Following the Hazard: Why Alice Hamilton's Vision Still Defines Occupational Medicine

Submission for the 2026 AOHC Student Essay Contest

Introduction: Where I Come From

I grew up in Ogun State, Nigeria, one of the most industrialized states in the country. Drive through any of its major corridors and you will pass factories, processing plants, and manufacturing compounds of every description. Steel, textiles, food processing, chemicals: the industries are there, and so are the workers. Thousands of them. What has always stayed with me is not the industry itself but the workers, the way they look at the end of a shift, the sense that something is being taken from them that nobody is accounting for. I once heard of a man who lost a finger in one of those facilities. No formal investigation. No meaningful compensation. Just a man who went to work whole and came home changed forever, while the factory continued its operations without interruption.

A friend of mine worked in one of those food processing companies. She was a casual worker, not actual staff - which meant she existed in a grey zone where basic protections did not apply. There was no protective equipment provided; workers brought old clothes from home to change into. There were no medical personnel on site. When someone got hurt, they were treated, yes, but the cost was quietly deducted from their salary. The worker was injured by the workplace and then made to pay for it. What struck me most when she told me this was not her anger, but her resignation. That was just how things were. Nobody expected it to be different.

It was this observation that worker health could be so systematically invisible that first drew me toward occupational and environmental medicine as my intended specialty. And it is this same observation that makes **Alice Hamilton**, more than any other figure in the history of the field, feel relevant to me. Hamilton spent her career in early twentieth-century America confronting the exact same dynamic: industries that treated workers as expendable, hazards that nobody officially acknowledged. She did not accept that this was simply how things were. She went into the factories, found the evidence, named the responsible parties, and demanded change. That is the work that still needs doing. It is the work I want to do.

The Investigative Method: Following the Hazard to Its Source

Before Hamilton, occupational disease in the United States was largely invisible. Workers became sick, attributed their illness to fate or weak constitution, and were replaced. Physicians who treated them rarely thought to connect their symptoms to their working conditions. The

discipline of tracing illness back to industrial exposure existed in European medicine particularly in Britain and Germany, but had not taken systematic root in America.

Hamilton changed this through the force of a simple but radical idea: you cannot understand occupational disease from a clinic. You have to go to the workplace. Beginning with her landmark 1910 survey of the lead trades in Illinois, conducted for the newly established Illinois Commission on Occupational Diseases, Hamilton developed what remains the defining methodology of occupational medicine: enter the workplace, observe conditions firsthand, interview workers and supervisors, trace the pathway of exposure, identify affected workers, and establish the causal link between substance and disease. This was epidemiology before the term was widely used in occupational health. It was the direct forerunner of what the National Institute for Occupational Safety and Health today calls a Health Hazard Evaluation, a formal investigative process by which NIOSH teams visit workplaces, measure exposures, interview workers, and generate control recommendations.

This method is not historical. It is the method used today whenever a cluster of occupational illness is identified, whenever a new exposure raises health concerns, whenever workers report symptoms that cannot be explained by their clinical presentation alone. The food processing company where my friend worked would require exactly this kind of investigation to document what it was doing to its workers' bodies. Nobody has conducted that investigation. Hamilton would have. The method she developed is the instrument that makes such investigation possible.

The Substance: Hazards That Have Not Been Solved

One of the most striking features of Hamilton's legacy is how many of the specific hazards she investigated remain active problems in occupational and environmental medicine today. Lead is the most prominent example. Hamilton's investigations of lead poisoning in white lead manufacturing, in battery production, in paint and pigment industries were among the most consequential public health investigations of her era. Her work contributed directly to the eventual regulation of occupational lead exposure and, decades later, to the removal of lead from gasoline and residential paint.

Yet lead has not been solved. It persists as an occupational hazard in battery manufacturing and recycling, in radiator repair, in the demolition and renovation of older structures, in firing ranges. It remains an environmental hazard in communities near former smelters and industrial sites. The occupational and environmental medicine physician who encounters a worker with elevated blood lead in 2026 is engaging with a problem that Hamilton identified and fought to remediate for more than thirty years.

In 2019, an outbreak of severe lung disease emerged among workers who fabricated engineered stone countertops, a product that had barely existed a decade earlier. The culprit was crystalline silica, released in dangerous concentrations during cutting and polishing. Workers, many of them young immigrant men, developed rapidly progressive silicosis. It was a disease described and partially controlled more than a century earlier, now appearing in a new industry that had not yet been brought within the reach of established occupational health standards. The investigation that followed; workplace visits, exposure measurements, worker interviews, regulatory guidance was Hamilton's method applied to a twenty-first century hazard. The tools were more sophisticated. The essential logic was hers.

Hamilton's attention to vulnerable worker populations, immigrants, piece-rate workers, those without legal protections or union representation is perhaps her most enduring contribution to the field's moral vocabulary. The burden of occupational disease in the world today falls disproportionately on workers who cannot easily complain: undocumented agricultural laborers, informal workers in rapidly industrializing regions, casual employees in food processing companies in Ogun State who have been told, implicitly and explicitly, that their health is not the company's concern. Hamilton encountered this same population in Chicago's lead and munitions industries. Her insistence that their invisibility was not natural but constructed, a consequence of deliberate policy choices that could be changed, remains a challenge the field has not finished answering.

The Philosophy: Health as Justice, Not Productivity

Harry Mock, the medical director at Sears, Roebuck and Company in Chicago, built some of the earliest and most comprehensive corporate occupational health programs in America. His contribution to the institutional architecture of employer-based occupational health is real and significant. Mock genuinely believed that worker health mattered, and he developed systems to protect it. But his framework was fundamentally managerial: healthy workers were productive workers, and productive workers generated returns. This was not cynicism, but it meant that his model depended on an alignment between employer interests and worker health. When those interests diverged, when protecting workers cost more than replacing them, his framework had little leverage.

Clarence Olds Sappington's contribution was primarily educational. He worked to standardize the training of industrial physicians, pushed for formal curricula, and helped professionalize a field that had been practiced without consistent standards. This was necessary and important work. A discipline without trained practitioners cannot protect anyone. But professionalization is a means, not an end. The question of what the profession is fundamentally for was answered by Hamilton before Sappington began organizing curricula.

Hamilton's answer was unambiguous: occupational health is a justice issue. Workers have a right to safe conditions. Employers have an obligation to provide them. The state has an obligation to enforce that right. This was not a popular position in the industries she investigated, and it required her to be more than a scientist. She was an advocate. She identified responsible companies by name in her reports. She testified before regulatory bodies. She lobbied for workers' compensation legislation. She wrote for popular audiences to generate public pressure for reform. Her science was rigorous, but it was always deployed in the service of a moral argument.

This framework is the philosophical foundation of modern occupational and environmental medicine. It is embedded in the Occupational Safety and Health Act of 1970, in NIOSH's mission statement, in the ACOEM Code of Ethics. It is also the framework that explains why the situation my friend described. Workers injured by their workplace and made to pay for it, workers without protective equipment, workers whose health is treated as their own private problem is not merely unfortunate but wrong in a way that demands a professional and regulatory response. Mock's systems and Sappington's curricula are the instruments of that response. Hamilton's philosophy is the reason those instruments exist.

The Work That Remains

The strongest argument for Hamilton's contemporary relevance is not that her specific investigations anticipated specific current problems, though they did. It is that her general framework, go to the workplace, find the exposure, name the hazard, attend to the most vulnerable workers, and demand remediation is the correct framework for occupational and environmental medicine problems she could not have anticipated.

Climate change is creating new occupational health hazards at a pace that regulatory systems are struggling to match. Agricultural workers, construction workers, and outdoor laborers face increasing heat exposure as global temperatures rise. Wildfire smoke has become a routine occupational hazard in parts of the world where it barely existed a generation ago. The health burden of these changes falls disproportionately on the workers with the least protection, the same population Hamilton identified as uniquely vulnerable more than a century ago.

The gig economy has created a new class of workers who exist outside the formal employment relationships that occupational health regulation was designed to protect. Delivery workers, platform-based domestic workers, and app-based freelancers face real occupational hazards; vehicle accidents, ergonomic injuries, violence, without access to workers' compensation, occupational health services, or meaningful regulatory oversight. Hamilton spent her career trying to extend occupational health protections to workers the law had not yet learned to recognize. The gig economy poses the same challenge in a new form.

In each of these areas, the foundational question is Hamilton's question: who is being harmed, by what exposure, in whose economic interest, and what can medicine and policy do about it? That question is as alive in Ogun State today as it was in Chicago in 1910.

Conclusion: Why I Am Here

I want to practice occupational and environmental medicine because I believe medicine should be preventive, not just curative. I have seen what it looks like when the field is absent. Workers whose hazards are invisible, whose injuries are treated as financial liabilities rather than medical emergencies, who have internalized the idea that their health simply does not matter. I want to be the physician who goes into those workplaces, finds what is making people sick, and does something about it.

Alice Hamilton is the most relevant of the three Chicago figures to that vision of the field, because she is the one who articulated the vision in the first place. Mock showed that occupational health could be organized within corporate structures. Sappington showed that it could be taught. Hamilton showed what it was for and why it mattered beyond the balance sheet. Her methods are in use today. Her specific concerns remain unresolved. Her moral framework is the one the field still appeals to when it defends its existence.

She did not accept that exploitation was simply how things were. Neither should we.

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