

Industrial Medicine

for
Physicians and Surgeons in Industry

PLAINTIFF'S
EXHIBIT

CRA-154

PDP 0033017

Sulfur diox.	6	3
Synovitis	1	—
Tartaric acid	1	—
Tetra ethyl lead	2	—
Thinner	—	2
Trauma	6	9
Trichlorethylene	1	1
Trisod. phosph.	7	5
Turpentine	12	7
Unknown	—	2
Varnoline	1	—
Vegetable	8	—
Water	3	—
Zinc chloride	—	1
Zinc sulfide	3	—
Total	610	866

Dusty Death

THERE is a sinister ghost that stalks every industry — a ghost whose name itself is forbidding. It is called "pneumoconiosis" and it is quite as dangerous as it sounds; dangerous in more ways than one.*

Pneumoconiosis is the general scientific term applied to describe all types of dusted lungs. Its literal translation is "a dusted lung". As a generic or family appellation it embraces the diseases which may result from inhalation of any sort of microscopic particles, common or rare.

In industrial practice, of course, there are four principal sub-divisions of pneumoconiosis which occur with sufficient frequency to make them the subjects of this short general symposium. The first of these types, and perhaps the most commonly encountered is silicosis.

What is silicosis? It is a disease of the lungs in the progress of which there is a gradual replacement of the normal elastic by unyielding inelastic fibrous tissue. Its cause is the intermittent or continuous breathing of microscopic particles of silica dust or sand for varying intervals of time. This causes an increase in the volume of fibrous tissue in the lungs which, in turn, is marked by shortness of breath and decrease in lung expansion with a resultant susceptibility to tuberculosis.

Asbestosis is caused, as the name implies, by the inhalation of microscopic particles of asbestos dust. This type of pneumoconiosis produces a definite and general fibrosis of the lungs. That is to say, a large volume of fibrous tissue is developed in the lungs as the result of the chronic inflammatory condition induced by the presence of asbestos dust. The problem of treatment becomes involved because, instead of normal tissue which is diseased, it is necessary to deal with tissue chronically inflamed by this unusual causation. Fibrosis of the lungs set up by asbestos dust inhalation is as serious to the point of disability as silicosis but, so far as our present clinical experience goes, not nearly so frequent in occurrence.

Cementosis is a vague term which I have been unable to discover in the literature of pneumoconiosis though it has considerable current lay usage. I am of the opinion that it originated in the minds of imaginative lawyers to enable them to bring action against a great industrial organization (Case 1). The physician employed by the attorney gave, as his diagnosis, a statement to the effect that the man's condition

was due to inhalation of cement dust during a period of seven years.

Anthraxosis, as seen from its composition, is the designation which classifies pneumoconiosis contracted from breathing coal dust or microscopic particles of carbon. These particles are present, of course, in the atmosphere of any populous center where coal consumption is heavy. Men who work in or about mines and coal yards are the logical victims of its attack.

In general, however, it is preferable to use the generic term pneumoconiosis to label any form of dusted lungs. Perhaps it is well to emphasize the fact that silicosis can be contracted only by breathing microscopic particles of sand or silica dust. Clinically and medicolegally, silicosis has no distinct cause or effect relationships with the other forms of pneumoconiosis.

Silicosis makes its appearance among workers in industries whose atmosphere contains microscopic particles of silica. The word microscopic must be repeated frequently in this text because it most aptly defines these extremely minute insoluble bits. It is common practice to consider as harmful only those particles which have diameters smaller than 10 mm. Since a micromillimeter is equivalent to 1/25,000 of an inch, it will be seen they are so small that they must be counted or studied under the microscope.

A great deal of interesting and effective work has been done in industry to protect those employees who devote their entire time to sharpening tools on grinding stones. It was thought, at one time, that water poured continuously over the stones would eliminate the free silica particles which result from such operations. Tests have proved on the contrary, that the application of water actually heightens the hazards because the particles in suspension in the liquid are thrown to distances greater than those attained by the ordinary resultant dust.

Probably the sand-blaster is the worker who undergoes the greatest risk in following his occupation. We have known for a long time that men so engaged must have protection against flying dust and scale. More recently we have realized that the microscopic particles set free by sand-blasting activities are really more dangerous and call for more studied defenses than the visible.

The dusts occasioned by grinding and sand-blasting operations may be divided into two general classes, soluble and insoluble. It is needless to elaborate the divisions excepting to say that soluble dusts are relatively innocuous. Insoluble dusts, unfortunately, are always present and always dangerous because they usually occur in highly concentrated proportions—a fact, previously mentioned, quite as evident when wet process grinding wheels are employed.

It may be interesting to industrialists to know what actually happens to inspired dust. Remember, now, that we are concerned with these micromillimetric particles discovered only under the microscope. This dust is inhaled through the nostrils and mouth into the trachea. Thence it passed into the bronchi and from there into the air cells and the mediastinal glands.

These glands are designed by nature

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* R. ROBINSON DUFF, in *Central Manufacturing District Magazine*, February, 1935.

THE BULLETIN

The American Association of Industrial Physicians and Surgeons

THE object of this Association shall be to foster the study and discussion of the problems peculiar to the practice of industrial medicine and surgery; to develop methods adapted to the conservation of health among workers in the industries; to promote a more general understanding of the purposes and results of the medical care of employees, and to unite into one organization members of the medical profession specializing in industrial medicine and surgery for the mutual advancement in the practice of their profession.

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servation in the Central Manufacturing District within the past 18 months. Please do not misunderstand me. There may be many others which will be heard from in the future. These three I shall mention have ripened into just the sort of cases with which industry increasingly is vexed. They are now in the courts.

Case No. 1: Company "X": Mr. John Doe:

I received a request by telephone to call on the patient at once. Upon arrival I found him confined to his bed with a temperature of 103.5°. The history obtained described a slight chill and pains in chest and abdomen. It was in late autumn. He had many rales, that is adventitious sounds, in his chest which indicated influenza. Upon tapping his chest and stethoscopic examination there was found nothing that would indicate pneumonia but plenty of evidence typical of influenza infection.

The important point from the standpoint of the industry concerned was that of accident. Was the patient's condition produced or aggravated by an accident of any kind, however, trivial? To the questions put in this direction the answers were negative. I instructed the family to place the man under the care of the family physician.

Seven months later I was informed that suit had been instituted against the industry for \$50,000, under the claim that the patient was a victim of cementosis. A portable x-ray machine was taken to the home and efforts made to obtain pictures in bed. The man's condition grew progressively worse.

He was removed to the hospital where consultation was requested and had immediately. Further x-ray photographs were taken and discovered a large abscess in the apex of the upper portion of the right lung. The patient died about two weeks later. The consultant physician, a leading Chicago practitioner, was unable to affirm that cementosis was in any way a causative factor in death.

From the history and course taken by the illness, it was the typical end result of a very extensive and severe influenza infection, and developed no symptoms which would substantiate the claim of cementosis. (Note: The case has never come to trial. We have induced the attorney for the plaintiff to scale down the claim from \$50,000 to \$2,500, and I am under the impression that the circumstances will keep him concerned for a long time.)

Case No. 2: Industry "Y": John Doe 2:

This man, aged 42 years, worked in the industry for about nine months. His record as an employee was unsatisfactory and he was discharged. Four months later an attorney served writs upon the industry to inform it of the institution of a suit for \$50,000. Anthracosis was claimed as grounds for damages. The case is pending still.

Case No. 3: Industry "Z": John Doe 3:

It was this man's task to grind tools on a revolving stone. He was furnished an inhalator and instructed to wear it whenever the stone was in use. Obstinate indifference, the worker became disgruntled over the foreman's insistence that the inhalator must be worn and finally refused point

to attempt the protection of the lungs against infection as well as foreign bodies. Thus the body not only has means to prevent a limited amount of dust from reaching the lungs but also to expel some insoluble particles which may penetrate to them. When this limited capacity has been exceeded, however, the lungs gradually become clogged. The literature tells us that this clogged condition is progressive and cannot be cured by prevention of further exposure to dust.

A meeting of the Chicago Tuberculosis Institute in the summer of 1932, held in the Chicago Woman's Club, and attended by men interested in the future welfare of industry, listened to a symposium of silicosis rendered by the leading authorities in America. To illustrate the insidious nature of this dusty death that, ghost-like, stalks industrial ranks, it is true that the net result of an entire eve-

the question in all minds whether or not a definite and positive diagnosis could be made before the subject was on the autopsy table. Two things which live vividly in my mind really constituted the bone of contention in the discussion.

First, the x-ray must be able to demonstrate a definite fibrosis of the lungs, i. e., an excessive amount of fibrous tissue which, as stated, would result in shortness of breath and lack of expansion with their concomitant predisposition toward tuberculosis and death.

Second, in the opinion of these authorities, all determinate cases of silicosis have resulted in terminal tuberculosis which eventually caused death.

Perhaps this subject may be made to shed some of its technical prosaicness and assume a more pertinent and lively interest if I interpolate brief histories of three cases of pneumocon-

and disappeared. Five months later suit was filed in his behalf for \$50,000 under the claim of contracted silicosis.

I quote now from a Hibbing, Minnesota, dispatch published in the Chicago Daily News on November 30:

"A verdict of \$22,500 was returned by a District court jury in favor of James Golden, of Keewatin, who sued Lerch Brothers, Inc., of Hibbing, as a result of a rare disease alleged to have been contracted while in their employ as a chemist. The disease, pneumoconiosis, provoked considerable discussion among an array of medical experts who testified for both sides."

As well it might. Of the merits of the Hibbing case I cannot speak. It just happens to offer a timely example of a threat to industrial coffers which, authorities recently have estimated, now aggregates \$300,000,000 in the United States. I have been told that a certain Illinois corporation would be reduced to dissolution were it to be required to pay the pneumoconiosis damages now claimed in pending suits against it.

I am informed on excellent authority there is an organization of lawyers and doctors of questionable reputation engaged in the exploitation of dusty death. The modus operandi is simple enough. Advertisements are broadcast which ask grinders to appear at the organization's employment office for jobs.

Upon their appearance, lawyers obtain from the applicants very careful histories of past employments, conditions therein, and durations of such employments. The medical department of the clique then gives each applicant a scrupulous physical examination with especial attention focussed upon the lungs. In cases which seem to promise well for their nefarious ends, even extensive and careful x-ray photos are made of chests and lungs.

From these applicants the organization selects the men it considers best adapted to its purposes and deliberately places them in industries calculated to assist their aims logically. After a given time, when circumstances appear propitious, the men are taken out of industry and into the courts, and presently the affected concerns find themselves the defendants in \$50,000 (limit) suits for damages charged to silicosis contracted in their employ.

This article is not intended to sound the loud alarm. The National Safety Council and other agencies for a long time have emphasized the lurking risks of pneumoconiosis and advocated the adoption of advanced measures of prevention. In particular Dr. C. O. Sappington, formerly director, Division of Industrial Health, National Safety Council, and now Industrial Hygiene Consultant, has contributed notably to the literature and research of the subject. The sinister aspect of dusty death exploited at the hands of unscrupulous and unethical persons, however, has not been published sufficiently to apprise industry of its possible liabilities.

There are, of course, the simple measures which industry should practice in any event in its own interests. Knowing your employees is, perhaps, the first essential to prevent involvements. Physical examination

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at regular intervals thereafter will avoid many exploitations. Keep abreast of the scientific advances with respect to control and treatment of pneumoconiosis, and rigorously insist that workers shall observe occupational precautions prescribed. There are devices, constantly improved, which are essential. The few dollars thus invested are spent well. Otherwise there are the practices of plant sanitation which should be a matter of practical pride as well as prevention, and should be observed diligently.

The fact that, as seen in the meeting I described and the Hibbing dispatch quoted, medical talent itself is divided in the adjudication of pneumoconiosis cases speaks volumes for

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