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# *Industrial Hygiene Digest*

**INDUSTRIAL HEALTH NEWS**

**LITERATURE ABSTRACTS**

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- 1188 A Study of Respiration in Pulmonary Asbestosis. H. Bastenier, H. Denolin, A. de Coster, and M. Englent. *Arch. maladies profess.* 16, 546-553 (1955). French.

In order to test the respiratory value of lungs affected with asbestosis nine cases were closely studied. The seven men and two women had been exposed to asbestos dust, 1,000 to 2,000 particles per cu. m., for 18 to 30 years. The patients displayed definite symptoms of asbestosis with troublesome cough and dyspnea, and all showed x-ray shadows like ground glass extending over both lungs. No tubercle bacilli were found in any case. A definite reduction was found in vital capacity, but the maximum expiratory volume was satisfactory. Breathing, however, was accelerated by hyperventilation. At rest breathing was sufficient and satisfactory, but on exertion dyspnea appeared, varying considerably according to the pathological lesions in the lungs. These functional changes were in no way different from those seen in other cases of pneumoconiosis. Varying emphysema was found, but no special strain was thrown upon the heart.

-- Cond. from Bull. Hyg.

- 1189 Asbestosis: Report of a Case. E. R. Wiese and W. E. B. Hall. *Diseases of Chest* 30, 229, 230 (Aug. 1956).

The history and autopsy findings in a fatal case of asbestosis are reported. Conditions described include: absence of the middle lobe of the right lung; greatly enlarged heart; wide spread, sharply demarcated development of fibrosis; and degeneration of collagen in extensive irregular fields. These and other conditions are described fully. Fine needles representing the original asbestos fibers were seen. Small asbestos bodies were seen in a few areas of focal fibrosis, although they had not appeared in the sputum.

- 1190 New Viewpoints on Pulmonary Cancer in Asbestos Workers. H. Bohlig and G. Jacob. *Deut. med. Wochschr.* 81, 231-233 (Feb. 17, 1956). German.

The following distinguishing features have been attributed to the lung cancer that has been recognized as an occupational disease of asbestos workers: (1) increased incidence; (2) development at an early age; (3) dependence on duration of exposure to asbestos dust; (4) a latent period between onset of exposure and the appearance of the cancer; (5) the localization; (6) the histological structure; and (7) the multicentral origin. The authors discuss each of these points, and show that there is little clear evidence to support any of these assumptions, with exceptions noted. Women workers in the asbestos industry have lung cancer more often, and at an earlier age than do other women, but the same is not true of men. Malignant growths of the pleura seem to occur more often in asbestos workers than in other persons. The multicentral development is observed also in workers exposed to cobalt and to chromates. The study of the pathogenesis is still in the state of hypotheses, and the theory of mechanical pathogenesis is given most consideration. Microtraumas and asbestos bodies are always found in the pulmonary cancers of asbestos workers, but the authors feel that this does not necessarily prove the mechanical theory. They cite several factors that speak against a purely mechanical pathogenesis of asbestos cancer, but they concede that the development of so-called asbestos warts proves the irritating effect of asbestos on human tissues.

-- Cond. from J. Am. Med. Assn.

- 1191 Nasal Penetration of Particles of Small Inertia in Experimental Animals. Gabrielle Asset, L. E. Gongwer, and Stella Ryan. *Arch. Ind. Health* 13, 597-601 (June 1956).

Experiments were carried out to determine the nasal penetration of particles of small inertia in dead rabbits, dogs, and guinea pigs. The heads of the animals, or the entire bodies, were exposed in a wind tunnel to an aerosol consisting of particles of 1.3 microns with density of 1.2 g. per cc. and moving at a rate of 2.5 mph. The concentrations of the aerosol entering the nasal passages and of that leaving the nasal passages were determined. It was found that there was a significant difference in nasal penetration between the guinea pigs, on the one hand, and the rabbits and the dogs, on the other hand. Wind direction had no influence on the nasal penetration of droplets of low inertia.

-- Authors' summary

## 882 Serum Iron Levels in Pneumoconiosis in the Ore Mines of the Upper Palatinate.

H. J. Diesfeld. Arch. Gewerbepathol. Gewerbehyg. 15, 611-637 (1957). German.

This is a very detailed study of the iron content of the blood serum found in iron workers at Sulzbach, in the Upper Palatinate, Bavaria. An attempt is made to relate the iron content of the blood serum to radiological diagnosis. Environmental studies showed 95% atmospheric humidity, low dust counts, and 1 to 2% quartz and 2% lime in the ore. The low dust concentrations are explained by the high atmospheric humidity and moisture content of the ore. Clinical examination included determination of the iron content of blood serum, other blood examinations, history of occupational exposure, and radiographic diagnosis of silicosis. The results are tabulated. Erythrocyte, hemoglobin, and color index values were close to normal. A definite parallel was established between the radiographic findings and the iron content of the blood serum. The serum-iron values are solely expression of the partial breakdown of iron deposited in the lungs; the radiological changes are independent of these and retain their importance for diagnosis and evaluation of the degree of pneumoconiosis. Silicosis was infrequent except after prolonged exposure and had not progressed beyond stage 2. The serum-iron content of 47 pneumoconiotic workers averaged 160 microgram %, in comparison with 127 microgram % in healthy unexposed workers. This increase was proportional to the degree of exposure to the ore dust and to the lung changes. Pneumoconiosis, with reference to the dusts of iron and stone, silicosis, siderosis, and the differential diagnosis of these diseases are discussed.

-- Cond. from Bull. Hyg.

## 883 An Epidemiological Study of Lung Cancer in Asbestos Miners. D. C. Braun and

T. D. Truan. A.M.A. Arch. Ind. Health 17, 634-653 (June 1958).

Reprints available from the Foundation.

Records were obtained on 6091 asbestos miners in Quebec having at least five years of exposure and who were in the industry in 1950. Of the 187 known dead, cancer of the lung was considered to have been reasonably proved in 9 and to be strongly suggested in 3. The mortality rate on the basis of the "proved" deaths was 25.3 per 100,000, and on the basis of the 12 deaths was 33.8 per 100,000. The mortality rate from lung cancer does not appear to increase with length or degree of exposure. Comparison of the experience among the asbestos miners with that of various segments of the unexposed, comparable population shows that the observed number of deaths among the miners is not significantly greater than the expected number. The death rate from cancer in the areas contiguous to the asbestos operations is comparable to that in areas widely scattered throughout the Province of Quebec and is lower than in some urbanized areas within the Province. It would also appear from available data, that the world-wide experience of persons exposed to asbestos dust is not worse with respect to lung cancer than that of the unexposed population.

-- Cond. from authors' summary

## 884 Contribution to the Study of Byssinosis. M. Gonzalez-Ribas and J. Del Molino Mateus.

Med. y seguridad trabajo 5, 48-50 (July-Sept. 1957). Spanish.

The authors made a study of 6,000 employees of cotton mills of whom 619 suffered from bronchial trouble. Of these bronchitis subjects 30% were between the ages of 15 and 25, 40% between 26 and 40 and 30% between 41 and retirement age. The sex distribution was 7.76% of the men employed and 6.48% of the women. There were fewer cases of chronic bronchitis where the dust was dense than where it was less dense. Typical byssinosis is seldom seen before six years' exposure to the dust. The four stages of byssinosis are: (1) irritation bronchitis with cough, general malaise and loss of appetite; (2) the typical bronchitic phase with the "Monday syndrome", cough crises, dyspnea, and headache; (3) typical chronic bronchitis with all symptoms aggravated; and (4) development of complications causing the patient to give up his work. Two typical cases are described, one with symptoms mainly respiratory and in the other mainly digestive. There is a good description of the "Monday syndrome", i. e., a reappearance of marked symptoms within 2 or 3 hours of returning to work on a Monday or after a holiday.

-- Cond. from Bull. Hyg.

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