ASBESTOSIS—Part 1: The Collection and Counting of Dust Encountered in Asbestos Fabricating Plants

INTRODUCTION

The Pennsylvania Department of Labor and Industry now is engaged in several surveys on the effect of dusts and their relation to the health of the worker. In view of the limited information now available and the many new uses of asbestos a survey of the conditions presented in asbestos fabricating plants becomes increasingly important.

The 1930 Geneva report of the International Labor Office in "Occupation and Health"[1] cites "The lack of more accurate and detailed data in medical literature regarding this industry in its various branches, including the utilization of by-products is to be deplored in view of the self-evident importance of asbestos dust as a predisposing cause of pulmonary tuberculosis, more especially since the rapidly-increasing development of industries utilizing asbestos adds greatly to the urgency of studying the conditions with a view to their amelioration."

In a survey now being conducted in the asbestos industries approximately one hundred and fifty samples have been collected and the data presented in this paper were obtained from these samples. All the samples were collected in the worker's breathing zone. Dust samples were collected at the site of each operation in the process of manufacture and in some instances two samples at the same time and in the same zone but in different collection mediums.

The purpose of this report is to discuss our modification of the technique already in use in its application for this type of work.

METHOD

The modified form of the Greenburg-Smith impinger[2] was used for the collection of dust particles. A cylindrical flask 210 millimeters in height and 50 millimeters in diameter is graduated to 325 cubic centimeters. A line is marked 5 millimeters from the base of the flask for use in gauging the impinging distance. The impinger tube, made according to specified measurements, is inserted through a No. 10 rubber stopper which fits the flask. In the modified form of the impinger apparatus, the bottom of the flask is used as the impinging surface. When sampling dust in the field a calibrated flowmeter was used so as to insure collection at the rate of one cubic foot per minute. All samples were taken as close to the face of the worker as possible. For this purpose a specially designed holster (Fig. 1) to support the impinging flask was strapped to the chest of the worker. The holster was made entirely of leather straps one-half inch in width. It was