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INDUSTRIAL ACCIDENTS AND HYGIENE SERIES

OCCUPATION HAZARDS AND DIAGNOSTIC SIGNS

A GUIDE TO IMPAIRMENTS TO BE LOOKED FOR IN HAZARDOUS OCCUPATIONS



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UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, Secretary

BUREAU OF LABOR STATISTICS

ISADOR LUBIN, Commissioner

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OCCUPATION HAZARDS AND DIAGNOSTIC SIGNS

A GUIDE TO IMPAIRMENTS TO BE LOOKED FOR IN HAZARDOUS OCCUPATIONS

(Revision of Bulletin No. 369)

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Preface

The first edition of this guide to the hazards of occupations and to the symptoms of the diseases they cause was intended primarily to aid the medical examiners of the Metropolitan Life Insurance Co. in the discovery of impairments among applicants for insurance. The pamphlet soon attracted the attention of others not immediately interested in insurance medical examinations. Large numbers of industrial physicians, directors of compensation boards, factory inspectors, safety engineers, industrial rehabilitation agents, faculties of medical colleges, and, most important of all, general practitioners of medicine have made a call for this work and have expressed their approval of it. The favorable response encouraged us to proceed with the preparation of a second and much enlarged edition. This edition was equally well received. Published 10 years ago, it is still in constant demand. It has been reproduced either in whole or in part in a number of works by authorities on the subject of industrial hygiene. The authors are convinced by their experience with these earlier editions that this pamphlet has served a useful purpose, and that there is a vital need for a work of this kind, which makes readily available the most recent findings on industrial hazards to those who have not the time for a thorough study. Obviously, the extension of the compensation laws of the several States to include all occupational diseases, or an increasing number of them, has made it necessary for physicians to be familiar with at least their most common symptoms.

The 10 years which have elapsed since the publication of the second edition of this guide have seen wide expansion and a marked increase in activities in the field of industrial hygiene. They have been noteworthy for the large number of scientific investigations undertaken to determine the causes of ill health among workmen and the effects of exposure to specific industrial hazards. Complete reports have been published not only on the effects of such poisons as radioactive paint, methyl bromide, and other refrigerants, and tetraethyl lead, which have become of importance only recently, but our knowledge of well-known health hazards has also been enriched. To mention only a few, benzol, spray painting, and exposure to asbestos dust and to dusts containing free silica, have been thoroughly studied and reported upon.

In preparing this, the third edition of the pamphlet, the authors have endeavored to present the most recent thought on occupational hazards expressed in this vast literature on industrial hygiene. They realize full well the inadequacy of existing knowledge of the effects of many industrial hazards, and the amount of scientific research necessary before these effects are definitely known. They have not presumed to attempt to settle controversial questions, nor have they

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[1] U. S. Bureau of Labor Statistics, Bul. No. 300: Occupation hazards and diagnostic guide. Washington, 1922.

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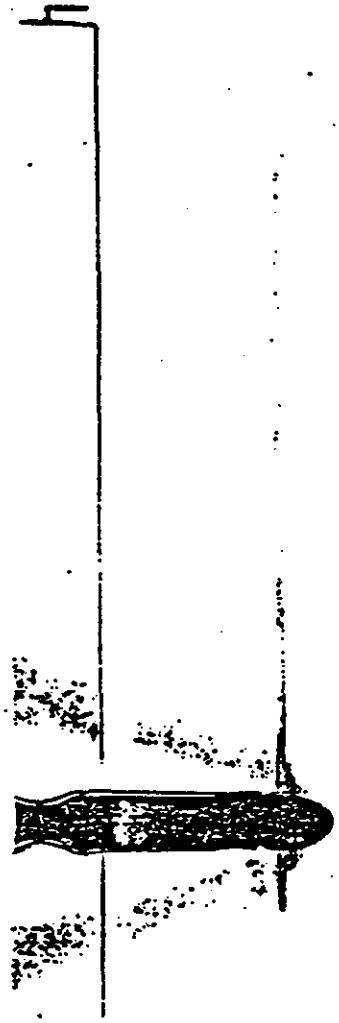

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E. Dust

Dusts have been divided into two kinds—organic and inorganic. Organic dusts do not cause pulmonary lesions, while inorganic dusts produce fibrosis of the lung tissue, the extent of which depends upon the kind of dust, the size of the dust particles, the concentration of dust, and the length of exposure to the particular dust inhaled. Dr. H. R. M. Landis found that, when fibrosis was present in the lungs of men exposed to organic dust, the latter was always mixed with some form of inorganic dust. Workers exposed to organic dust for years showed no pulmonary changes other than those found in people living in the city. Dust, whether organic or inorganic, by acting as a carrier of bacilli, may increase their number in the lungs. In this way men exposed to dust may be in greater danger of contracting tuberculosis than others.

Whether or not all inorganic dusts, per se, are capable of producing lung fibrosis, given a sufficient length of exposure and a high enough concentration of dust, is still an open question. Many inorganic dusts found in industry have been inhaled for long periods without noticeable injury. Dusts containing free silica, however, are definitely known to be extremely harmful, producing serious pulmonary damage in a comparatively short time. The pathological condition resulting from exposure to silica dust is properly referred to as silicosis. X-ray pictures of the silicotic lung show a characteristic mottling due to the formation of fibrotic nodules where silica has lodged in the lymphatic system. Symptoms of the disease may not show until it is well advanced, when there is a decreased lung expansion, marked shortness of breath, and cough. The silicotic lung is a fertile field for the tubercle bacillus; a very large percentage of cases of silicosis terminate in a fatal tuberculosis. The action of silica on the lungs is to promote the growth of connective tissue.

Asbestos dust is another dust which, it has recently been definitely determined, produces a lung fibrosis under existing industrial conditions, although its action is apparently milder than that of free silica. The relation of tuberculosis and asbestos dust is not entirely clear.

Complete protection for workmen exposed to silica dust has been found difficult in many processes. X-ray pictures, therefore, should be taken at regular intervals of all workmen exposed. It is of the utmost importance that these pictures be interpreted by a physician familiar with the appearance of the lungs at various stages in the development of silicosis. Workmen who are found to be affected should be transferred to other jobs, where they will not be exposed to dust.

There are four methods that may be used to keep down the amount of dust generated through industrial processes. No one of these can apply to all conditions, but the particular method to be used must be adapted to the peculiarities of the process.

1. The use of water or oil to wet the dust, thus preventing it from rising and filling the atmosphere. This method is now believed to be of doubtful value in some processes, and in these should not be relied upon when other methods are practicable.

2. The use of exhaust systems which remove the dust at the point of origin.

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3. The use of enclosed chambers in which the dust-producing processes are confined, the processes being regulated by the operator from the outside.

4. The use of helmets covering the head and neck, preferably those which permit supplying air through a pipe from a nondusty area.

E. Dust

1. Inorganic Dust

Symptom, condition, or disease to look for

Cough, dyspnea, pleuritic pains, hemoptysis, deficient expansion, dullness, diminished resonance, mucous rales, fibrosis, inflammatory condition of eyes, ears, nose, and throat, colds, chronic catarrh of respiratory tract, chronic catarrh of digestive tract, pleurisy, osteoarthritis.

Occupations which offer such exposure

Abrasives workers
Acetylene makers
Asbestos workers
Basic slag (artificial manure) workers
Battery (dry) makers
Bed rubbers (marble and stone)
Bench molders (foundry)
Bevelers
Bisque-kiln workers
Blasters
Bone workers
Bricklayers
Brickmakers
Bronzers
Buffers
Burrers (needles)
Burr [illegible]
Button makers
Calenderers (rubber)
Carbide makers
Carbon-black workers
Carbon-brush makers
Carborundum workers
Card grinders (textiles)
Casting cleaners (foundry)
Cement workers
Charcoal workers (sugar refining)
Chargers (smelting)
Charges (zinc smelting)
Chasers (steel)
Chimney sweepers
Chippers
Clay and bisque makers (pottery)
Clay-plug makers (pottery)
Coal passers
Color makers
Compositors
Compounders (rubber)
Concentrating-mill workers (lead and zinc)
Construction laborers
Core makers
Cotton-mill openers
Crucible mixers
Crushermen (clay and stone)
Cut-glass workers
Cutlery makers
Cyanamid makers
Diamond cutters
Diatomaceous - earth workers
Drillers (rock)
Electrotypers
Emery-wheel makers
Engineers (stationary)
Engravers
Fertilizer makers
File cutters
Filers
Firemen (stationary)
Flint workers
Floor molders (foundry)
Flue cleaners
Foundry workers
Glass blowers
Glass cutters
Glass finishers
Glass mixers
Glass mixers (pottery)
Gold beaters
Gold refiners
Graphite workers
Grinders (metals)
Gypsum workers
Horn workers
Mouse wreckers
Iron and steel mill workers
Jewelers
Junk (metal) refiners
Jute workers
Lapidaries
Lead smelters
Lime burners
Lime-kiln chargers
Lime workers
Linoleum makers
Lithographers
Marble cutters
Masons
Match-factory workers
Metal turners
Mica strippers or splitters
Mica workers
Miners
Mixers (rubber)
Mixing-room workers (miscellaneous)
Mold breakers (foundry)
Paint removers
Paper hangers
Phosphate-mill workers
Pit molders (foundry)
Planer men (stone; metal)
Plasterers
Plaster of paris workers
Pneumatic-tool workers
Polishers
Polish makers
Pottery workers
Pouncers (felt hats)
Pressmen (printers)
Printers
Putty makers
Putty polishers (glass)
Pyrites burners
Quarrymen
Rubber workers
Sagger makers
Salt preparers
Sand blasters
Sand cutters
Sanders
Sanding-machine operators
Sandpaperers (enameling and painting nuts, bolts, etc.)
Sandpaper makers
Sand pulverizers
Saw filers
Scissors sharpeners
Scouring powder makers

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