PLAINTIFF'S EXHIBIT

CAP-260

PATHOLOGY OF ASBESTOS - ASSOCIATED DISEASES
- ULTRAMICROSCOPIC CHANGES -

Yasunosuke Suzuki, M. D.
Environmental Sciences Laboratory

Electron microscopy has been used for (1) confirmation of asbestos exposure. (2) Studies on pathogenetic mechanisms in asbestos associated diseases and (3) application to pathological diagnosis of the diseases.

(1) To identify intrapulmonary asbestos, an intimate cooperation between mineralogists and pathologists is essential. A comprehensive information consisting of ultrastructure, electron diffraction and elemental analysis gives the best judgement for identification of intrapulmonary asbestos fibrils. Four micron sections which are used routinely, as well as ultrathin sections will be recommended as samples for identification of asbestos. Recently, a high resolution analytical electron microscopy combined with ultrathin sections, has been recommended to obtain such information.

(2) Electron microscopy has been used for studies on pathogenetic mechanisms such as phagocytosis of asbestos by macrophages, formation of asbestos bodies and histogenesis of mesothelioma. Direct observation of interaction between asbestos fibrils (some are as small as 300 A^{o} in width and less than 1,000 A^{o} in length) and pulmonary cells, is necessary to understand the mechanisms. This cannot be achieved by light and phase microscopy.

ASARCO ALV 0001422

(3) Ultrastructure of mesothelioma cells has been recommended as one of the diagnostic criteria of mesothelioma. Although gross anatomy, histology and histochemistry have been recommend a systematic diagnostic criteria, ultrastructural characteristics may be used as an additional criterion. Neoplastic tissues as well as mesothelioma cells (cells blocks from pleural and peritoneal fluid) have been employed as samples of the diagnostic electron microscopy.

To be presented at the Asbestos Associated Disease: With Particular reference to United States Shipyards. Monday, November 27, 1978, at The Mount Sinai Medical Center, Leo C. Stern Auditorium, The Annenberg Building.