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# ASBESTOSIS*

by

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In opening my discussion of asbestosis, I would like to say that while it has been presumably described by Herodotus in 450 B.C., the disease as we now know it is very new. It was first reported in England in 1900 and a comprehensive report was made in that country by Dr. Merewether (Chief Medical Inspector of Factories) and Dr. Price in 1930. The first cases in the United States were described by Lynch and Smith of Charleston, South Carolina in 1930. During 1930 and 1931, Drs. Lanza and McConnell of the Metropolitan Life Insurance Company conducted the first study of Asbestosis in the United States and Canada. This study included the mines in Canada and nearly all the fabricating plants in the United States. The reports of this study were published by the United States Public Health Service in 1935.

Asbestosis, I would like to point out, is the only silicate dust capable of producing disability and death that does so to any marked or appreciable extent. The total number of persons involved in the industry probably does not exceed 12,000 and as far as can be borne out by clinical experience, tuberculosis is not a factor in this disease. Ever since the survey was started in 1930 the industry has carried on strenuous measures to control the dust in mine, mill and factory with a very marked degree of success. It would seem, therefore, there will never be available the clinical experience of asbestosis that has been a marked feature of silicosis in various industries throughout the world.

I would also like to point out that the experience with asbestosis in England appears to differ sharply with that in Canada and the United States. The authorities in Great Britain regard asbestosis as a very serious disease, much more so than silicosis, and they seem to be convinced that cancer of the lungs is a frequent sequela. This is not the experience in either Canada or in the United States. A great deal of information is available from the medical departments of the various industries that have for a long time maintained constant roentgenographic examinations of asbestos workers which, coupled with the efforts at dust control, may explain the difference in clinical findings. As far as we have been able to ascertain, there does not seem to be any undue prevalence of cancer among asbestos workers in this country and, as some of the mines and fabricating plants have been working extensively for over thirty years, it would seem that if cancer was a frequent complication of exposure to asbestos dust, this fact would have become evident long ago, especially as the medical supervision of asbestos workers is both thorough and comprehensive. I have, within the last couple of months, spent several days with Dr. Kenneth Smith in Asbestos reviewing a great many films covering a period of a number of years and I understood him to say that he had seen only one case of cancer of the lungs during that time. Dr. Cartier at Thetford has found only a very small number of cases of cancer of the lungs in the asbestos clinic in Thetford.

I would like to emphasize that none of us can afford to be too dogmatic in discussing these occupational diseases and because the experience in one country indicates one set of results, it does not necessarily follow that the same results are to be found in other countries. There are many circumstances and environmental conditions that may differ markedly and, unless all these divergent factors are known, comparisons can be made only with the greatest of caution. It is quite possible that the asbestos fibers themselves in various parts of the world may differ in their structure and composition and hence produce different pathological results when inhaled. We have recently learned to appreciate the importance of this phase of dust disease of the lungs in connection with the effects of the inhalation of diatomaceous earth. Diato-

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maceous earth is chemically identical with crystalline silica, but the amorphous form of silica produces quite a different pathology in the lungs than does crystalline silica. In these dust diseases the matter of dosage also is important and unless the seriousness of the exposure in terms of dust in the inspired air can be determined with some degree of accuracy, one cannot compare one set of conditions with another without running the risk of serious error. The matter of asbestos as a carcinogenic agent deserves, and will receive, continuing extended study both in Canada and the United States. Industrial physicians have been alerted to be on the lookout for lung cancer among asbestos workers.

Some years ago the late Dr. Gardner of Saranac first ascribed the action of asbestos fibrosis in the lung to the larger particles rather than smaller ones. This is exactly opposite to the effect of silica where it has been demonstrated that the smaller the particles the more active they are in producing pulmonary fibrosis. Dr. Gardner was also of the opinion that the action of the asbestos fibers was mechanical rather than chemical which again is in contradistinction to the action of silica. However, some of the persons who have studied asbestosis are not in complete agreement with this and it is probable that the factor of asbestos particle size in producing pulmonary fibrosis will receive further extended study.

Tuberculosis does not appear to be a factor in asbestosis and there is general agreement on this both in Canada and the United States. Certainly there is nothing in the clinical observations on asbestos workers comparable to the experience with tuberculosis seen among industrial workers exposed to silica dust.

Aluminum prophylaxis has not been tried in the asbestos industry. The result of the work of Smith, Wooton and King published in THORAX in June 1951 indicates no amelioration of asbestosis in experimental animals as has been evidenced for silicosis.

To summarize: Hand in hand with continuing efforts to control air borne dust in mine, mill and factory goes a well developed and thorough medical supervision of asbestos workers, together with a research program involving not only experimental animals, but also clinical studies including pulmonary function evaluation tests (Saranac) on selected cases of asbestos workers showing roentgenographic evidence of asbestosis.

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