

1953 ANNUAL INDEX



Industrial Hygiene Digest

INDUSTRIAL HEALTH NEWS

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A Case of Pulmonary Asbestosis, with its Development Followed by X-ray and its Post-Mortem Study. P. Lizon, J. Champoux, and P. Fiebre. Arch. maladies profess. 13, 629-633 (1951) French.

The case reported is said to have been the first one of asbestosis known to have occurred in France. The man had been exposed to high concentrations of asbestos for 11 years. Symptoms and progressive x-ray findings are described. After death the lungs showed general thickening throughout, especially of the pleurae, but with no localized nodules. Many asbestos bodies were seen, isolated and in groups, together with giant cells and mineral particles. No evidence of tuberculosis was found. The dust particles could be traced not only in the lung vessels, but also in the vessels of the liver, kidneys and spleen. The action of asbestos is apparently mechanical rather than chemical.

-- Cond. from Bull. Hyg.

- 30 Byssinosis. J. B. M. Vismans. Med. Tijdschr. Geneesk. 96, 800 Apr. 5, 1952). Dutch.

Byssinosis occurs in workers in the cotton industry, chiefly in those who handle the cotton before it is sent to the spinning room. The author quotes from the literature and presents the histories of seven patients observed by himself which illustrate the three stages of the disease. He also comments on the incidence, etiology, pathologic anatomy, and diagnosis. Generally, the disease develops only after the worker has worked with cotton for at least five years. A constricted, tight feeling in the chest is usually the first manifestation, and since this symptom is often severest on Mondays, the term "Monday fever" or "Monday cough" has been applied to it. Patients with the advanced form of byssinosis may die of decompensation of the right side of the heart. Prophylaxis is of primary importance and should involve giving attention to the selection of workers and to dust control in cotton mills.

-- Arch. Ind. Hyg. & Occ. Med.

- 31 Studies on Cotton Dust in Relation to Byssinosis. Part III. Comparison of Cotton Dust and House Dust by Chemical and Skin Tests. H. R. Cayton, G. Furness, D. S. Jackson, and H. B. Maitland. Brit. J. Ind. Med. 9, 303-308 (Oct. 1952).

An extract of cotton dust has been compared chemically and by skin tests with extracts of house dust. Both contained a polysaccharide associated with a polypeptide grouping of amino-acids giving none of the usual color reactions for proteins. Quantitative and chromatographic tests revealed a similarity in the sugars and amino-acids detected. Both extracts produced the early type of skin reaction. Cotton dust generally produced also a late skin reaction, whereas the house dust did not. The two extracts, therefore, were not identical. Polysaccharide-polypeptide compounds were probably responsible for the early skin reaction. Their source is not known but they

treated animals diffuse delicate connective tissue consisting of loosely knit fibers and thin-walled blood vessels, surrounded the silicotic nodules. In the controls, a cellular fringe with fibroblasts suggested that active fibrosis was still progressing. The authors were unable to detect any reduction of collagen in established silicotic nodules in the treated animals, although further fibroblastic proliferation was apparently retarded. This suggests that cortisone will not have any lasting benefit on the collagen in human silicosis, although it might arrest progression of the lesions while it was being administered.

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

- 133 Pulmonary Tuberculosis in the Rhondda Fach: an Interim Report of a Survey of a Mining Community. J. G. Cox and T. F. Jarman. *Brit. Med. J.* 2, 543-553 (Oct. 13, 1952).

A field experiment was designed to study, in a mining community with a high prevalence of pneumoconiosis, the effect of reducing tuberculosis infectivity upon the rate of appearance of progressive massive fibrosis in miners already affected by simple pneumoconiosis. The present report is concerned with the findings of the first roentgenological survey of the adult population. Figures are given for the prevalence of tuberculosis by age and sex. The extent of tuberculosis is apparently typical of such areas in the country. About 30% of the miners and ex-miners had some roentgenological signs of pneumoconiosis; 15% had progressive massive fibrosis. All but two patients with infectious tuberculosis were given hospital treatment. The number of infectious cases has been reduced by about 60% and the patients are all being closely supervised by a health visitor. Future surveys will show what effects this reduction will have on the tuberculin positivity and on the rate of appearance of new cases of tuberculosis and massive fibrosis.

-- Cond. from Authors' Summary

- 134 A Clinical and Pathological Study of a Case of Pulmonary Asbestosis. H. Bastenier, E. Denolin, A. Decoster, and R. Denolin-Reubens. *Arch. belg. med. sociale, hyg., med. travail et med. legale* 10, 61-70 (Feb. 1952) French.

A diagnosis of asbestosis must depend upon a history of occupational exposure to asbestos dust, associated with effects on the respiratory organs. A case is reported in which a woman had worked for 25 years weaving asbestos in a factory with heavy dust exposure. The symptoms described are typical. The authors compared this case with those of uncomplicated silicosis: in the latter residual air is frequently increased, expiration is prolonged, and the maximum respiratory capacity is reduced, but hyperpnea is less, rapid breathing is not so intense, and anoxemia is never so important during effort, as in asbestosis. These differences are stressed as important when necessity may arise in determining the occupational origin of a case with obscure diagnosis.

-- Cond. from Bull. Hyg.

11. Critical Review of the Chemical Theory of Silicosis. Laise Holmström.
 Intern. Silikose-Forsch. No. 5, 1-17 (1952) German.

The solubility theory is first reviewed and reasons are given why it cannot be maintained in its original form, which says that silicosis is due to dissolved silica. The main argument is that silicosis requires years to develop while the solubility of quartz drops in the course of days or weeks. A modified solubility theory is suggested by the author's published work and on her recent results with carbohydrates. From plant extracts, a fraction containing carbohydrate and silica could be isolated, and experiments with this showed specific adsorption of a galactose complex. The galactose-adsorbed quartz still reacts with hydrazine, demonstrating that the aldehyde group does not take part in the reaction with quartz. Next follows a very speculative paper dealing with the structure of silica-galactose complexes. Indigen is said to contain galactose but there is no evidence on its structure. The reaction can be used to demonstrate quartz in human silicotic lungs, as well as to demonstrate galactose adsorption on quartz, and a number of related illustrations of this effect are shown. Electron micrographs of ~~surrounding~~ asbestos after disintegration in water are also shown.

-- Cond. from Bull. Hyg.

12. Considerations on a Case of Progressive Massive Silicosis Following Past Limited Exposure. M. Bodo and L. Briccarello. *Rass. med.* 21, 225-238 (May-June 1952) Italian.

The authors discuss a case of progressive massive silicosis of the lungs which was seen by them in April, 1951. The patient was a ~~normal~~ worker, aged 29, who had been employed, for 2 years only, at chiseling ~~granite~~ stones in 1939-40. Signs and symptoms of silicosis, which are described, appeared in November, 1950. At the time of the examination, signs and symptoms were said to be stationary. Tuberculosis was absent. X-rays showed a generalized deep and confluent shadow on the lungs, except for clear areas which may have been due to spontaneous pneumothorax or to localized emphysema. In the light of this case the authors question the statement that simple pneumoconiosis can be arrested by removing the patient from exposure to dust. The tendency to progress varies with the physico-chemical properties of the dust and the individual tissue reactivity. As in the case of hepatic cirrhosis, the causative agent may start a chain reaction which does not stop progressing after the cause has been removed.

-- Cond. from Bull. Hyg.

13. Usefulness of the Photocentgen Method in Silicosis and Asbestosis Investigations of Workers. E. Zanetti. *Rass. med.* 21, 130-132 (May 1952) Italian.

A comparative study of several tens of thousands of photocentgen films and roentgenograms has produced several interesting conclusions concerning investigations of silicosis and asbestosis among workers. 13 mm. photocentgen films were found to represent clearly massive silicosis, whereas

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silicosis, berylliosis, asbestosis, and the organic dust diseases are discussed briefly in relation to diagnosis. The importance of personal and occupational history is emphasized. The factors to be considered when deciding whether a man should be taken from his job are discussed.

- 104 The Clinical Picture and Pathology of Asbestosis. W. Behrens, Jr.
Ann. Intern. Med. 36: 129-140 (June 15, 1952); 179-189
 (June 15, 1952). German.

This paper presents an extensive review of literature on asbestosis including distribution and types of asbestos, its mining, treatment, and use, its hazards, and effects of length of exposure of the dust in different concentrations. Symptomatology, diagnosis, and x-ray findings in the different stages of asbestosis are described. Special mention is made of the association of asbestosis with carcinoma, which is much more frequent than that of silicosis. Post-mortem reports from the literature indicate that in 309 cases of asbestosis there were 44 lung carcinomas (14.2%), whereas in 2,204 cases of silicosis only 32 carcinomas were found (1.4%). The experience of the association of tuberculosis and asbestosis varies greatly in different countries. Danish investigators have recorded a high rate of tuberculous infection in asbestos workers, but it is a rare complication in America and the rate is low in Germany. The macroscopic and microscopic appearances of the lungs are described, and the nature and significance of asbestosis bodies are discussed. An extensive reference list dealing with that controversial subject is given.

-- Cond. from Bull. Hyg.

- 105 Lung Carcinoma Caused by Asbestos Inhalation. F. Boemke.
Monatsschr. Med. 7: 77-81 (1953). German.

The relation between fibrotic changes caused by asbestos deposits in the lung and carcinoma is discussed. The lower lobe is the site of predilection. Characteristic are the multicentered developments of flat epithelioid carcinoma.

-- Chem. Abstr.

PHYSICAL ASPECTS OF THE ENVIRONMENT

- Carbon Dioxide and Respiratory Regulation at Altitude. A. G. Hald.
J. Appl. Physiol. 2: 603-606 (April 1953).

Fourteen young men exposed to a simulated altitude of 22,000 ft. for 10-12 hours, with varying concentrations of carbon dioxide in the inspired air, showed a marked increase in the rate of ventilation and a decrease in the rate of oxygen and carbon dioxide exchange.