

"While a few persons may still be of the opinion that such workers" - (Workers having silicosis) "are 'through' and doomed to an early death, every study conducted thus far confirms the fact that the great majority of these men will not necessarily progress from bad to worse. Perhaps it may be wise to transfer some workers to other employment, but many may be continued at their regular occupations if known methods are applied to control the dust and if special care is employed to prevent the development of tuberculosis, pneumonia and other lung complications".

"Contrary to popular belief, silicosis is slow to develop. Usually it takes seven years or more of exposure to silica dust for a worker to contract the disease. It is said that a few cases have been known to develop in as short a period as 1-1/2 years, but these were under extreme and unusual conditions. On the other hand, many workers have labored under ordinary exposures to silica for more than 30 years without demonstrating any trouble whatever that could be diagnosed as silicosis".

For the convenient diagnosis of silicosis or of silicosis complicated by tuberculosis, the pulmonary changes are classified in three stages by Drinker & Hatch ("Industrial Dust" - 1936). In the first stage, the disease produces no disability. The victim can work just as well as ever. In the second stage, his respiration is affected; he is bothered by dyspnea or labored breathing. In the third stage dyspnea becomes severe and he is likely to contract pulmonary tuberculosis, generally with fatal results. Whether he contracts tuberculosis or not, the advanced silicotic is far below normal and is very susceptible to all respiratory diseases.

These three stages of silicosis can be distinguished by X-ray. A comparison of the X-ray plates of a silicotic with those of a normal person of like age and physique shows, in the first stage, distinctive shadows, evenly distributed in both lungs. These may be missed or misinterpreted by any but an expert; but the changes in the second and third stages are obvious even to a layman. It is, of course, essential that the X-ray plates be properly made. Dr. Pancoast and Dr. Pendergrass of the University of Pennsylvania have given extensive study to the influence of X-ray technique on the diagnosis of silicosis. Pendergrass is of the opinion that shadows and appearances of fibrosis can be actually produced by the technique employed. Under other conditions, existing fibrosis can be entirely missed by use of improper technique.

Silicates as a class are by no means harmless. It was pointed out by Dr. R. R. Sayers (U.S. Public Health Bulletin 221) that Miners' Consumption was rather common in the Broken Hill district of Australia where the rock contains considerable sillimanite ($Al_2 SiO_5$), fibrous silicate, and a rather low percentage of quartz (12.23%). The studies of Badham (Rept. Dir. Gen. Pub. Health, New South Wales) give considerable support to W. R. Jones' (J. Hyg. 15, 307-1933) contention that silicates, particularly the fibrous varieties, may well be the cause of pulmonary disability. Badham in 1927 coined the word SILICATOSIS to cover disability from the inhalation of silicates. Other silicates such as Talc ($H_2 Mg (SiO_3)_4$); Shale; Kaolin ($H_4 Al_2 Si_2 O_9$); Feldspar; Cryolite. ($Na_3 AlF_6$); and pure Mica give much less specific changes than quartz. A moderate fibrosis may appear after exposure to numerous materials but this fibrosis is usually not disabling. According to Dr. Lanza, "Silicatosiis" is not a recognized term in this country and disability from the inhalation of silicates has not been proven.

Dr. Cary P. McCord (Ind. Med. July 1933, pps. 4-12) states that all silicates taken into the lungs, of particle size capable of passing the cellular membranes, are likely to induce some fibrosis in excess of normal but the progress of such silicatosiis is not nearly so rapid as for silicosis. Tuberculosis rates are high in silicate using industries. Antecedent tuberculosis, quiescent, may flare up as a result