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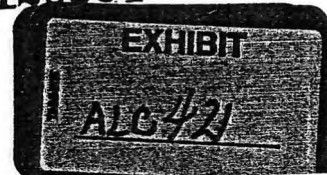
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- 248 Animal Experiments with Quartz-Containing Ash Obtained from the Lungs of Acute and Chronic Silicotic Subjects. R. Kern.
Arch. Gewerbepathol. Gewerbehyg. 17, 108-116 (1959). German.

The object of the experiments was to use the actual quartz-containing dust extracted from lungs affected by acute and by chronic silicosis to test whether acute silicosis is due to the inhalation of a large amount of quartz for a short time or to the inhalation of freshly fractured quartz. One group of rats was given the ashed dust from an acute silicotic lung and another group the dust from a chronic silicotic lung. Some rats received the dust by intraperitoneal injection and some by intratracheal injection. A control group of rats received ashed dust freed from quartz. Equal doses of each dust were injected into the separate groups and animals from each group were sacrificed at the same time intervals after injection. The amount of fibrosis produced by each dust was proportional to its quartz content and to the period after injection. The amount of fibrosis produced by each dust was proportional to its quartz content and to the period after injection. No differences were observed between the ashed dusts obtained from the acute and chronic silicotic lungs. The quartz-free dust produced no fibrosis. The results provide further evidence against the hypothesis of an enhanced fibrogenic property of freshly fractured quartz as compared with aged quartz. Quartz particles under 3 microns in size were found to be the more fibrogenic, which is in accord with results of other workers.

-- Bull. Hyg.

- 249 Experimental Silicosis: The Inhibitory Effect of Iron. P. Gross, Marian L. Westrick and J. M. McNerney. Diseases of Chest 37, 35-41 (Jan. 1960).
Reprints available from the Industrial Hygiene Foundation upon request.

The inhibition of the fibrogenic action of quartz dust by associated iron, initially reported by Kettle and later confirmed by Gardner and Vorwald has been reconfirmed. In rats, this inhibition was temporary, serving to delay the maturation of silicotic nodules by a few months only. In guinea pigs, iron completely prevented the formation of silicotic nodules but it did not inhibit completely the development of collagen within thickened alveolar walls. In rats, the development of collagen within silicotic nodules paralleled the disappearance of iron from these sites. In guinea pigs, the iron had also disappeared from those regions in which collagen had developed. Yet, there were other foci in which there was manifest inhibition of collagen formation in spite of the fact that abundant iron-free silica was demonstrable in such regions. This apparent inhibition of fibrosis in the absence of iron contradicts Gardner's premise (applied to aluminum) that the inhibiting substance, to be effective, must occupy the same cell as the quartz particle which it inhibits.

-- Authors' summary

- 250 Morbidity and Pathology of Lung Cancer with Asbestosis. H. Bohlig, G. Jacob and B. Kallabis. Z. Unfallmed. Berufskrankh. 52, 64-78 (Mar. 15, 1959). German.

The extensive world literature on cancer of the lung in asbestos workers and on related subjects is here reviewed at considerable length with statistical analysis and critical discussion. From these reports the admittedly rough estimate is made that among 40,000 asbestos workers in the world 80 cases of lung cancer have been reported in 20 years. The opinions and conclusions of different observers vary considerably and these differences are examined. Particular consideration is given to the importance of skilled autopsy examination and the difficulties which may exist in forming an opinion on whether in a particular case exposure to asbestos contributed to the development of cancer. Much more research on this cancer problem is needed but up to the present it is stated that a comparison of the expectation of pulmonary cancer in the general population with that of workers in asbestos shows that in the latter groups the risk of cancer is not increased. The morbidity curve of cancer with asbestosis perhaps reaches its peak at a somewhat earlier age than that of non-industrial bronchial carcinoma.

-- Bull. Hyg.

03120521

- 251 Are Silicosis and Asbestosis Predisposing Causes of Cancer of the Lung. N. Nordvik.
Arch. belges med. sociale 17, 85-99 (Feb. 1959). French.

A grinder of steel castings who suffered from silicosis developed cancer of the lung which was proved by the detection of malignant cells in the sputum. He claimed compensation on the basis that the combined lesions constituted an occupational disease. This question whether or not malignant disease of the lung should be regarded as causally related to pneumoconiosis and so compensatable is not uncommon nowadays; indeed it is an increasingly frequent problem for compensation medical boards. The crucial difficulty is that primary cancer of the lung is a disease prevalent among all groups of the population, irrespective of their occupations. A particular aspect of the problem is the excessively high incidence of lung cancer among heavy cigarette smokers. In the absence of experimental proof that pneumoconiosis and cancer of the lung are linked etiologically, recourse must be had to studies of the relative prevalence of lung cancer in separate occupational groups. This statistical approach has been used in many field studies all over the world. A review of these studies is the substance of the present article. The author does not accept that there is any interrelationship between cancer and silicosis but admits the probability in asbestosis. These conclusions accord generally with present thought and practice in Great Britain.

-- Cond. from Bull. Hyg.

- 252 Glass Dust: A Study of Its Biologic Effects. P. Gross, Marian L. Westrick and J. M. McNerney. A.M.A. Arch. Ind. Health 21, 10-23 (Jan. 1960).
Reprints available from the Industrial Hygiene Foundation upon request.

A study was made of the biologic effects of glass dust upon the conjunctiva, the gastrointestinal tract, and the lungs of experimental animals. No effect of glass dust and glass flakes was demonstrable upon the conjunctiva. No toxic or traumatic effect was demonstrable upon the gastrointestinal tract. There was only slight depression of the growth rate when rats ingested a diet containing as much ground glass as food. This depression was due entirely to a lower food intake caused by the bulkiness of the glass diet. The pulmonary changes in guinea pigs exposed to fine glass dust for one year and those of rats either exposed to the same dust or given injections intratracheally with it were minimal in character and consisted only of small focal alveolar dust cell collections without fibrosis. In the pulmonary lymph nodes there were also focal intracellular glass-dust deposits which were likewise not associated with reactive fibrosis. There was no bronchial disease attributable to the dust. Compared to kaolin, the pulmonary effect of fine glass dust was even more benign, because the stored dust remained alveolar instead of occupying interstitial positions and therefore was more readily mobilized and cleared from the lung. Coarse glass dust injected into the lungs of rats behaved like inert foreign material and was associated with minimal foreign body reaction without significant collagen formation.

-- Authors' summary

- 253 Infection with Atypical Tubercle Bacilli in Graphite Pneumoconiosis. M. J. Hirsch.
A.M.A. Arch. Internal Med. 103, 814-817 (May 1959).

Graphite pneumoconiosis is comparatively rare. In the literature of the subject post-mortem findings have been reported in 7 cases but though pulmonary cavitation occurred in 5 of these, in 1 case only was it attributed to tuberculosis. A 52-year-old white man while employed at a graphite mine in Texas, where he had worked for 9 years, developed a spontaneous pneumothorax, which was complicated by pleural effusion. Radiographic examination revealed diffuse pulmonary fibrosis which was diagnosed as graphite pneumoconiosis, and excavating tuberculosis of the right upper lobe. This was treated by lobectomy and the diagnosis of pneumoconiosis was confirmed. The particular interest of the case is in the bacteriological findings. Acid-fast bacilli were cultured from the sputum and directly from the resected pulmonary cavity. The organisms were non-pathogenic for guinea pigs, mice, chickens and rabbits. In the present case the organism is regarded as an atypical non-chromogenic mycobacterium and the pneumoconiosis is considered to be a factor predisposing to progressive infection with organisms which are not ordinarily pathogenic for man. A few similar cases have been reported in association with silicosis.

-- Cond. from Bull. Hyg.

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