SAFETY AND INDUSTRIAL HYGIENE II

2.1 historical development of industrial safety: *Industrial safety in the United States as we know it today did not begin to take shape until the early 20th century. Before that, many risked their lives daily going to work in industrial settings that included mines, construction, mills and manufacturing. In today's world, work safety statistics are usually measured by the number of injuries or deaths that take place yearly. Prior to 1900 these type of statistics are hard to come by, in part because it appeared that no one cared enough to make tracking on-the-job injuries and deaths a priority.*

19th Century Bleakness

There is little doubt that workers faced new and unprecedented dangers when the industrial revolution arrived on U.S. shores. American entrepreneurs developed labor-saving devices and machinery that, albeit profitable and highly productive, were often very dangerous. Workplace accidents did not impact the bottom line, since the only legal recourse for victims was suing the company. Those that went to court rarely won their case, and thus made work safety an unprofitable venture for many industrialists of the time

Mining, train transportation and manufacturing were probably the most hazardous occupations of the time, and workers responded by taking out insurance policies to cover themselves in the case of a death or an accident, or by leaving a job altogether. This resulted in companies paying higher wages for jobs that were deemed more dangerous.

Concern over workers' safety and health on the job arose in the late 1900s as the United States became an industrial power. The increasing use of heavy machinery in areas like mining, railroad freight and manufacturing resulted in accidents that crippled or even killed workers. Workers and their families during the late 1800s had little recourse except to sue employers who could afford more talented lawyers. States took tentative steps toward regulating industries like coal mining and manufacturing as early as 1869, but not until the early 1900s did the actions of states force industries to reduce the possibility of work-related accidents or illness

Public Efforts Lead to Improvements

Federal safety regulation traces its birth to the creation of the Food and Drug Administration (FDA), and the Bureau of Mines, both which occurred prior to the United States' entry into World War I. Thanks in part to news coverage, the efforts of labor unions and some more progressive business men, the issue of work safety came to the forefront.

Unions representing trainmen campaigned for equipment improvements to ensure train and freight cart safety, and in 1910 the Bureau of Mines was established to identify new ways to make mines safer after a series of dangerous mine explosions.

Progressive Era Reforms

During the Progressive Era in U.S. history (roughly 1900-1920), a coalition of journalists, businessmen, unions and politicians used the power of the government to mitigate the worst effects of rapid industrialization. In 1911 New York's Triangle Shirtwaist Co. caught fire, and 146 of 300 employees died. Managers had locked the exit doors, claiming employees would steal from the company and could be permitted to leave only under supervision. The tragedy became a rallying point for reformers.

Workman's Compensation is Born

Congress passed a federal employers' liability law in 1908 that made it more expensive for companies to have an accident on their books. The law applied to railroad workers in interstate commerce, and made it harder for companies to claim that the employee was partially responsible for an injury. Thanks to the new law, worker injuries that once cost companies $200 to resolve now cost almost $2,000.

States responded by passing workers' compensation laws. In 1910 New York was the first state to pass a workers' compensation law, which forced companies to make restitution to workers or their families according to established rates. The rest of the states followed New York's lead during the next decade. When companies became subject to workers' compensation laws, they had a financial incentive to encourage safer working practices and environments.

By 1921, 43 more states had followed New York's lead and established their own compensation laws.

The Intervention of the Federal Government

While the state workers' compensation and other regulatory laws helped decrease the incidence of accidents, they did not cover all of the potential workplace hazards. So Congress passed the Occupational Safety and Health Act of 1970 (OSHAct). The OSHAct created the Occupational Safety and Health Administration (OSHA) within the Department of Labor, making the safety and health of private-sector workplaces the purview of the federal government. OSHA established safety standards, researched workplace hazards and educated workers about their rights.

Since its inception, OSHA has inspired controversy along political lines. Politically liberal critics assert OSHA takes too long to act on new information requiring a revision of safety standards and poorly enforces the standards it has enacted. Political conservatives argue OSHA is overly cautious, imposing costly and unnecessary regulations on industry. As a result, politicians on both sides of the aisle have repeatedly called for the reform of OSHA

Employers Take Action

Compensation laws and other liability costs suddenly made workplace injuries an expensive proposition for many employers. What followed was a slow but steady increase in workplace safety. Large firms in railroading, mining and manufacturing suddenly became interested in safety. Manufacturing companies began to work to create safer equipment, and managers in many industries began getting tasked with identifying workplace dangers. In mining and construction, for instance, workers began to wear safety glasses and hard hats.

In 1913 the National Safety Council was formed by a group of business owners to pool shared knowledge, and to apply the information gathered through national agencies like the Bureau of Mines.

Between World Wars I and II accidents in the workplace declined at an uneven rate, and it should be noted that during times of economic boom safety law enforcement tended to take a back seat.

Post World War II to the Present

The Occupational Safety and Health Administration (OSHA) and the Mine Safety and Health Administration were established in 1970. In addition worker's unions became more powerful than ever after World War II, and made work safety a priority.

Safety in the workplace remains a top concern for most U.S. industries---which must follow OSHA rules as well as rules and regulations established by other safety councils within specific industries. Workplace injury has steadily declined since World War I, and today meticulous records are kept of every injury, illness or fatality that occurs in a workplace.

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On December 29, 1970, President Richard Nixon signed into law the Williams-Steiger Occupational Safety and Health Act, which gave the Federal Government the authority to set and enforce safety and health standards for most of the country's workers.1 This act was the result of a hard fought legislative battle which began in 1968 when President Lyndon Johnson unsuccessfully sought a similar measure. However, the roots of government regulation of workplace hazards date back to the late 19th century.

State Factory Laws

In the factories that sprang up after the Civil War, chemicals, dusts, dangerous machines, and a confusing jumble of belts, pulleys, and gears confronted inexperienced, often very young workers. The reports of State labor bureaus in the 1870's and 1880's were full of tragedies that too often struck the unwary or the unlucky. The Massachusetts report of 1872 described some particularly grisly accidents. These tragedies and the industrial accident statistics that State labor bureaus collected, spurred social reformers and the budding labor movement to call for State factory safety and health laws. In 1870, the Massachusetts Bureau of Statistics of Labor urged legislation to deal with "the peril to health from lack of ventilation." In 1877, Massachusetts passed the Nation's first factory inspection law. It required guarding of belts, shafts, and gears, protection on elevators, and adequate fire exits.2 Its passage prompted a flurry of State factory acts. By 1890, nine States provided for factory inspectors, 13 required machine guarding, and 21 made limited provision for health hazards.

The labyrinth of State job safety and health legislation covered a wide range of workplace hazards but was badly flawed. There were too many holes in the piecemeal system and numerous hazards were left uncontrolled. The laws had to be amended often to cover new hazards. Many legislatures failed to provide adequate funds for enforcement. Inspectors, who were often political appointees, were not always given the legal right to enter workplaces. State with strong safety and health laws tended to lose industry to those with less stringent ones, which made States competitive and limited their legislative efforts.

The Progressive Era and the growth of mass circulation newspapers and national magazines helped forge a national movement for workers' safety and health. In 1907, 362 coal miners were killed at Monongah, W. Va., in the worst U.S. mine disaster. This widely publicized tragedy shocked the Nation and led to the creation in 1910 of the U.S. Bureau of Mines to promote mine safety.

That same year William B. Hard, a muckraking journalist, published an article in Everybody's Magazine titled, "Making Steel and Killing Men," based on his firsthand investigations of a Chicago mill.3 Hard estimated that every year, out of a work force of 10,000 workers, 1,200 were killed or seriously injured. He urged the steel industry to use its technical knowledge to reduce this casualty rate. U.S. Steel, spurred by mounting accident tolls, had already begun to collect accident statistics. Safety programs in subsidiaries dated back to the 1890's. In 1908, U.S. Steel formed a safety committee with instructions from the company president, Judge Elbert Gary, to cut the accident rate as much as possible. A highly successful "safety first" movement developed from this which spilled over to other industries and led to the creation of the National Safety Council in 1915.4

The "Pittsburgh Survey," a detailed study of living and working conditions in Allegheny County, Pa., done in 1907-08, had a special impact on job safety and health.5 One of the major topics of the investigation, which was sponsored by the Russell Sage Foundation, was industrial accidents. The survey found that the injured workers and the survivors of those killed on the job bore the economic brunt of accidents, even thought most were the employers' fault. The authors of the survey agreed that, for reasons of social equity, employers should bear a substantial share of the economic burden, giving them more incentive to eliminate the causes.

Workers' Compensation Started
Years before the Pittsburgh Survey, the idea of compensating injured workers from an insurance fund to which employers would contribute had gained a foothold in this country, though it was not at first promoted as a preventive measure. Prince Otto von Bismarck had initiated the first workers' compensation program in Germany in 1884, and the idea soon spread throughout Europe. In the United States, a few States tried to establish early compensation systems. Organized labor successfully opposed the concept, precisely because it was intended as a palliative, not a preventive measure. In 1908, Congress passed, with President Theodore Roosevelt's support, a limited workers' compensation law for Federal employees. Encouraged by this example, several States appointed study commissions. However, until the Pittsburgh Survey, compensation was treated mainly as a humanitarian measure.

The survey's call for an economic incentive to encourage accident prevention struck a responsive chord. It quickly became a key part of the rationale for workers' compensation. This seemed to tip the scales. Both labor and business rallied in support.6 In 1911, Wisconsin became the first State to successfully establish a workers' compensation program. Within one year it was joined by nine other states and by 1921 most States had followed suit.

Ironically, it was as a preventive measure that workers' compensation accomplished the least. The general level of this type of insurance premium was already so low that there was no real incentive for a company to invest heavily in safety improvements to be eligible for the slightly lower rates offered firms with good safety records. Very few States included compensation for disease, although much was already known about occupational illness. Still, insurance company safety experts helped improve their clients' safety programs and the establishment of compensation gave the safety movement a moral boost.7

An idea that developed alongside of workers' compensation probably produced more significant long-run results. If the States would create industrial commissions with authority to establish specific safety and health regulations, it would not be necessary to go back to the legislatures and amend the factory laws in order to cover new hazards or change requirements. A workers' compensation advocate, John R. Commons of the University of Wisconsin, found this system in use in Europe and urged its adoption in the United States. Wisconsin, in another pioneering move, created the first permanent State industrial commission which developed and enforced safety and health regulations, after hearing comments from labor, management, and others.8 This idea was widely accepted and became a guide for future State and Federal regulation of occupational safety and health.