PLAINTIFF'S EXHIBIT
MET-791

ANNUAL REPORT FOR 1939

Laboratory of Industrial Hygiene

During the year the Laboratory of Industrial Hygiene surveyed 68 ...st industrial plants, all Group policyholders, employing approximately a total of 34,000 workers. The industries studied may be classified as follows:

Leather 61.7%	Metals 10.3%
Chemicals 19.0%	Mines 4.5%
Ceramics 3.0%	
Textiles 1.5%	

Each survey report includes a description of the processes, plant construction and layout, plant housekeeping and personal facilities; discussion of methods of sampling and analyses; chemical analyses and other findings of the samples collected; and recommendations for control of any health and safety hazards found. A section of the report discusses the health hazards found - symptoms, toxic concentrations, etc. and notice is called to any place in the plant where the concentration exceeds the estimated allowable concentration for prolonged exposure.

The samples collected in the plants and sent to the Home Office Laboratory necessitated making 1,161 separate analyses. Exclusive of such environmental factors as defective illumination, inadequate local and general ventilation, and sanitary defects, a total of 42 different substances known to affect unfavorably the health of exposed workers was detected. These consisted of dusts, such as silica, asbestos, lead, and manganese; solvents, such as carbon disulphide, tetrachlorethane, benzol, toluol, ethyl and amyl acetate, amyl and ethyl alcohol, petroleum naphtha, and similar hydrocarbons; also acids, the most serious being hydrofluoric. Attention, also, was directed to eleven of the more common safety hazards.

1939

Leather Study

Forty-three plants engaged in shoe manufacturing or tanning of leather were surveyed. The chief substances encountered in shoe factories seem to be naphtha and benzol used in coments and also for attaching crepe soles to the shoes, and, to a limited extent, other solvents such as alcohol, acetates, and acetone. Methyl alcohol is used for softening pieces of celluloid for heel coverings. Dermatitis developes from the type of cleaning fluids used.

In tanneries, chrome dust, which is used in making the tanning solution, causes chrome sores. Dermatitis is very prevalent in some of the tanneries studied, caused by a variety of the substances used. The plants studied are for the most part modern and dust-producing operations have been exhausted and a great many of the more dangerous solvents have been replaced by others that are not injurious.

Research in Laboratory of Industrial Hygiene

The impinger method of dust sampling, when used in our surveys of the asbestos industry, failed to reveal asbestos fibers in quantity. Studies conducted by Dr. Gardner at Saranac on dusting of animals with asbestos indicated that the fibers and not the fine dust were responsible for producing fibrosis. Therefore, a comparative study of sampling with the impinger and the electrostatic precipitator was made at the plant of the United States Asbestos Division of the Raybestos-Manhattan, Inc. at Manheim, Pa. Simultaneous samples were taken at representative manufacturing operations and the samples immediately counted in order to avoid solution or deterioration due to standing. The work was finally completed in the laboratory. The study indicated that the electrostatic precipitator entraps from 25 to 50% more of the fibers than the impinger method.