

- 267 The Classification of Chest Radiographs for Coal Workers' Pneumoconiosis. A Study of the Performance of Two Readers Over a Period of Six Years. J. R. Ashford.
Brit. J. Ind. Med. 17, 293-303 (Oct. 1960).

This paper is concerned with the performance over the past 6 years of the 2 doctors responsible for the classification of chest radiographs obtained by the National Coal Board's Pneumoconiosis Field Research. A brief description is given of the categories of pneumoconiosis used in the Research and of the procedures adopted to decide the final or "definitive" classification. The readings obtained are then considered in detail and 3 main points emerge from the analysis. First, it is shown that there have been marked systematic fluctuations in the reading levels of these 2 very experienced observers. In spite of these individual variations it is found that the standards applied on the definitive readings, which are based on the joint discussion by the 2 doctors of films on which their individual readings are inconsistent, remain remarkably constant over a period of several years. The third main feature of the analysis is the considerable differences in the magnitude of the reading errors between the various categories of pneumoconiosis. It is concluded that, although the existing procedures provide a satisfactory way of estimating the prevalence of pneumoconiosis, it would be desirable to increase the number of film readers. The beneficial effect of the system whereby a running check is kept on film reading standards is also established. -- Author's abst.

- 268 Emphysema, Soot, and Pulmonary Circulation. Macroscopic Studies of Aging Lungs.
C. P. Oderr. J. Am. Med. Assn. 172, 1991-1998 (Apr. 30, 1960).

Two hundred lungs, obtained from persons dying of diseases other than pulmonary tuberculosis, were fixed in the inflated state to permit study of the relation between emphysema and deposits of soot. The evidence showed that chronic emphysema usually develops first in small areas of trapped parenchymal soot deposits; it is manifested by abnormal fenestrations in the interalveolar septums and by increased diameter of the alveolar ducts. The emphysema accompanying deposits of soot can be explained as resulting from tissue defects and disarrayed mechanical forces. Precapillary vessels are found protruding into the air spaces of the alveolar duct level, providing a possible mechanism for correlation between aerodynamics and hydrodynamics in the lung parenchyma. The morphological basis for an extensive semishunt mechanism is demonstrated in the periphery of each lobe. -- APCA Absts.

- 269 Radiological Diagnosis in Asbestosis. R. Williams and P. Hugh-Jones.
Thorax (London) 15, 103 (June 1960).

The authors studied the lung function in 40 patients at the Royal Free Hospital, London, who had been exposed to asbestos dust in their work for varying periods of time. Of these, asbestosis had been certified by the pneumoconiosis medical boards in 21; 10 patients with a prolonged exposure did not have definite roentgenographic signs of asbestosis; in the remaining 9 patients the diagnosis of asbestosis was doubtful. The changes of pulmonary function observed in the patients with asbestosis were those common to patients with other interstitial fibroses, and consisted of a lowered diffusing capacity together with a reduced inspiratory capacity, hyperventilation (often accompanied by arterial desaturation) on exertion, with no evidence of air-flow obstruction except in patients in whom asbestosis was complicated by asthma or emphysema. Many patients also showed inequality of ventilation and ventilation-perfusion ratio. These functional changes were related to an independent grading of physical signs and roentgenographic appearances. Changes in lung function, specific for an interstitial fibrosis, often precede definite changes in the chest roentgenogram, so that finding them in patients with a history of exposure to asbestos is suggestive evidence of asbestosis whatever the roentgenographic appearances may be. -- J. Am. Med. Assn. Absts.

- 270 Asbestosis and Abdominal Neoplasms. E. E. Keal. Lancet 2, 1211 (1960).

In 1953, an impression was formed at the London Hospital that women suffering from pulmonary asbestosis had ovarian neoplasms more often than other women. On the basis of this suspicion and because of the occurrence of other cases, the hospital records since 1948 were investigated. During that period, 23 women and 19 men were admitted with a diagnosis of asbestosis. In this series, there were 30 deaths (15 men and 15 women). Of these, 14 died with lung cancer (10 men and 4 women). This high incidence in men is partly due to selection, but this does not apply to the women, who were all non-smokers. Death occurred in one man with peritoneal cancer and in 9 women with ovarian or peritoneal cancer. This appeared to be more than a chance association, and spread from undiagnosed lung cancer seemed unlikely. At least 4 of the tumors were not of ovarian origin. Some evidence of hematogenous spread of asbestos fibers was adduced and it was suggested that a combination of mechanical and chemical factors may determine the peritoneum as the site of inflammatory and subsequent neoplastic change. No single satisfactory explanation for these cases could be drawn from the available material though they appeared to form a clinical entity of statistical significance.

-- Can. Med. Assn. J. Absts.

- 271 Occupational Medical Investigation in Cement Works. Jenny M. Battig, et al. Schweiz. med. Wochschr. 90, 705-709 (June 25, 1960). German.

This is the first systematic investigation in Switzerland into the possibility of respiratory complaints arising from the inhalation of cement dust. No free silica is present in Swiss cement, so silicosis is not a risk, a fact confirmed by the radiological examination of some of the workers. In all, 488 employees at 3 factories were studied. The absentee rate at one of the factories was much higher than at others; the percentage of men complaining of cough and of those with sputum was also higher in this plant. The cause of this might be partly due to social factors, epidemics, etc. A study of smoking habits shows that exposure to cement dust does not increase coughing in smokers. It is suggested that those who are resistant to smoker's cough are also resistant to dust. Non-smokers show a surprisingly high proportion with chronic cough as compared with figures given by another author. Perhaps a better comparison would have been with a non-occupational group studied by the authors themselves. However, it is concluded that this shows that cement dust is irritating to the respiratory passages. Physical signs found did not lead to any definite conclusion. Vital capacity was not influenced by the length of dust exposure. In a few workers the maximum expiratory force was reduced. An attempt was made to relate the findings to the intensity of exposure by dividing the workers into 3 groups. The 2 groups most exposed to dust showed a tendency to increased pathological signs, but the difference was not statistically significant.

-- Bull. Hyg.

- 272 A Study of the Physiological Effects of Carbon Black. (3) Adsorption and Elution Potentials: Subcutaneous Injections. C. A. Nau, J. Neal and V. A. Sternbridge. Arch. Environmental Health 1, 512-533 (Dec. 1960).

Neither blood plasma nor gastric juice elutes any significant adsorbed component when a channel black is suspended in either medium for as long as 7 days. Neither blood plasma nor gastric juice elutes any significant adsorbed component when a furnace black is suspended in either medium for as long as 7 days. Channel black "binds" benzo(a)pyrene adsorbed "artificially" so firmly that it cannot be removed "in toto" by benzene extraction. No significant extraction of either channel or furnace carbon black was accomplished with gastric juice to which 10% cooking oil was added when contact was maintained for 7 days. Subcutaneous or intraperitoneal injection in mice of channel or furnace carbon black leads to no significant changes from the normal. Benzene extractives of furnace blacks when injected in oil into mice lead to tumor formation. Carbon blacks, channel or furnace, can absorb and bind known carcinogens so effectively that no tumors are produced when the adsorbed material is injected subcutaneously. Tricapylin when injected subcutaneously in mice may cause tumor formation.

-- Authors' conclusions