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If not it will probably be best for him to be advised of this fact at the outset and given assistance in securing rehabilitation vocational training; after which he may return to his former place of employment qualified to do some special work. In this case he should be given consideration for reemployment.

He will be happy because he will have overcome a handicap and learned that he can still be independent.

Industrial Tuberculosis— A Public Health Factor

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The term industrial tuberculosis is somewhat misleading because it may be thought that industry is the direct causative factor in the production of tuberculosis. But tuberculosis is a germ disease, directly caused by the tubercle bacillus. No industry, no matter how harmful it may be to the human body in general, is capable of directly producing the disease tuberculosis without the presence of tubercle bacilli.

How can we explain then the high mortality rate from tuberculosis in certain industries?

To seek an answer to this question, one must consider the subject of so-called industrial tuberculosis from the broader aspect in general, but especially from the viewpoint of possible existing predisposing factors incidental to certain industries. The contributory factors which may play a role in the development of tuberculosis are many in number, but for the sake of clarity may be classified under two main headings, (1) environmental, and (2) social and economic.

Environmental Factors

Industrial environment has long been recognized as a most important contributory factor in the causation of upper respiratory diseases. For instance it is known that employees in dusty trades, and those usually exposed to high temperatures, excessive moisture, to bad weather conditions generally, and to noxious fumes are among the workers who frequently are forced to absent themselves from their employment because of sickness.

1. Inorganic Dust

One of the most serious environmental factors existing, especially in the mining and some abrasive industries, is the presence of inorganic dust in concentrated form containing abnormal amounts of pure silica. Industries like hard rock mining, quarrying, grinding and sand blasting have a high morbidity and mortality rate from tuberculosis attributable to this cause. Employees exposed to such an atmosphere over a prolonged period of time will develop silicosis and the latter will lead to the development of tuberculosis in many instances.

Asbestosis is a disease similar to silicosis which may contribute to the morbidity of tuberculosis. However the evidence at present in this direction is not convincing.

2. Organic Dust

There has been considerable discussion as to the role of organic dust in the production of tuberculosis. The high mortality rate from tuberculosis in tobacco workers, cigar workers and tailors was responsible for the early belief that organic dust was a contributory factor in the production of tuberculosis. The work of Landis of Philadelphia which is based on autopsy studies of the lungs of 50 patients who had been exposed for many years to organic dusts, disproved this concept since none of these patients showed evidence in their lungs of active tuberculosis. At the present time it is generally held that organic dusts do not produce disabling disease of the lungs and are not predisposing factors in the development of tuberculosis.

3. Noxious Fumes

The effect of noxious fumes on the body and their relation to tuberculosis has been studied by Winternitz of Yale, Metz of the U. S. Veterans Bureau and others. The findings of these investigators seem to point to the fact that noxious fumes in great concentration will produce immediate irritative reactions in the upper respiratory tract leading to such serious complications of the lungs as edema, pneumonia and in some cases death of the patient.

Observations on soldiers who were gassed during the world war, made by Metz, indicate further that noxious fumes, when inhaled into the lungs, do not lead to the development of either acute or chronic pulmonary tuberculosis in most instances. From personal observations the writer is inclined to agree with this viewpoint.

4. Improper Sanitation and Ventilation

Employees exposed to changeable temperatures, to excessive moistures and working in an improperly ventilated and unsanitary room will expose themselves to the risk of lowering their resistance, thus predisposing themselves to the development of tuberculosis as well as other respiratory diseases.

Social and Economic Factors

It is an accepted fact that tuberculosis, being an infectious disease, is capable of producing and actually does produce active tuberculosis in people regardless of their social and economic rank. It is also true that poverty goes hand in hand with tuberculosis and that most tuberculosis will be found in underprivileged people.

This fact has recently been confirmed statistically by Miss Whitney, who in a study of death rates by occupation reveals that the unskilled worker, the one who usually works long hours and most often in an unventilated and unsanitary environment, the one who usually receives meagre compensation for his services, has a very high mortality rate from tuberculosis. On the other hand, the policeman who receives a fair salary and who is usually out of doors with little physical exertion has a comparatively low death rate; while the lawyers, the judges, the bankers, and the manufacturers, representatives of the higher economic bracket of society, have the lowest death rates as seen in the accompanying table.

Of great public health interest is the fact that the servant, the cook and the waiter, representatives of the lower economic rank, have unusually high mortality rates. Since people represent frequent sources of infection in the community, the control of tuberculosis in this economic group becomes a major public health problem.

TABLE 1

Death rates from tuberculosis per 100,000 gainfully occupied males 15 to 64 years of age in selected states according to economic groups. (1930)

Tuberculosis (Respiratory Form)	
Average, all occupations	87.4
Average, professional group	28.3
Average, lawyers & judges	21.2
Physicians and surgeons	29.4
Average, proprietors, managers & officials	44.8
Bankers, brokers, moneylenders	22.5
Managers and officials	27.9
Builders, building contractors	33.1
Average, clerks & kindred workers	62.4
Real estate agents	28.8
Average, agricultural workers	46.7
Average, skilled worker & foreman	74.2
Moulders, founders, casters	155.5
Policemen	46.–
Average, unskilled workers	183.1
Factory & building construction laborers	221.7
Average, servant classes	175.1
Servants & cooks	156.–
Waiters	169.8

Miss Whitney's study was based on mortality statistics of males only. Some insight into the morbidity according to occupation can be had from a recent study that we have made in the St. Louis Health Department on 31,990 reported cases of tuberculosis male and female as seen from the viewpoint of occupation.

We found in Table II that the occupations of 19,439 or 60 per cent could be classified under 10 major heads, while the remaining 12,551 could be classified under 695 occupations. It is interesting to note that "house-

TABLE II

Showing occupations of 31,990 reported cases of tuberculosis in city of St. Louis (1909-1933 incl.)

Total No. of Tuberculosis Cases	31,990
Total No. of Occupations	705
60% of Cases in 10 major occupations	
40 of Cases in 695 remaining occupations.	

1. Housework	7651	8791 or 45% of people in the ten major occupations either did housework or handled food.
2. Unskilled labor	5119	
3. Clerical work	2311	
4. Shoe workers	883	
5. Porters	661	
6. Waiters & Cooks	660	
7. Teamsters	639	
8. Salesmen	519	
9. Students	516	
10. Laundresses	480	
Total	19,439	