found initially in most other forms of pneumoconiosis. At a later stage massive lesions may develop. A theory linking this contrast with lung dust studies has been advanced (Nagelschmidt, 1960). According to this theory the dust remaining in the lungs causes the fibrosis in coal workers and similar forms of pneumoconiosis, and a positive correlation between amount of dust and severity of fibrosis or x-ray category of simple pneumoconiosis is found. The amounts of dust in the lungs are large and may average 50gm. for advanced stages of coal workers pneumoconiosis. In diffuse interstitial fibrosis, as seen mainly in aluminosis and asbestosis, this does not seem to be the case; the amounts of asbestos found in the lung are very small and are not clearly related to grade of fibrosis; dissolution of the dust is the most likely explanation. Similar views with regard to the action of chrysotile have already been expressed. Further research is obviously required before the mechanism by which asbestosis is produced can be said to be known.
-- APCA Absts.

890 Asbestos Dust Deposition and Retention in Rats. J.C. Wagner and J.W. Skidmore. Ann. N.Y. Acad. Sci. 132, 77-86 (Dec. 31, 1965).

A method of producing asbestos dust clouds has been devised and an animal inhalation experiment carried out to test it. Observations on the histological distribution of the dusts in the lungs of the rats have shown that the dusts tend to accumulate in the alveoli arising directly from the respiratory bronchioles. The weights of the asbestos dusts found in the lungs of the rats at the end of exposure were found to differ considerably, but the subsequently determined elimination rates indicated that the weights of dust deposited were in a constant ratio with the weights of dust collected by the size-selective sampler. To deposit an equal amount of a nonfibrous dust, allowance must be made for the reduced efficiency of the upper respiratory tract in preventing the penetration of the compact dust particles to the alveolar regions. The elimination rate of Rhodesian chrysotile has been found to be three times greater than that of amosite and crocidolite, which suggests an explanation for the previously observed reduced fibrogenicity of this dust. The reason for the difference in the elimination rate remains to be determined. -- APCA Absts.

891 Experimental Asbestosis With Four Types of Fibers. Importance of Small Particles. P.F. Holt, J. Mills, and D.K. Young. Ann. N.Y. Acad. Sci. 132, 87-97 (Dec. 31, 1965).

The guinea pig lung reacts immediately to inhalation of asbestos dust. There is a bronchiolitis with extension of the inflammatory reaction to the adjacent alveoli. At a later stage there is a widespread and progressive fibrosis of the lung, adenoid proliferation of the bronchiolar epithelium, and reticulinosis and fibrosis of the tracheal lymph glands. The inhaled dust early becomes coated with an iron-containing protein to form asbestos bodies. These have been recognized within seven days of exposure to the dust. Fine dust particles, too small to be seen under the light microscope, will produce asbestosis in the guinea pig. The difficulty of controlling the spread of dust has been demonstrated. -- APCA Absts.

892 Quantitative Determination of Chrysotile, Amosite and Crocidolite by X-ray Diffraction. J.V. Crable. Am. Ind. Hyg. Assn. J. 27, 293-298 (May-June, 1966).

The determination of asbestos by x-ray diffraction in environmental samples is described. Evenly distributed mats of asbestos samples on molecular membrane filters are prepared for x-ray diffraction examination. Each asbestos mineral has its characteristic x-ray diffraction pattern. A qualitative scan of a mounted filtered sample identifies the crystalline substances present including the asbestos minerals. A quantitative determination of a given type of asbestos is made by measuring the area under its major diffraction peak and comparing this area with that of a known quantity of an external standard. -- Author's abst.

RADIOACTIVITY AND X-RADIATION

893 Radiation—A Look at the Past and the Present. I.L. Beauchamp. J. Occ. Med. 8, 329-337 (June, 1966).

The 300 years prior to the discovery of x-rays and natural radioactivity were punctuated with scientific breakthroughs that brought the state of scientific knowledge to the point where x-rays were observed by an alert scientist. Following Roentgen's discovery of x-rays and the discovery of radioactivity by Becquerel, the use of radiation expanded rapidly in research and medicine. Many scientists, physicians, and patients were injured because the need for protection and dosimetry was unrecognized. No satisfactory theory had been advanced at the time to explain the nature of x-rays and radioactivity. Several writers surveyed the literature in that early

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