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to a considerable extent. Of all gas workers employed, two-thirds have to stop work prematurely. Respiratory disorders are also a common cause of disability.

The author advises that gas workers should be periodically examined and particular attention be paid to the respiratory and circulatory systems. He also considers that all cases of carbon monoxide poisoning, even if mild, should be at once admitted to hospital. In his opinion tobacco and alcohol aggravate the occupational disorders of the gas industry. He thinks that much more attention should be paid to the design and ventilation of gasworks. More fresh air should be brought in, without causing draught. It is also desirable to reduce exposure to dust and fumes, and to shield the employees from extreme heat and cold and from a rapid transition from one to the other. *G. C. Pether*

754. **Some Remarks on Asbestosis.** (Quelques considérations sur l'amiantose)
L. ROUSSEAU. *Semaine des Hôpitaux* [*Sem. Hôp., Paris*] **23**, 1811–1814, Aug. 7, 1947. 4 figs.

755. **Experimental Asbestosis. Pathognomonic Value of the "Asbestos Body".** (Amiantose expérimentale. Valeur pathognomonique du "Corps d'Amiante")
M. GIROUX. *Semaine des Hôpitaux* [*Sem. Hôp., Paris*] **23**, 1814–1818, Aug. 7, 1947. 5 figs., 18 refs.

756. **Asbestosis and Pulmonary Tuberculosis.** (Amiantose et tuberculose pulmonaire)
R. DESMEULES, M. GIROUX, and P. RICHARD. *Semaine des Hôpitaux* [*Sem. Hôp., Paris*] **23**, 1818–1820, Aug. 7, 1947. 1 fig., 4 refs.

757. **Asbestosis and Cancer of the Lung.** (Amiantose et cancers pulmonaires)
R. DESMEULES, L. ROUSSEAU, M. GIROUX, and A. SIROIS. *Semaine des Hôpitaux* [*Sem. Hôp., Paris*] **23**, 1820–1823, Aug. 7, 1947. 6 figs., 5 refs.

These four papers come from the Hôpital Laval, Quebec, Canada, where several workers in the asbestos mines have been studied. The first paper is really a summary of the following three. The Quebec school disagree with the statements of Gardner that pneumoconiosis due to asbestosis is not an important factor in the production and progress of pulmonary tuberculosis, and that the presence of asbestos bodies in the sputum has no value in the diagnosis of asbestosis. Rousseau gives brief descriptions of 4 patients, some of whom are also discussed in the following papers. One of these, a man of 42 years, had worked in the asbestos industry for 18 years, and experienced respiratory symptoms only during the last 3. He complained of cough and an asthma-like dyspnoea. Asbestos bodies were found in his sputum, but no tubercle bacilli. Radiography is said to have shown a ground-glass appearance in his lungs [but unfortunately the illustration is too poor to demonstrate this]. His respiratory disability became so marked that he was unfit for work involving physical effort. This is the only case seen at this hospital in which it has been possible to make a diagnosis of asbestosis during life. Another patient, who had been exposed to asbestos dust for 25 years and who died from some unrelated cause, showed no clinical or radiological signs of any abnormality in his lungs during life. It is not clear from the description whether his lungs were normal when examined histologically after death or whether they showed asbestosis: the history of this worker does, however, show that prolonged exposure does not necessarily lead to any disability.

Giroux has exposed guinea-pigs, rabbits, and a dog to crude asbestos dust in a chamber daily for several months. The rabbits, killed after periods of from 3 to 12½ months, had no asbestosis and no asbestos bodies. The dog showed no lesions after 10 months' exposure: only the cavies showed lesions in the lungs and the presence of asbestos bodies. In these animals he traces the stages of formation of asbestos bodies: fibres reaching the alveoli are rapidly covered by phagocytic cells; movement of the fibres results in microscopic bleeding from damaged alveolar walls; the haemoglobin from the liberated red cells is taken up by the phagocytes which already enclose the asbestos fibres. Subcutaneous or intratesticular injections into cavies of suspensions of asbestos in olive oil resulted in the production of granulomatous lesions but no asbestos bodies. When, however, the suspension was injected into an area into which 1 ml. of blood had been injected immediately before, asbestos bodies were found after a month. He considers that the presence of asbestos bodies in sputum has real significance, since it implies tissue damage in the lungs.

Desmeules, Giroux, and Richard report a patient, aged 44 years, in whose family there was no history of tuberculosis. He had worked as a bagger of asbestos for 20 years: after 10 years he began to experience dyspnoea on effort, accompanied by cough and expectoration. He became more severely ill some 9 months before his death, which was due to tuberculosis and asbestosis. The authors argue that the asbestosis preceded and paved the way for the tuberculosis, but admit that they have no proof of this. [The association of tuberculosis and asbestosis is generally admitted in Britain but is doubted in the United States.]

Desmeules, Rousseau, Giroux, and Sirois record brief details of 2 patients who had asbestosis and cancer of the lung. The first, aged 57 years, had worked in the asbestos industry for 25 years, and had no complaints until a little more than a month before his death, when pain started in the chest. On admission he was cyanosed and dyspnoeic, and a large pleural effusion was tapped on several occasions. At necropsy numerous nodules of tumour were found in the pleura of the left lung; no primary site is described. The second patient, aged 50 years, had worked as a bagger of asbestos for 32 years, during the last 15 of which he had been troubled by coughing. On admission to hospital he was wasted, cyanosed, and distressed, and had a right pleural effusion. At necropsy a typical bronchial carcinoma was found. Both patients showed diffuse fibrosis in the lungs with numerous asbestos bodies. [The claim that carcinoma of the lung with asbestosis has been recorded before in only 1 case cannot be allowed. Nor will there be general agreement with the statement that silicosis is admitted to play an important part in the pathogenesis of pulmonary carcinoma.] *H. E. Harding*