versailles and warned of future wars. Hearing of starvation among German children, Hamilton met with her mentor and friend, Sir William Osler, who heartily approved the plan to get food to children in Germany. Osler's only son, Revere, had been killed in the war. Alice Hamilton and Jane Addams, working with Herbert Hoover and Quaker relief, visited Berlin, Halle, Leipzig, Chemnitz and Frankfurt, and, in July 1919, Hamilton described in her diary the severe starvation of children, something she had never seen before except in the illustrations in medical books. Quaker relief soon began.

Harvard Years 1919-1935

Near the end of Alice Hamilton's life, she reflected that 1919 was her best year. She completed her humanitarian work in Europe, investigated Arizona copper mines; and with trepidation, accepted Dean Edsall's offer to become Assistant Professor of Industrial Medicine at Harvard Medical School, the first such position in America and the first time that Harvard had appointed a woman to its faculty. President Lowell advised that Hamilton's appointment not be construed as a precedent for admitting women for degrees. He stipulated that Hamilton not enter the Harvard Club; not participate in the academic procession at Commencement, and not expect the professorial privilege of a quota of football tickets.

Hamilton's stature in industrial medicine enabled her to begin to change scientific thinking, practice, and policy regarding workers' health. For sixteen years at Harvard, she published many research reports; wrote major textbooks; taught students; raised money; edited journals; served as consultant to General Electric, and represented Harvard University. She was appointed by President Hoover in 1930-32, as the only woman member of the Research Committee on Social Trends in America, funded by the Rockefeller Foundation. Despite her prodigious accomplishments, Harvard and Hamilton had a strained relationship: Harvard emphasized basic research, and there was inevitable distain for a female whose research focused on practical applications and who had anomalous, half- time appointments to Harvard because she insisted in spending the spring months at Hull House.

In 1919, Hamilton was summoned to inspect Arizona copper mines, the scene of bitter labor strikes during WWI. Her successes in industrial research were based on "shoe leather epidemiology," with first-hand interviews of laborers, community leaders, industry representatives and physicians, and on-site

inspection of working conditions. In Arizona she found no "neutral" parties to interview. Instead, she donned miner's overalls, helmet and lamp and rode a flimsy, open elevator to the shafts 800 ft. below, conducting research in Spartan and dangerous conditions. After a month researching the mines, Hamilton produced another of her exhaustive reports for the Bureau of Labor.

When limestone cutters in Bedford, Indiana, demanded a federal investigation of injuries caused by air-hammers, Hamilton responded and found that cutters developed so-called "dead fingers," painful, discolored, and numb digits. Hamilton's research led to improvements in air-hammer technology and workers' practices. Local physicians told cutters that "air-hammer use would be followed by tuberculosis, paralysis ... and insanity." Hamilton observed that the Bedford physicians' concerns about tuberculosis were confirmed in cutters in Barre, Vermont. There, tuberculosis rates were indeed high, but tuberculosis was caused, not by air-hammers, but by inhaled silica dust that promoted growth of TB microbes; the dust disease, silicosis had been researched by Hamilton and ironically was well-known to ancient Greeks and Pliny the Elder.

During her Harvard years, Hamilton witnessed how science, education, and regulations improved worker safety, preventing exposure to toxins in smelting, enameling, painting, pottery, rubber, felt hat, munitions, radium, tetra-ethyl lead, battery, and aniline dye industries and where toxic metals: copper, lead, arsenic, and mercury were used. Her research in mercury poisoning of fur felt hatters led to the outlawing of mercury nitrate in the hat industry. Whether Lewis Carroll's Hatter was mad from mercury poisoning is unclear. But, Alice Hamilton's hatters suffered "psychic irritability." Hamilton also researched carbon monoxide poisoning, the most prevalent deadly gas, the cause of the Cleveland Clinic and Iroquois Theater disasters and a major problem in coal mines and steel mills of Gary, Indiana and Pittsburg. In 1937, at 68, Hamilton conducted her last study for the Department of Labor. Viscose rayon had been studied in Europe, but not in the U.S. Hamilton identified the major poison, carbon disulphide, and while stonewalling slowed reforms, she marveled that industries implemented safe practices, once evidence accumulated.

Social Activism between the Great Wars

Between the Great Wars, Hamilton supported often controversial issues: social reform, peace, equal rights, protective labor legislation for women, humanitarian and public health initiatives. She was a leader in the final and unsuccessful appeals for clemency in the controversial Sacco-Vanzetti case in Boston. From 1924 to 1930, she served on the Health Committee of the League of Nations, the only woman member. Founded at the Paris Peace Conference, the League's aim was to prevent war; WWII showed the League's limitations. It was disbanded. But, the League's Health Committee had done remarkable work, absent politics that doomed its parent. The committee promoted international cooperation in addressing child labor and preventing disease outbreaks: cholera, typhus, leprosy, malaria, yellow fever, tuberculosis and sleeping sickness. Hamilton spoke in public about the work of the Health Committee, avoiding the name "*League of Nations*," which she said: "...made hearers' minds close with a snap, so skillfully had they been conditioned against it."

Hamilton was a pacifist in the First World War and was involved in controversial peace efforts. She rejected, however, radical anti-war sentiments, and with the rise of Nazism, she advocated for U.S. opposition to Hitler. In 1933, Hamilton received a visiting fellowship from the *Oberlaender Trust*, an organization that promoted understanding among Germans and Americans. She had visited countries under tyranny, Belgium in 1915, Russia in 1924, but she wrote: "neither had affected me as poignantly as did the Germany of April 1933." In a prescient article: "Hitler Speaks: His Book Reveals the Man," published in *Atlantic Monthly* following her return from Germany, Hamilton reviewed, *Mein Kampf*. Her article began: "The man who now rules Germany is no enigma; there is no mystery about him. His beliefs, his dreams, his loves and hates, are all laid bare in his own book...elaborated in almost exhausting detail...in some 250,000 words." Dr. Hamilton described the successful system of propaganda Hitler was using—"the bigger the lie the more readily it is believed by the masses." In clear, yet urgent prose, she outlined starkly the intent of the Fuhrer. Hamilton, in 1933, found no mystery about Hitler. It was all there in *Mein Kampf*, in 1925.

The Later Years at Hadlyme

Hamilton left Harvard in 1935, and entered a new phase of her life, as consultant to the Division of Labor Standards. Years earlier, Hamilton had anticipated retirement, and when the home in Fort Wayne was sold, she and her sisters, none of whom married but were bonded for a life together, sought a permanent home. In 1916, Alice chose Hadlyme, Connecticut, where they had summered since 1912. Active in retirement, Hamilton gave the commencement address at Bryn Mawr College in 1936; as another world war loomed, she wrote that world peace would come nearer reality: "if statesmen would face war as physicians face disease." In 1943, she published her remarkable autobiography and served as President of the National Consumers' League. She published a revised edition of her classic textbook, "Industrial Toxicology," in 1949, a capstone of her career. Hamilton asked a younger Harriet L. Hardy, M.D. of Harvard, to co-author the text to counter possible dismissal of this work as "out of date." Hamilton was 80. She would be pleased that fifty years later, the Hamilton and Hardy textbook was still a primary source of knowledge regarding workplace hazards.

Hamilton continued to write about contemporary social and political controversies into her 90s. In correspondence with lifelong friend, Supreme Court Justice, Frankfurter, she debated and defended her positions, as Gertrude had taught her in Fort Wayne. At 90, Hamilton reflected, in *Atlantic Monthly*, on how the world appeared to her. She debunked the myth of "good old days" laissez faire economics, suggesting that, "as an old woman, much of whose life was spent among the submerged working class, she would tell what life was really like underneath the pleasant, comfortable Victorian surface." At 94, she signed an appeal to President Kennedy, urging withdrawal of soldiers from Viet Nam; she chastised senator, Abraham Ribicoff, about the use of poison gas there. In her last letter to Mr. Frankfurter she admonished him for suggesting that she write a "Tischreden" (Tish raden) ("table-talk memoir") about the intellectual environment she grew up in. Her response: "Instead of urging an ordinary person like me to take up writing at 95, you should do it seriously before you reach that appalling age."

Alice Hamilton silenced her pen at 97, announcing: "Well this is my last writing effort, and high time! Seeing I am already within four years of 100." She received accolades from around the world on her

one hundredth birthday, including a telegram from President Nixon, praising her work at Hull-House and Harvard, her achievements in industrial medicine and her pivotal role in bringing workmen's compensation to America. Ironically, for forty years, Alice Hamilton's name was on lists for "subversives." In her 90s, the FBI was still keeping tabs on her.

Hamilton's siblings had remarkable lives. Arthur became an English scholar; Nora, an accomplished artist; Margaret, headmistress at Bryn Mawr School. Alice's older sister, Edith, became a preeminent classicist and author of *The Greek Way*. Robert Kennedy quoted from Edith Hamilton's Greek translations in his speech in Indianapolis, April 4, 1968, after Martin Luther King's death, "to tame the savageness of man and make gentle the life of this world." Perhaps Edith, who said of her sister "She was balm to my soul," would have discussed her translations with Alice, who had devoted her life to taming the waywardness of men to make life more tolerable for all. Three months after Alice Hamilton died at 101, President Nixon signed, December 29, 1970, the *Occupational Safety and Health Act*, the first federal law to enforce healthier workplaces in America, six decades after Hamilton pioneered Industrial Medicine, bridging social justice and science to advance the working conditions of Americans.

Honors:

Alice Hamilton was a reluctant recipient of many awards: the 1935 Chi Omega Achievement Award given by Eleanor Roosevelt; the 1947 Lasker Public Service Award, for contributions to the prevention of occupational diseases; Hamilton's likeness was featured on a U.S. postage stamp in 1955. In 1987, the National Institute of Occupational Safety and Health dedicated the "Alice Hamilton Laboratory" in Cincinnati. In 2000, Alice, Edith, and their cousin Agnes were immortalized in larger than life bronze statues in Headwaters Park, Fort Wayne, Indiana. In 2002, Hamilton's pioneering life's work in industrial toxicology was dedicated by the American Chemical Society as a *National Historic Chemical Landmark*. There has been speculation, but no clear answers, on why Dr. Hamilton was never promoted nor did she receive an honorary degree from Harvard University.

Why was Alice Hamilton Successful?

When Eleanor Roosevelt presented the Chi Omega award to Hamilton she said: "Sweet faced, gentle and unassuming, a lovelier person can hardly be imagined. When she ...said that in her field she had encountered very little opposition, your instinctive reaction was that no one could help wanting to be of service to her." Much of Hamilton's success was due to this ingratiating quality. Walter Lippmann said of Hamilton: "She has the most satisfying taste of all personalities I've ever met -- wine and silver and homespun." Another said: She would seem more at home at a tea table in Victorian settings than in a factory filled with chemicals and noxious fumes." With "hazel eyes, serene and searching" her profile was of a "classic gravity." But, in addition to her pleasing demeanor and grace, Hamilton brought logic, science, objectivity, and candor, without condescension, to deliberations with government, unions, industry and peers, her aim always to advance worker's health. A slight, 5'4," what Hamilton lacked in size, she made up for with powers of persuasion. Never "pro labor" or "pro capital" or "pro government," she had the credibility of an independent scientist with the stature of a diplomat. Her liberalism was "immune to extreme ideologies, either of the right or the left." She believed in the good

intentions of all parties to debate and in her faith that publicity was the best weapon against industrial diseases. Evidence and argument were critical factors in changing attitudes, behavior and laws. This to Hamilton was a "peculiarly American" approach.

But, the roots of Hamilton's success may be found in her youth. Raised in Fort Wayne in a unique family of means that valued conservative, liberal, religious, progressive social and cultural and educational ideals of 19th century America, she drew from this deep well throughout her life and became an influential figure of the 20th century—a preeminent scientist and humanitarian who demonstrated the moral and practical virtues of a life dedicated to self-sacrifice; a compelling example of how reason, leavened with science and wisdom can be the bridge to successful progressive public policies that improve life for all people, including the "least among us."

Today, leaders who deal with compelling 21st c challenges of peace; climate change; sustainability; the rule of law, education, and health may benefit from study of Hamilton's remarkable life. They would also benefit from Hamilton's optimism which she expressed in her autobiography: "Mankind does not all of a sudden become sinless, but he knows little of history who thinks that our progress is downhill, not up." While Alice Hamilton didn't realize her childhood dream of becoming a missionary in Teheran, she became instead a missionary for peace, human rights and workers' health in America; and we are all the better for it.

Epilogue

On January 25, 2012, Chicago's Hull House, founded 123-years ago, filed for bankruptcy, a victim of public sector cutbacks for child welfare services.

L'Envoi (From an article at the beginning of Alice Hamilton's career)

"I suppose it is a relic of the youthful daring pioneer spirit, which achieved such brilliant things in the early days of our country that makes us as an industrial nation reckless of health and life and impatient of the control of law. But while it may be an admirable thing to be reckless of danger for oneself, there is nothing admirable in allowing ignorant and helpless people to incur risks which they either do not realize or which they are compelled to face."

Stephen J. Jay
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Indianapolis Literary Club

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Acknowledgments:

Allen County Public Library, Ft. Wayne, Indiana, Library staff: Linda Chapman, Becky Carden, and John Beatty were helpful in reviewing archives for information regarding Alice Hamilton's early life in Ft. Wayne. They provided links to digitized images of the Hamilton Homestead. Trish Downey, Readers' Services Assistant Manager, provided links to Allen Co Library clippings, images and articles and the Biography and Genealogy Master Index for Alice Hamilton that contains 76 citations from 1949-2000, primarily dictionaries and encyclopedias.

Allen County-Fort Wayne Historical Center: History Center. Staff, including Randy Elliott, found no evidence for an "Alice Hamilton" building in Ft. Wayne, as suggested in a computer legend in an online publication by U.S. Department of Labor, OSHA. The building image found in this article (called "The Alice Hamilton Building") was the Hull House in Chicago, where Alice Hamilton lived for more than 20 years. A post card image of Hull House shows the likeness to the image in the OSHA article (Job Safety & Health Quarterly by Fatima Pashaei).

Lorraine H. Davis, Fort Wayne, Indiana, shared with me her remarkable knowledge of the history of the Hamilton family, particularly Emerine Hamilton, in a conversation 1 Mar 2012. She provided a copy of her history of Emerine from the Allen County-Fort Wayne Historical Society, 2000. Mrs. Davis was instrumental in collaborating in support of the development of the Hamilton Plaza in Headwaters Park in downtown Fort Wayne that features the bronze statues of the Hamilton women: Sisters Alice, Edith, and Cousin Agnes.

Nancy L. Eckerman, Indiana University School of Medicine, Ruth Lilly Medical Library, Special Collections Librarian, History of Medicine and Nursing, provided invaluable assistance; including details of medical schools in Fort Wayne: Medical College of Ft. Wayne (organized 1876; ceased operation, 1883) and the Fort Wayne College of Medicine (organized 1879) that Dr. Hamilton attended 1890-91 before enrolling in the University of Michigan School of Medicine. Fort Wayne College of Medicine "united its fortunes with the Taylor University" and became the Medical Department of that University and was housed in the Taylor University building.

Accacia Flanagan, Reference Assistant, Schlesinger Library, Radcliffe Institute for Advanced Study, Jan 23, 2009: reviewed folders in Finding Aid: Hamilton, Alice, 1869-1970. Papers, 1909-1965, Series I. Biographical Material #'s 1-3. Flanagan found no information on AH's youth in Fort Wayne. Recommended: Doris Fielding Reid: Edith Hamilton: an Intimate Portrait. Ms. Flanagan provided a list of ArchiveGrid data base on archives that hold Alice Hamilton papers.

Stephen J. Jay

Jill Gage, Reference Librarian, Roger and Julie Baskes Department of Special Collections, The Newberry Library, Chicago, Illinois. Ms. Gage kindly corresponded on Feb 17, 2009, regarding her review of the Alice Hamilton folder containing limited correspondence of Dr. Hamilton.

Ralph D. Gray, PhD, Professor Emeritus of History, IUPUI Indianapolis kindly connected me to the IU Lilly Library manuscripts curator in a search for correspondence between Hoosiers Booth Tarkington (1869-1946) and Alice Hamilton (1869-1970). None was found, despite their plausible interactions: both from Indiana, contemporaries, both used the relatively uncommon term "Dangerous Trades," Tarkington in his book *Magnificent Ambersons* and Alice Hamilton in her many science papers and public communications.

Indiana State Library, Mark Vopelak, CA, Manuscripts and Rare Books Division Supervisor, Indiana State Library kindly provided information on the Hamilton Family papers (L62.)

Indiana University Lilly Library, Manuscripts Curator, Bloomington, IN. David K. Frasier and Whitney Anne Buccicone provided information regarding a possible connection between the author, Booth Tarkington and Alice Hamilton. In Tarkington's book, *Magnificent Ambersons*, George asks Old Frank for help in getting a job in the "Dangerous Trades." As contemporaries Tarkington may have learned of "Dangerous Trades" from Hamilton's research and advocacy. David K. Frasier found no such documentation in the Lilly in-house Manuscripts Index Catalog but since IU Lib holds few of Tarkington's papers, he directed me to Princeton University Library where the majority of Booth Tarkington's papers reside. Research is ongoing. (Princeton found no correspondence between Tarkington and Hamilton.

John Kovach, St. Joseph County Historian (Indiana Historical Society) provided information regarding the Mishawaka rubber factory that was mentioned as a site for Alice Hamilton's 1915 research into industrial poisons in rubber factories in 35 American cities. The Mishawaka Woolen Manufacturing Company that opened in 1874 on a 43-acre plot manufactured rubber clothing. In 1922, the company became a subsidiary of the U.S. Rubber Co and began manufacturing Ball Band rubber footwear and other products at the same location. In 1967, the company changed its name to Uniroyal, Inc. It ceased operation in 1997 when it housed 58 buildings and employed 10,000 people. Mr. Kovach also provided helpful links to other library resources in Indiana.

Dr. Patty Martone, resident of Fort Wayne, Indiana, initiated efforts to raise money for the Hamilton bronze statues of Alice, Edith and cousin Agnes Hamilton that reside in Hamilton Plaza in Headwaters Park in downtown Fort Wayne. In 2005, she founded the Society of Hamilton Sisters that supports volunteer work of young women. In conversations (27 Feb 2012) with Ms. Martone, she graciously shared her remarkable knowledge about the Hamilton family of Fort Wayne and color images of the 8 ft. tall Alice Hamilton statue. Ms. Martone, who is 82 yrs., said she has been a "Hamiltonian" since she was ten years old.

Mishawaka-Penn-Harris Public Library. Donna M. Noffsinger, Ref Librarian/Heritage Center and David Eisen, Director) provided useful information regarding two factories in Mishawaka that processed rubber: one company "cut up used tires and processed them; the other factory and likely focus of Alice Hamilton's research in 1915 was a major producer of clothing that incorporated rubber.

Stephen J. Jay

National Institute of Occupational Safety and Health (NIOSH), Cincinnati. Kathy Connick, MSLS, MA, Librarian, CDC Public Health Library and Information Center, Greg Hartle, photographer, and Teresa M. Schnorr, Health Hazard Evaluations Manager and Director, Division of Surveillance, Hazard Evaluations, and Field Studies, CDC, NIOSH, kindly provided digital images of the Alice Hamilton Building that houses the "Alice Hamilton Laboratory for Occupational Safety and Health." They also provided an image of a painting presented with a plaque at the 1987 dedication of the Alice Hamilton Laboratory.

National Library of Medicine, NIH, History of Medicine Division: Stephen Greenberg, PhD, MA (in Sociology & Late Medieval/Early Modern History & Library Science in Library Service) kindly provided correspondence between Alice Hamilton and Dr. Kober who was a mentor of Alice Hamilton in the early 1900s.

Princeton University Library. Booth Tarkington Papers (1899-1946). Mary George, Reference Librarian and AnnaLee Pauls, Public Services Group, searched for evidence of a connection between Tarkington and Alice Hamilton and found none. Although existence of such correspondence is possible, they believe it is "probably fairly unlikely."

Rutgers University Library, David Kuzma, Special Collections and University Archives found one folder relating to Alice Hamilton in the Mary Dyckman Papers that contained holiday cards sent by Alice Hamilton to Dyckman. A few references to public media with stories about Alice Hamilton were included. A short letter to Dyckman Jan 3, 1959 and a page from Nov 19, 1956 Time Mag regarding Alice Hamilton being voted New England's Woman of the Year In medicine by American Medical Women's Association.

Barbara Sicherman, Ph.D (Columbia University) is the retired William R. Kenan, Jr. Professor of American Institutions and Values, Trinity College, where she taught history and American studies from 1982 to 2005. Her book "Alice Hamilton, A Life in Letters", 1984, is a sentinel work, encompassing the history of Dr. Hamilton's remarkable career in industrial toxicology and providing insights into her rich and varied personal and professional life, Sicherman researched more than 1000 letters of Alice Hamilton, one hundred and thirty two of which are published with annotations in her book. Dr. Sicherman kindly provided guidance in my research and shared her experiences of the late 1970s and early 1980s, interacting with the children of two of Alice Hamilton's first cousins, Holman Hamilton, a historian and Rush Hamilton and his sister Phoebe Hamilton Soule. Holman, who knew Dr. Hamilton's history well, died before Dr. Sicherman finished her book. Thus, all family members with first-hand knowledge of Alice Hamilton have died; and the next generation knew her only by hearsay. Dr. Sicherman urged me, in light of this, to focus on Alice Hamilton's autobiography "Exploring the Dangerous Trades, 1943. Dr. Sicherman directed me to the Radcliffe Institute for Advanced Study Schlesinger Library for images of Dr. Hamilton and her family from Fort Wayne.

Saint Joseph's County Public Library. Kevin Wadzinski kindly provided early 20th c images of the Mishawaka Woolen factory that produced rubber goods in the late 1800s. There were no references to Alice Hamilton's 1915 survey of this factory.

Sjj Jan 22, 2013

Stephen J. Jay

SJJ

Indianapolis Literary Club

Tuesday, January 22 2013

Park Tudor School

Essayist: Stephen J. Jay

Essay: Alice's Wonderland of Research into Dangerous Trades

General Reading:

For extensive references to Alice Hamilton and her work and for Alice Hamilton's bibliography of published papers, contact Stephen J. Jay M.D.

Corn JK. *Alice Hamilton*. In: American National Biography. Vol 9. New York, NY: Oxford University Press; 1999:910–912.

Hamilton A. *Exploring the Dangerous Trades: The Autobiography of Alice Hamilton, M.D.* Boston: Little, Brown, and Company, 1943.

Hamilton A. Forty Years in the Poisonous Trades. (Reprinted from the American Industrial Hygiene Association Quarterly. Presented as the Cummings Memorial Lecture at the ninth Annual meeting of the American Industrial Hygiene Association, April 1, 1948. *Am J Industrial Med* 1985;7:3-18. Available at: <http://onlinelibrary.wiley.com/doi/10.1002/ajim.4700070103/pdf>.

Sicherman B. *Alice Hamilton: A Life in Letters*. Urbana and Chicago: University of Illinois Press, 2003. Previously published: Cambridge, Mass.: Harvard University Press, 1984.

Weber CEF. Crusader Against Death on the Job. *Traces of Indiana and Midwestern History*. 1995;7(4):28-39.