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HEALTH PROTECTION IN FOUNDRY PRACTICE



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AMERICAN FOUNDRYMEN'S SOCIETY

CHICAGO

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DEDICATION

The objective of all hygiene practice in industry is the preservation of the health of the worker through elimination or reduction of the hazards to health associated with the operation.

All of the material contained in this book was presented by masters of this art. Therefore, the School of Public Health, the Institute of Industrial Health, and the Department of Metal Processing of the University of Michigan dedicate it to the advancement of the American Foundrymen's Society's program on Safety, Hygiene and Air Pollution.

Since this program is the method the method the foundry industry has adopted to provide worker protection through effort from within the industry itself, we have full confidence in the concurrence of all of the authors in this dedication.

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NATURE OF DISEASE CAUSED BY DUST

by
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For almost a century the principal occupational disease caused by foundry operations has been silicosis, although other diseases seem to be coming along which may soon replace it at the top of the list. Unfortunately, however, there still are far too many foundries in this enlightened country of ours which still are producing this entirely preventable disease. On the other hand, we are finding more and more foundries right along where the dust control has been developed to such a degree that they have not caused any silicosis in their employees for many years. This is the goal toward which all of us are working.

Before getting into the medical aspects of this problem, we ought to define a few of the terms applied to dusty lungs, so that all of us will understand what we are talking about. First, the term "silicosis" is readily defined as a "fibrosis of the lungs resulting from the inhalation of dust containing free silica" and offers little opportunity for misunderstanding. The term "pneumoconiosis," on the other hand, has caused more trouble than all of the others put together, yet generically it is the simplest to define. It just means "dust in the lungs." There is no implication in the term of what the dust is or whether or not it caused reaction in the lungs. [It] is a shortening of Zenker's original "pneumonoconiosis" which he proposed in [18]66.) There, *therefore*, should be no implication of fibrosis in the term, because we now know (which Zenker did not) that there are numerous dusts which are entirely inert when deposited in the lungs, which do not cause irritation or fibrosis and which do not predispose to tuberculosis. These have been called the "benign pneumoconioses" to differentiate them from the fibrotic pneumoconioses.

Because "pneumoconiosis" is a general term and covers all dusts whether harmful or not, it should have no place in occupational disease laws. There the terminology should be specific and only those pneumoconioses which may result in impairment of lung function should be included; namely, silicosis and asbestosis. It is unfortunate, it seems to me, that an attempt has been made to redefine pneumoconiosis simply because of the medicolegal difficulties which have resulted from its inclusion in occupational disease laws. My recommendation is to take the word out of the laws, but keep its basic meaning and to use specific terms in the laws for those dusty lungs which may cause disability. So much for terminology.

Pathologically, the foundryman's silicosis is a modified silicosis. The fibrous nodules seldom are the classical whorled spheres resulting from pure quartz exposure. The old sandblasters had those before they used positive pressure helmets. Today's foundrymen are exposed to far less quartz (or free silica) dust than they are to iron and carbon dust. Typical foundry atmospheres seldom have more than 20 per cent free silica, with iron dust running from 60 to 70 per cent and carbon

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