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Malignancies in Asbestos Workers

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WITHIN recent years and months a considerable amount of evidence has appeared in the literature which indicates that asbestosis is directly related to the incidence of malignant tumors and cancer.¹⁻³

As early as ten years ago a Pennsylvania pathologist reported that he had seen at autopsies many cancer cases in persons who also suffered from asbestosis. The pathologist is on the staff of a hospital which receives most of the patients from a nearby town where a large asbestos producing plant is located. The findings of the pathologist have created concern in the asbestos industry and it was felt appropriate for the Pennsylvania Health Department to review the problem.

Exposures in the Plant

The following information was obtained from the files of the health department which has studied environmental exposures of workers in this plant on several occasions in the past 30 years. During this time there has been a tremendous improvement in dust conditions in all operations and dustiness has been held close to or below the present threshold limit.

The textile department used chrysotile, primarily, for many years. It was not uncommon for the milled fiber received by the textile plants to contain 30% or more of fines. The fiber of today is very much cleaner than that received prior to 1950. The use of light oil in the blending department began around 1955. This was helpful in improving conditions and minimizing dust. Prior to 1950 amosite was processed in small quantities for making thermal blankets. Although the processing of amosite never exceeded one card and the operations were at times intermittent, this operation was much dustier than from cards processing chrysotile. Crocidolite has never been handled in the textile department.

In the friction products operations extensive changes in the formulations have

taken place over the past 30 years. Prior to 1945, coal tars and pitches were commonly used as impregnations in making brake linings, clutch facings, and packing materials. Since 1945, these have been essentially replaced by resins and other materials so that at present only a very small amount of tar and pitch is used in packing materials. A small amount of crocidolite is still used in making some packings.

The Study

Since asbestosis is a disease which, once established, progresses even after exposure to dust ceases, it was decided not to ask plant management for cases known to them. Instead, the record rooms of six hospitals which draw their patients from the area of the asbestos plant were checked for cases of asbestosis. Admissions only for the period between 1956 and 1964 were included. Seventy-five hospital records coded as asbestosis were located. Asbestosis was diagnosed in these people on admission, by x-ray, or at autopsy, or asbestosis was mentioned in the differential diagnosis.

After obtaining the 75 records, medical, occupational, and smoking histories were obtained for all these former patients. Many were deceased and their survivors had to be contacted. Other data were obtained from plant management. Seven either had not worked at the asbestos plant under study or the diagnosis had been changed. This left 68 asbestos workers who had worked at one time in the above-mentioned textile and friction materials plant. Further study of the records showed that 21 of these not only had evidence of asbestosis but also had suffered from malignancy. By the time of the

TABLE 1.—Number of Cases and Duration of Occupational Asbestos Exposure by Departments

Exposure Duration	Department			
	Textile	Friction	Textile and Friction	Unknown
Less than 10 years	1	0	1	1
10-20 years	3	3		
20-30 years	3	1	1	
30+ years	6		1	

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