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# PNEUMOCONIOSIS ABSTRACTS

## VOLUME II

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The authors recall the reaction which takes place in the lungs to dust particles of asbestos; but no case of asbestosis was found among the men. Some men have worked with amosite for so long as seven years without developing corns; but the majority developed corns within the first three or four months. Removal of spicules with forceps after work is useful in prevention. Cure can be obtained by simple paring of the cornified areas until all excess keratin is removed. Since a corn is relatively innocuous and leaves no serious sequelae, there is often little interest taken in it.

*E. L. Collis.*

NORO, L. **On the Histology of Asbestosis.** *Acta Path. et Microb. Scandinavica.* 1946, v. 23, No. 1, 58–9, 6 figs.

This article gives a short account of the histology of asbestosis as seen in two workers in Finland who had been exposed to the amphibole asbestos of that country. This variety of asbestos is harder and more elastic than others and therefore is considered to be especially dangerous. [The reviewer's general impression from experimental work is that the more brittle the asbestos fibre the more likely it is to break up into very short lengths and to penetrate lung tissue.] The chemical analysis of this Finnish variety is given as follows: silicic acid ($SiO_2$) 56·27, aluminium oxide ($Al_2O_3$) 2·50, ferrous oxide (FeO) 4·18, calcium oxide (CaO) 0·25, magnesium oxide (MgO) 31·44 per cent. The asbestos needle-like particles of this variety were found to be "noticeably smaller" than those described by some other workers. Brief accounts of the cellular and connective tissue reaction to the fibre, the asbestosis giant cell and the asbestosis body are given. With regard to the last named the author accepts both the mechanical and chemical theories of causation but is inclined to think that "the mechanical factors are the most important, although the chemical factors may have some significance in a later phase."

*S. Roodhouse Gloyne.*

SKAVLEM, J. H. & RITTERHOFF, R. J. **Coexistent Pulmonary Asbestosis and Sarcoidosis.** *Amer. J. Path.* 1946, May, v. 22, No. 3, 493–517, 11 figs. on 6 pls. [29 refs.]

LUTON, P., CHAMPEIX, J. & FAURE, P. **La signification de la présence de corps asbestosiques dans l'expectoration des travailleurs de l'amiante. [The Significance of the Presence of the Asbestosis Body in the Expectoration of Workers in Asbestos.]** *Arch. Malad. Professionnelles,* Paris. 1947, v. 8, No. 1, 56–68, 7 figs. [38 refs.]

After a detailed historical introduction to the subject, the authors give their experience of four years' observation of workers in the asbestos industry with special reference to the study of the significance of the asbestosis body. They classify their conclusions under four headings—(1) Asbestosis bodies are difficult to find in the early months of exposure owing to the fact that the workers have no sputum unless an attack of influenza or bronchitis produces expectoration. In one worker asbestosis bodies were indeed found after twenty days' exposure, but this is unusual and four to five months is the average time. Four illustrative examples are cited. (2) In 102 workers (observed over a period of four years) who had neither radiological signs nor clinical symptoms of the disease, asbestosis bodies were ultimately found in all cases. At first the bodies were short, thick and non-fragmented, but later longer specimens were found with typical clubbed extremities. The numbers of bodies increased with the exposure, they occurred singly in the sputum and were accompanied by asbestos fibres. (3) The finding of clumps of asbestosis bodies first recorded by STEWART, TATTERSALL & HADDOW [this *Bulletin*, 1933, v. 8, 27] is confirmed. Two cases are recorded at considerable length in which there were definite radiological signs of the disease and in which the sputum showed these clumps. (4) Lastly the fact of the persistence of asbestosis bodies in the sputum after the exposure has ceased is stressed, but the authors are convinced that the finding of these bodies is only one of the diagnostic features of asbestosis and that it cannot be accepted alone for purposes of diagnosis from a medico-legal point of view.

*S. Roodhouse Gloyne.*

BOARD OF TRADE. German Industry, F.I.A.T. Final Report No. 1070. **Technical and Scientific Developments related to the Asbestos Industry in Germany.** 42 mimeographed pp., 7 figs. 1947. Mar. 23. London: H.M. Stationery Office.

This report is a description of the machinery and installation of the German asbestos industry which is considered to be of interest to American industry, and is a supplement of previous reports especially Fiat Final Report 460 and Bios Final Report 404, Item 23. The main problem for the German asbestos industry is regarded at present as one of lack of material, in which the British Zone is not so badly off as the American. The report consists broadly of three sections, one dealing with industrial plant, another with problems of dust control and a third with some experiments made by German scientists during the war to prepare a synthetic asbestos. The present position with regard to the plant and installation is solely an engineering problem. The preparation of a synthetic product has been held up by the collapse of German industry, and not a great deal appears to be known about it, but the basic idea seems to have been "gelling" of sodium silicate with hydrochloric acid, washing out of the gel to remove NaCl by liquefying it under steam pressure, evaporating the sol to 14 per cent $SiO_2$ with the addition of 5–10 per

cent sugar, introducing a spinning process and finally ageing the fibre, washing the sugar residue and drying. The section on dust control has a direct bearing on general industrial hygiene.

For many years before the war, insurance (*Berufsgenossenschaft*) against the risks of dust and accidents was compulsory. The use of respirators was recommended only in extreme cases, reliance being chiefly placed on an efficient dust control organization. The report gives a translation of the Regulation for Dust Prevention in Asbestos Processing Plants issued by the German Government in 1940. This lays down general engineering precautions for dust control, with detailed instructions as to the protection of machines and the provision of exhaust equipment. [Many of these are already in use in Britain, but the details are too technical for abstraction.] An official centre for advising on dust prevention, especially in the case of the installation of new plant, was provided by the Government. Children under the age of 18 were not considered suitable for dusty occupations [no details are given, however, as to the regulations for their exclusion]. It was forbidden to eat, or to remain, in dust-endangered rooms during rest periods. Outdoor clothes were not to be kept in workrooms and work clothes had to be cleaned at regular intervals [time not stated].

The writer of the report also interviewed Dr. Luise Holzapfel who had had charge of an organization in Berlin for the investigation of silicosis problems, before the collapse of Germany. She stated that she and her staff had been engaged for some time on the isolation of organic silicon compounds. Two important ones had been discovered, but their chemical composition has not been completely determined when the war ended. One was a silicon compound of the lipoid group obtained from the lungs of patients suffering from silicosis accompanied by tuberculosis, the other was a Si-N compound present in normal blood. The isolation of these compounds had been extremely tedious, taking from two to three years and when the Russians took over that section of Berlin they had ordered the destruction of all material on the ground of risk of infection. Dr. Holzapfel considered that there was no risk of tuberculosis provided that silica metabolism in the body was normal, and she regarded disturbed fat metabolism in undernourished workers as a predisposing cause of tuberculosis. She was of the opinion that the compound isolated from healthy blood might have some therapeutic value both in tuberculosis and tuberculo-silicotic patients. The striking resemblance between the tissue of a silicotic lung and vulcanized rubber suggested to her the presence of long-chain organic silicon oxygen compounds, probably formed when the fresh surface of quartz grains reacted with some unknown constituent of the blood. The presence of oxygen was necessary, she believed, for that reaction to take place and she further expressed the view that "a compound in which the silicon atoms are completely surrounded by organic radicals probably cannot cause silicosis because such a compound will be insoluble and unreactive." Dr. Holzapfel had tried to cultivate the tubercle bacillus on $SiO_2$ gel containing various nutrient substances, but without success.

The writer of the report states that further information on the two substances mentioned can be obtained from the Kaiser-Wilhelm Institut fur Silikat Forschung in Berlin-Dahlem. The substance formed in normal blood had 1·8 per cent $SiO_2$, 6·5 per cent N, but no iron or cholesterol; it was water-soluble, strongly alkaline, with a melting point over 250° [presumably Centigrade] and had been isolated from the lecithin fraction in the blood. The second was a water-insoluble substance from the lung tissue, and could be concentrated in the ester fractions. The lecithin compound, on the other hand, was almost completely absent from lung tissue. In silicosis the melting point of the extracted mixture of ester-free fat was found to increase in relation to the severity of the disease. Early cases of silicosis yielded a mixture melting at 45° whilst the material extracted from more advanced cases melted at 72–81°. Extraction of silicotic lungs gave a higher proportion of lipoids (esters, free fatty acids and phosphatides) than was obtained from healthy lung tissue.

*S. Roodhouse Gloyne.*

Wegelius, C. **Changes in the Lungs in 128 Cases of Asbestosis observed in Finland.** *Acta Radiologica.* 1947, Apr. 30, v. 28, No. 2, 139–52, 10 figs. [10 refs.]

This article is a record of 128 radiologically manifest cases of asbestosis among 478 workers in Finland employed by the Finska Mineral A.B. Firm. Of the workers affected, thirty-four were employed in the Company's dressing works at the mine in N.-Eastern Savolax, while ninety-two were working in the factory for finished products near Helsinki. There were ninety-four (75 per cent) instances of mild asbestosis of stages I and I–II (with an average mean exposure 9·4 years), twenty-three (18 per cent) of medium stages II and II–III (with an average mean exposure of 7·0 years), and nine (7 per cent) of advanced stage III (with an average mean exposure of 11·6 years).

During the observation time of two years, twenty-seven of the thirty-six patients in the ante-primary stage progressed to stage I; of the stage I cases, four of thirty-two patients progressed to the intermediate stage I–II, and the same number passed to stage II; of the stage II cases, two out of ten advanced to intermediate stage II–III. Two deaths occurred before the commencement of the examination; since then no reliable information has been forthcoming with regard to others, although it is probable that some deaths have occurred. The method of radiological classification used was that of Sauer, viz. ante-primary stage; Stage I, extremely fine network in the middle of basal fields; II, denser picture with numerous extremely small nodular shadows; III, marked shadow of middle and basal fields with confused contour of heart shadow.