

- 997 Asbestosis in a Worker Engaged in Automobile Undercoating. H. G. Brugsch and H. Bavley. New Engl. J. Med. 265, 379-381 (Aug. 24, 1961).

The material that the patient used contained asbestos of various fiber sizes in an asphalt base and was held in a mastic form by a solvent of the petroleum-distillate type. Lung biopsy revealed the presence of asbestos bodies of characteristic appearance. The unusual finding in this case was the presence of numerous amorphous bluish-staining deposits fairly widely dispersed throughout the specimen and surrounded by inflammatory and connective-tissue reaction. The x-ray appearance of finely granular infiltration throughout both lower lobes and the possibility that the sputum also contained asbestos bodies ("yeastlike bodies") indicate that the lung process in this man was of a chronic nature consistent with pneumoconiosis and the direct local action of foreign material such as asphalt and asbestosis. This is also suggested by some of the air tests obtained in the survey. The cross-sectional survey here reported indicates that under prevailing methods of operation, the use of an asbestos-base undercoating, when limited to short exposures, has not resulted in an occupational hazard. However, if this operation is performed continuously without adequate ventilation and protective respiratory equipment it may expose the worker to the potential danger of pneumoconiosis. As a protective measure, it is recommended that workers using asbestos-base undercoating material over a period of 10 hours weekly or more for periods longer than one year should observe the following rules: pre-employment and periodic x-ray studies of the chest, with the use of large-sized films (14 x 17 inches) should be made. When possible the workers should be rotated. Approved respiratory devices, with additional protection for the eyes, should be worn. Mechanical ventilation should be provided in the immediate vicinity of the work area.

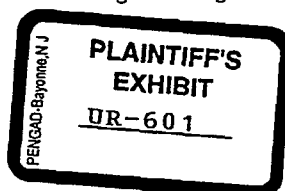
- 998 Studies on the Chemical Properties of Chrysotile in Relation to Asbestosis. S. G. Clark and P. F. Holt. Ann. Occ. Hyg. (London) 3, 22-29 (Jan. 1961).

There are two rival hypotheses, mechanical and chemical, of the pathogenesis of asbestosis. According to the chemical hypothesis the fibrosis of the lungs is due to the action of silicic acid derived from the decomposition of asbestos in the lungs. The present report describes studies made at the University of Reading, England. The experiments were made in vitro and the aim was to discover the rate of dissolution of South African chrysotile asbestos at temperatures between 25° and 90°C in neutral, acid and alkaline media. The media used, were respectively water, 0.1 N hydrochloric acid and 0.1 N sodium hydroxide. The analyses of the extracts at various intervals of time are tabulated. It was observed that the dissolution resulted in the removal of magnesium and "the release of minute, two-dimensional flakes of the silica lattice". From this it is deduced that a reaction similar to that normally evoked by fine silica particles would follow. Dissolution, it was observed, occurred more readily with alternating acid and alkaline conditions than under the influence of acid or alkali alone. Such an alteration of acid and alkaline states occurs in inflammatory diseases including pneumonia and bronchitis. The authors conclude that if the breakdown of chrysotile follows the same course in vivo as it does in vitro, a pneumoconiosis having a general resemblance to silicosis would be expected.

-- Cond. from Bull. Hyg.

- 999 The Changes in the Bronchial Tree in Asbestosis. G. Jacob and H. Bohlig. Arch. Gewerbepathol. Gewerbehyg. 18, 247-257 (1960). German.

This bronchographic study of various stages of asbestosis has been facilitated by the use of a new contrast medium—propylidone. In asbestosis with thickening of the pleura the small bronchi towards the base are bunched together with their ends turned back. This was described by Jacob as the "broom phenomenon" and is associated with displacement of the basal segments of the lung. This is not pathognomonic for asbestosis since it occurs in other conditions causing pleural thickening. In all cases the conditions grouped under the term "bronchitis deformans" are to be found. The distension of the bronchi expected from the character of the disease is evident but bronchiectasis is not so striking as in silicosis even in advanced asbestosis and it is cylindrical in type. In contrast to silicosis, there is no stenosis of the large bronchi. In asbestosis as a rule the lower and middle lobes, and in the left lung the lingula are affected, and in silicosis the upper lobe. In these lobes the bronchi are



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bunched while in the other lobes they are spread out. In asbestosis the normal appearance of the bronchus next to the hilus can be seen but this is not so in silicosis where there is an increase of the lung roots and obliteration of the lymph apparatus. The swelling of the roots may be so massive that many authors believe that silicotic patients with carcinoma of the lung have a greater expectation of life because of the closure of the way for metastasis. This very questionable assurance is not granted to the asbestosis patient. -- Cond. from Bull. Hyg.

- 1000 Influence of Cement Kiln Dust on Plants and Animals. H. Pajenkamp. Zement-Kalk-Gips 50, 88-95 (Mar. 1961). German. (Zement-Kalk-Gips, Bauverlag G.m.b.H., Kleine Wilhelmstr. 7, Wiesbaden, Germany*).

The so-called cement dust in the vicinity of cement works is not cement but consists essentially of very finely ground limestone powder and is, as such, a constituent of an intermediate product in the cement manufacturing process. It is therefore, more correctly called cement kiln dust. Since it is continually alleged by agriculturalists that this cement kiln dust is harmful to plants and animals, in recent years numerous scientific investigations on the effects of dust have been carried out with a view to testing the validity of these allegations. Among the studies noted is one at the Pathological Institute of the Veterinary Medical School at Hanover. High doses of dust (2.5 to 11 g./day/animal during a 60-day period in 1957) administered on the fodder of food, did not show any clinically ascertainable injury to, or harmful effects to the general condition of, a group of experimental animals (2 cows, 17 sheep, and 16 dogs). Field tests conducted during the growing seasons of 1958 and 1959 at the Agricultural Chemical Institute in Göttingen, indicated that even considerable quantities of dust brought about no harmful effects and no other lasting effects on growth or crop yield of several different plants. Those studied were oats, rye, grass, red clover, and turnips. The dust had a content of about 29.3% limestone (analyzed as CaO), and 3.1% K₂O. It was applied at levels of 0.75 g./m.²/day; 1.5 g./m.²/day; 1.5 g. for 10 days with a pause of 10 days and then reapplied; 2.25 g. for 10 days with a pause of 20 days. -- APCA Absts.

- 1001 Experimental Study of the Toxic Action of Dust in the Production of Sinter-(Hard)-Metals. Z. S. Kaplun and N. W. Mezenceva. J. Hyg. Epidemiol. Microbiol. Immunol. (Prague) 4, 390-399 (1960). German.

Hard metals or sinter metals are made from a mixture of tungsten and titanium carbides amalgamated with cobalt. In the process of manufacturing these metals the most dusty processes are the mixing of the metallic tungsten with carbon, the heating and sieving of cobalt oxide, and the sieving, granulating and grinding of the mixture of metals. From the periodical examinations of 283 workers in these dusty places it was found that those who came into contact only with tungsten and its combinations showed slight changes in the respiratory organs. Workers exposed to mixtures of tungsten and cobalt complained of poor appetite, cough, and loss of the sense of smell. This paper gives the results of several series of experiments on white rats to ascertain the effects of the individual constituents of the dust. First tungsten carbide, metallic tungsten, tungsten oxide and titanium carbide were used. Animals were exposed to these dusts either in a dust chamber or by intratracheal injection. All the dusts produced in the lungs a proliferation of lymphoid-histocytic elements about the bronchi and larger vessels. Tungsten oxide gave the most distinct changes. A separate experiment was made with metallic cobalt. Very definite changes were found in the blood vessels and the walls of the bronchi showed inflammatory changes. Experiments with cobalt oxide showed that it had no distinct general action but it could produce more pronounced changes in the lungs than metallic cobalt. -- Cond. from Bull. Hyg.

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