

for the occurrence of cancer, did not reveal any evidence supporting the conception that heredity plays any part in the production of pulmonary malignancy in chromate workers (Alwens).

*Symptomatology.* The pulmonary neoplastic disease of chromate workers has an insidious beginning. In general, chromate workers develop chronic, inflammatory, irritative conditions of the upper respiratory tract, which may result in the production of nasal septal ulcers and perforations one to two years after entering the plant. During the years preceding the manifestation of the tumor the inflammatory symptoms of the respiratory tract become more pronounced and extend to the lower portions, remaining nonspecific in character. Following a period characterized by frequent and prolonged coughing spells and pains in the chest, there occur attacks of bronchopneumonia and protracted bronchitis. Finally, when pleuritic symptoms appear, they are usually accompanied by definite signs of a neoplastic process in the chest, such as radiating pains, dyspnea, and coughs with expectoration, and the physical symptoms of an infiltrative pulmonary condition (faint breath sounds and crackling râles), indicating the presence of a bronchial stenosis, pulmonary gangrene and cavitation, and hemorrhagic pleurisy. Many of the workers, who developed pulmonary malignancy, showed upon roentgen examination an enlargement of the hilum nodes sometimes affecting only one side. This symptom is considered a precancerous sign in chromate cancer of the lung. The tumor shadow spreads usually from the hilum into the pulmonary parenchyma. The entire clinical and roentgenological picture of chromate cancer does not differ in any essential respect from that seen in the ordinary non-occupational type of lung carcinoma. This identity extends to the differential diagnostic considerations and to the prognosis, which is as unfavorable in chromate cancer as in cryptogenetic carcinoma of the lung.

The tumors were located in 3 cases on the left side, in 11 cases on the right side, and in 1 case on both sides (Alwens). A squamous-cell carcinoma was found in 4 cases, a round-cell carcinoma in 2 cases, and adenocarcinoma in 2 cases, and an anaplastic carcinoma in 1 case. Metastases were present in all instances and, often, were extensive.

*Medico-Legal Aspects.* Pulmonary malignancy caused by an occupational exposure to chromates is recognized as a compensable industrial disease in Germany, but has not been included in this list for obvious reasons in any other country. Claims for indemnity should be recognized in all instances in which persons have developed cancer of the lung and possibly cancer of the nasal passages, after a prolonged industrial exposure to chromates in the form of dust, fumes, or vapors. Since a carcinoma of the lung was observed in one case after an exposure of ten years, the lower limit of the exposure time should be placed below 10 years (5 to 8 years), and even a shorter period of occupational contact with chromates may be allowed, if it can be shown that the particular claimant is allergic to chromium compounds. For