

## INDUSTRIAL HYGIENE FEATURES

Biological data which represents the correlated contributions of more than 4,000 scientists and the counsel of an additional 13,000.  
Abstract No. 451.

What can be done about the shortage of physicians for industry?  
Abstract No. 456.

Questions and answers on practical aspects of occupational dermatoses.  
Abstract No. 465.

Circumstances in which soaps and detergents have been indicted as causing or aggravating dermatitis are much more complex than have been anticipated. Abstract No. 466.

An evaluation of the hazards of ozone and oxides of nitrogen, and factors modifying their toxicity.  
Abstract Nos. 474 and 475.

Existing tendency to develop lung tumors may have some bearing in pulmonary carcinoma, experiment exposing mice to asbestos dust indicates. Abstract No. 506.

Hitherto unrecognized etiological factor in calcification of the pericardium revealed by clinicoroentgenologic study of workers employed in talc mills and mines.  
Abstract No. 507.

How can the nuisance problem of noise in air-conditioning systems be eliminated? Abstract Nos. 513-517.

A proposed technique for measuring the noise of a ducted fan eliminates measuring errors caused by the existence of sounding waves.  
Abstract No. 518.

What are the responsibilities of the medical profession in the use of x-rays and other ionizing radiation?  
Abstract No. 528.

A study of a multiple Venturi wet collector. Abstract No. 541.

A study of carcinogenicity of atmospheric pollutants. Abstract No. 545.

In order to treat electric-arc steel furnace fume theoretically, accurate particle size distributions for each phase of the melting cycle must be known. Abstract No. 548.

How to go about hiring handicapped people and placing them in productive work. Abstract No. 553.

Safety statistics in their present form are only one indication of what a safety program is doing.  
Abstract No. 554.

PLAINTIFF'S EXHIBIT

CHR-293

carborundum for sanding in the shoe industry; and slate or chalk for stone-dusting in coal mines. Quartz sands have been prohibited since 1938 in grinding of glass, and exposure has been regulated. The higher cost of artificial abrasives in the glass and ceramic industries is offset by higher working speed.

-- Cond. from Bull. Hyg.

- 503 Respiratory Symptoms and Pulmonary Disability in an Industrial Town. Survey of a Random Sample of the Population. I. T. T. Higgins, P. D. Oldham, A. L. Cochrane, and J. C. Gilson. *Brit. Med. J.* 2, 904-910 (Oct. 20, 1956).

In 1954 the Pneumoconiosis Research Unit of the Medical Research Council carried out a survey of the male population aged 55-64 of Leigh in Lancashire, in order to compare the prevalence of respiratory symptoms and disability in miners with that found in men who had worked only in other occupations. The random sample consisted of 135 miners and ex-miners and 85 non-miners. Pneumoconiosis was found in 23% of the miners and ex-miners. Chronic bronchitis was found in 10.7% of the non-miners, in 26.7% of the miners without pneumoconiosis, and in 12.9% of the miners with evidence of pneumoconiosis. Some of the conclusions are: (1) miners and ex-miners had significantly more chronic bronchitis, a lower ventilatory capacity, and more respiratory symptoms than men who had never worked in mines; (2) miners without pneumoconiosis were on the average more disabled than those with early simple pneumoconiosis; and (3) the differences between miners and non-miners could not be ascribed to differences in social class or smoking habits, and in the miners there was no obvious relationship between length of exposure to dust and bronchitis.

-- Cond. from Bull. Hyg.

- 504 The Influence of the Shape of Dust Particles on the Rate of Phagocytosis in Vitro. A. Lengerova, V. J. Lenger, M. Esslova, R. Tuscany, and M. Volfova. *Brit. J. Ind. Med.* 14, 43-46 (Jan. 1957).

The rate of phagocytosis of two shapes of dust particles—"long" and "round"—was studied in an investigation in vitro in cultures of macrophages from the spleen of chicken embryos. The round particles were phagocytosed preferentially. This result is discussed from the standpoint of existing theories of phagocytosis as well as from that of the relation of the rate of phagocytosis and the harmfulness of different kinds of dusts.

-- Authors' summary

- 505 The Prevalence of Tuberculosis at Necropsy in Progressive Massive Fibrosis of Coalworkers. D. Rivers, W. R. L. James, D. G. Davies, and S. Thomson. *Brit. J. Ind. Med.* 14, 39-42 (Jan. 1957).

One hundred fifty-three cases of coalworkers' pneumoconiosis were examined at necropsy for the presence of tubercle bacilli both by culture and by animal inoculation. The series contained 118 cases of progressive massive fibrosis which were the special object of this study. Tubercle bacilli were isolated from 41 cases (35%) of massive fibrosis, and in 31 (28%) of these naked-eye or histological evidence of tuberculosis was recognized pathologically. The pathological observations, therefore, correlated well with the bacteriological results. There is a marked difference between the prevalence of tuberculous infection found in a post-mortem series and that found in life in cases of progressive massive fibrosis. During life the observed prevalence is only 1.1%. The authors found tubercle bacilli in the bronchi at necropsy in 28%. Thus open tuberculosis is, in most cases, a late complication of massive fibrosis. Whether tuberculous infection occurs early or late cannot be deduced from this study.

-- Authors' summary

- 506 Pulmonary Tumors in Mice Exposed to Asbestos Dust. K. M. Lynch, F. A. McIver, and J. R. Cain. *Arch. Ind. Health* 15, 207-214 (Mar. 1957).

Mice of a selected strain (AC F<sub>1</sub>) were exposed to a dusty atmosphere containing asbestos floats of a type used by others experimentally, at 150 to 500 million particles per cubic foot. The largest single experimental group consisted of 127 animals killed at 19 months after exposure for 17 months. This group was compared with 222 control animals. Primary lung tumors were demonstrated microscopically in 46% of the dusted mice and in

36% of the controls. Multiple pulmonary tumors were demonstrated in 18% of the dusted animals and in 8% of the control animals. No significant histologic or cytologic difference was observed between tumors in the two groups. No clear-cut proof of malignancy was found in any of the lung tumors studied. The authors have been unable to demonstrate any proof of the carcinogenicity of asbestos under the conditions of the experiment, but the increased incidence of multiple lung tumors in dusted animals must be regarded as a possible accentuation by the inhalation of asbestos dust of an existing tendency to develop lung tumors. Future experiments with asbestos should include the use of larger animals, probably monkeys. The equivocal nature of this report does not answer the questions raised by accumulating clinical evidence that asbestosis is strongly associated with, and therefore is a possible cause of, pulmonary carcinoma in man. -- Adapted from authors' summary

- 507 Calcification of the Pericardium Caused by a Hitherto Unrecognized Etiological Factor.  
M. Kleinfeld and C. P. Giel. *Am. Heart J.* 52, 899-904 (Dec. 1956).

In a clinicoroentgenologic study of workers employed in talc mills and mines, calcification of the pericardium was observed in 3 of 37 workers. In one patient the condition had existed for 15 years. The advanced age of these patients (79, 68, and 64 years) is in contrast to that found in chronic constrictive pericarditis, where the age range reported has varied from 10 to 59 years. Cardiac enlargement was absent, and the electrocardiographic patterns were essentially normal. The clinical picture revealed a chronic, slowly progressive course, with the predominant symptoms of pulmonary insufficiency consistent with the average course of talc pneumoconiosis. The normal electrocardiograms, lack of evidence of failure of either side of the heart, lack of response to nitroglycerin, and the absence of any intensifying effect of effort would tend to exclude angina pectoris. The exact mechanism responsible for the calcification of the pericardium in exposure to talc is not known. It can best be explained by a mechanical effect of the talc fibers resulting in a chronic inflammatory response and increased capillary hemorrhage with subsequent calcium deposition.

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

- 508 Dust Exposures During Ash Removal from Incinerators. W. H. Megounnell, J. H. Ludwig, and L. Silverman. *Arch. Ind. Health* 15, 215-222 (Mar. 1957).

Dust exposures to the operator during ash removal are not excessive for the average institutional-type incinerator, as the stack draft through the open furnace doors draws most of the dust produced by the operation back into the incinerator. Installations with small stacks, or when reverse flow is created by wind action, produce higher and more persistent dust concentrations. Incinerator operation is poorer during rainy weather. Only minor dust exposures are produced when water quenching of the ash is used, and wetting is advisable when it can be accomplished. Airborne dust in incinerator rooms is of the same general composition as the ash. It is composed of a high percentage of small particles (50% less than 0.5 micron), with larger particles which are predominantly aggregates. Exposure period for operators removing ash is a function of the degree of cleaning accomplished and the quantity of ash removed. Stack draft and room ventilation appear to be the most important factors in limiting the concentration of airborne dust in the incinerator room. A large proportion of the dust exposure incidental to ash removal could be eliminated by careful disposal cans to take advantage of the effect of stack draft and by care in depositing ashes from the shovel into containers. Obviously the furnace door and grate opening should be kept open throughout all cleaning in the incinerator room.

-- Cond. from authors' summary

- 509 Changes in Lungs of Experimental Animals after Intratracheal Introduction of Mineral-Wool Dust. V. A. Grimaïlovskaya and others. *Gigiena i Sanit.* 21, No. 8, 24-29 (1956). Russian.

Mineral-wool dust with relatively low free silica and moderate contents of bound silica produces in rats after 2-3 months a moderate sclerosis of diffuse and nodular types; after 5 months a peribronchial sclerosis starts. This is caused by solubility of dust particles in the lymph.

-- Chem. Absts.