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February 23, 1944

Mr. Ivan Sabourin
Aldred Building
Montreal, P. Q.
Canada

Dear Mr. Sabourin:

While the matter is still fresh in my mind I am writing you at length on my impression of the situation on Asbestosis in Quebec in so far as it involves relationships between the producers, the medical profession and the Compensation Commission. One conference with Mr. Sharp, Dr. Vidal and Mr. Dick gave me a much clearer picture than I had gotten previously. Before doing so I offer a few comments on autopsy material.

I am enclosing my report on the lung tissues of Philemon Tardif. Of necessity the conclusions are not too satisfying as they are based only upon examination of two blocks of tissue, approximately 2 x 4 centimeters in diameter without even an indication of the parts of the lung from which they were taken. However, they like the material from the two previous cases, do demonstrate that the Thetford operations produce limited amounts of indisputable Asbestosis. In the presence of advanced tuberculosis this is obscured and not likely to be identified except on microscopic examination of pulmonary tissue. X-ray during life will not show it.

Today I have also examined in gross the sagital section through the entire right lung of Majorique Perron which we collected yesterday from the toxicological laboratory in Montreal. This is a much more satisfactory specimen with which to work. It likewise shows a combination of widespread chronic tuberculosis upon a background which will probably prove on microscopic examination to be minimal Asbestosis. Sections will be prepared as soon as possible for microscopic examination. In order to make my report complete in this case, I would appreciate it if you would send me a brief summary of the occupational and clinical history including: How long employed, character and date of first symptoms, date of quitting work, whether Koch's bacillus was found in sputum and date of death. I neglected to copy this information from your record.

This autopsy material on fatal cases and the X-rays that are now reaching the Commission are bound to create in their minds the impression that tuberculosis is an all too common complication of Asbestosis. If I were in their position with my experience limited to evidence of this kind I would find it difficult to resist the conclusion that there is causal relationship between even slight amounts of

asbestosis and tuberculosis of the lungs. I have told you repeatedly as I told Mr. Sharp yesterday that I did not agree with this conclusion but I doubt whether he or Dr. Vidal will be persuaded when they see a succession of cases like those which are now passing before them. They must be made to realise that these cases are the exceptions rather than the rule and that there is a great majority of employees in the asbestos industry who are free from tuberculosis.

I would therefore urge that immediate steps be taken to survey every employee in the asbestos industry in Quebec so that the necessary statistics can be assembled. Dr. Stevenson's X-ray films already taken on the men at Asbestos will provide you with material for a preliminary report. Coupled with this there might be an analysis of mortality data contrasting the total death rate from tuberculosis in Thetford and Asbestos with that in other industrial communities of the Province. It would be still more convincing if you could show the separate rates of males and females unless the number of the latter employed in the asbestos plants constitutes an appreciable proportion of the female population. Finally the age distribution of deaths from tuberculosis in those employed in the asbestos plants as contrasted with that in other occupations would help in determining whether the occupational factor was contributory.

My own observations elsewhere and your intimation that the rate for tuberculosis was higher in St. Hyacinthe than in Thetford and / or Asbestos make me confident that the companies would acquire information of greatest service to themselves by such a survey and analysis. If asbestosis specifically is predisposing to tuberculosis in the same sense as silicosis does the effect should be just as apparent in North Carolina and Pennsylvania as it seems to be in Quebec or England But the films of employed asbestos workers in the States show a very low incidence of associated tuberculosis. It is my firm belief that in Quebec and England, factors outside the occupation are responsible.

As I sensed the situation in Montreal yesterday the asbestos industry will have to produce evidence to prove this point and start on it immediately or the industrial commission will become increasingly convinced that our position is biased and not founded upon truth.

Furthermore the industry would undoubtedly profit by undertaking a general program of community control of tuberculosis. By instituting case finding machinery not only among employees but among the members of their families, the open cases of tuberculosis would be discovered and the sources of spread of the infection could be removed.

One of the iron mining companies whom we serve has such a program with a public health nurse, a program for tuberculin testing of school children and follow up of the contacts of every known case of open tuberculosis. The program has paid dividends by practically eliminating tuberculosis with resultant lowering of compensation costs and the good will of the employees is unmeasurable. The asbestos industry of Quebec has a serious problem because its labor force is drawn from a population in which the tuberculosis rate is high but their situation is no worse than that which our other clients attacked successfully in an iron mining community.

The second point which is becoming increasingly apparent to me is that the asbestosis of the Quebec mines and mills is quite generally less severe and extensive than the asbestosis of the fabricating plants of the States. Comparison of the X-ray findings in the two groups reveals very few cases with typical patterns among Thetford or Asbestos mill men. Some asbestosis is unquestionably produced for we have microscopic evidence of it in the four autopsy cases now available but it is not advanced enough to replace much of the functional parts of the lungs and thus cause the X-ray shadows that are generally recognized as characteristic of the disease. (Most of us disagree with Dr. Pendergrass when he says in Lanza's book that there is no characteristic pattern of asbestosis). If my observations are correct this relatively slight amount of disease should not cause disability for only the framework of the lungs is involved leaving most of the parts that carry on the functions of respiration intact.

But here again the Canadian industry is on the defense against its medical profession and their representatives on the advisory board to the industrial commission. The doctors have seen only their own local manifestations of asbestosis without opportunity to compare it with the really severe manifestations that are produced elsewhere. They find the abnormal shadows in the X-ray films of exposed workmen, which they are convinced must cause symptoms and disability. They find asbestosis bodies in the lungs of autopsied cases associated with minimal tissue reactions or overwhelming manifestations of concurrent pulmonary infections and now they are sure of their ground.

In order to defend itself the industry in Quebec must have more facts which will require time to collect, analyze and publicise. These findings will have to be contrasted with those in the fabricating plants either in Asbestos or elsewhere. In the city of Asbestos the spinning and weaving mill has been in operation for only four years which is the minimum time to produce much disease in those exposed, but in another year or two one may expect to find evidence of it here unless I am much mistaken.

As I have told you in conversation, our experimental observations lead me to believe that the true hazard in asbestos plants is proportional to the amount of small, individual, uncrushed fibres in the industrial atmosphere. I suspect that the reason why one sees little or no typical asbestosis in the mines and mills is because there is probably too little such fibre in the air of these plants. Conversely the reason for the "typical" disease in the fabricating plants is the fact that the processes there open the bundles of asbestos fibre and tear them into lengths short enough to be inhaled in dangerous quantities.

The mills and mines are dusty but the dust is largely serpentine with relatively few fibres large enough to do harm to the lungs. This dust enters the lungs where it produces reaction around blood vessels and other framework structures that are just like any other inert dust. We see the shadows of such inert reaction manifested in X-ray as an exaggeration of the normal shadows of blood vessels. This condition is not asbestosis nor necessarily preasbestotic any more than the identical changes in men working in hard rock mines are necessarily presilicotic. In free silica industries regardless of exposure we do not diagnose silicosis from X-rays until we find the characteristic pattern of nodulation; in the asbestos industry we should do likewise and refrain from a diagnosis of asbestosis until the X-ray reveals the characteristic pattern of haziness or fine stippled appearance spreading throughout the lower thirds or more of the lung fields. The situation with asbestosis is even more difficult than with silicosis for today the requisite condition of the dust exposure is not appreciated by the medical profession.

Therefore I strongly urge that surveys be made to compar the relative quantity and nature of the dusts in the mills and the fabricating plants in order to present proof that in the first instance the percentage of thin fibre of inhalable dimensions is insignificant in comparison with the quantity created in spinning and weaving. It is goi to be hard to persuade physicians of the importance of these factors but similar factors govern the reaction to quartz and the development of silicosis. These physical limitations of atmospheric dust often determine the outcome in contested cases involving a diagnosis of silicosis and I forsee that they will have equal weight in asbestosis. competent industrial hygienist should collect and analyze enough of the atmospheric samples in weaving and spinning mills and in the mines and processing plants to establish this basic difference so that it will st beyond controversy. We have the experimental background; we now must demonstrate its industrial application. When correlated with the resul upon exposed workmen, I feel certain that our position will be secure.

To summarize: I would make the following recommendations to your clients, the Canadian Asbestos Producers in order that they may defend themselves against a growing conviction among the local physicians that employment in this Quebec industry is highly dangerous.

I. Correct an erroneous impression of the Industrial Commission that asbestosis is frequently associated with pulmonary tuberculosis.

a) Statistical data based on X-ray of all employed workmen to indicate the incidence of pulmonary tuberculosis

b) Comparative mortality statistics on tuberculosis in Asbestos and Thetford and in other communities of Quebec indicating the frequency by sex and age.

2. Consider the possibility of inaugurating a program of tuberculosis case finding and control in the general populations of Asbestos and Thetford in order to eliminate sources of new infection among employees.

3. Make a detailed comparative study of the nature of the dust in the fabricating plants and the asbestos mines and mills.

I trust that you will agree with these recommendations and be willing to pass them along to your clients.

May I take this opportunity to thank you for your delightful hospitality while I was in Montreal and thank you for making my visit profitable and pleasant.

Sincerely yours,

Leroy U. Gardner, M. D.
Director

LUG:RH