

PART I - DUST AS A HEALTH HAZARD

I - WHY IS THE DUST PROBLEM SO IMPORTANT? - Although the subject of the health of workers in dusty trades has been receiving considerable attention from students of industrial hygiene for a number of years, the seriousness of this problem was not fully realized until it was brought sharply to our attention by the constantly growing country-wide wave of lawsuits instituted in behalf of the victims in our common law courts, by the magnitude of the generous verdicts awarded by the juries and by a recent decision of the Federal Circuit Court reversing the substantial award of a jury in a New Jersey case (Pennsylvania Pulverizing Company vs. Eldred G. Butler). Owing to these developments, the problem cannot be ignored or brushed aside as merely another form of "racketeering" by unscrupulous lawyers and conspiring doctors. Dodging the issue cannot provide the needed solution because even the most unscrupulous lawyers cannot create a pathologic lung at will and, furthermore, even the most skeptic of coroners frequently finds himself corroborating a diagnosis by his postmortem examination. Enlightened industrialists and the medical profession as well as the bench and bar, have come to the realization that exposure to certain kinds of dust, such as those containing considerable amounts of quartz (silica), has increased the unhealthy bodily condition and death rate from respiratory diseases; while metallic dusts, such as lead and its compounds, have been associated with general systemic poisoning of workers. "Silicosis" is now a definitely recognized disease which is destined to become one of the foremost and most serious of occupational diseases of the future because the number of workers in dusty trades is larger than almost any other group exposed to a single known industrial hazard. The McCaffrey Act, which became effective September 1, 1935, amending the New York Compensation Law, included silicosis as an occupational disease subject to compensation.

Sixteen states, as well as those of the Federal Government and of Hawaii, Puerto Rico, and the Philippine Islands (U.S. Dept. of Labor Bull. No. 625, Bur. Labor Statistics), have Workmen's Compensation Acts which include compensation for occupational diseases, either expressly or by judicial interpretation, or specific occupational disease acts.

II - WHAT IS MEANT BY "DUST"? - According to Webster's Unabridged Dictionary, "Dust" may be defined as fine, dry particles of earth or other matter so comminuted that they may be raised and wafted by the wind; that which is crumbled to minute portions; fine powder. As pointed out by Philip Drinker in a paper read before the Chemical Section of the National Safety Congress (held in Atlantic City, October, 1936), dusts include all types of dry earthy particles small enough to be blown about by ordinary air currents. Dust suspensions may be generated as the result of grinding, blasting, or comminuting process; or they may result from the handling of finely divided materials as in mixing processes, in sweeping, or the blowing about of wood flour, plant pollens, or common road dust. There is no chemical limitation implied by the term "dust" while the range in size of dust particles extends from the sub-microscopic to small sand grains. Mr. D. Harrington, Chief Health and Safety Branch, U.S. Bureau of Mines advises that dust as applied to health and respiratory conditions may be wet as well as dry. Under some conditions, such for example as in wet drilling in mines, the escaping air from the drill hole may (in fact generally does) contain a certain amount of entrapped solid material which undoubtedly is wet rather than dry, yet it remains in the air sufficiently long in some instances at least to be breathed by the workers to contribute to possible health trouble. The size of dust of importance from a hygienic standpoint are those under ten microns. In fact, the sizes found in industrial atmospheres are under two microns for the larger majority of particles, say 90 to 95 per cent. Physiologically, there are almost as many different classifications of dust as there are authors on the subject. However, according to Professor Drinker ("Dust, Fumes and Smoke". International Labor Office, Occupation and Health Vol. 1, 1930, P. 603) all of these classifications