

FILE NAME: State of the Art Literature (SAL)

DATE: 1958

DOC#: SAL067

DOCUMENT DESCRIPTION: Journal Abstracts

Morison

1957

December, 1957

BUREAU OF HYGIENE AND TROPICAL DISEASES

BULLETIN OF HYGIENE

NATIONAL
JAN 31 1958
MEDICINE

Vol. 32, No. 12

December, 1957

Issued under the Direction of the Honorary Managing Committee

CONTENTS

Health Congress, Dresden, 1956	1121	Diseases due to Fungi	1152
Public Health Administration	1122	Rheumatic Diseases	1153
Maternity and Infant Welfare	1124	Heart Disease	1156
Childhood and Adolescence	1125	Cancer	1157
Care of Old Persons and the Chronically Ill	1127	Mental Hygiene	1159
Statistics and Epidemiology	1127	Occupational Hygiene and Toxicology	1160
Infective Diseases	1129	Atmospheric Pollution	1174
Tuberculosis	1139	Physiology as Applied to Hygiene	1175
Venereal Diseases	1142	Sanitation	1176
Other Communicable Diseases	1149	Food and Nutrition	1177
Diseases Communicable from Animals to Man	1150	Bacteriology and Immunity	1181
		Book Reviews	1209

For detailed Contents, see p. ii

Bureau of Hygiene and Tropical Diseases,

Keppel Street, Gower Street, London, W.C.1

Telephone: Museum 3041

PRICE 7/6 NET

ANNUAL SUBSCRIPTION 70 SHILLINGS
(January to December) 10 DOLLARS

exclude a probable improvement in the gaseous exchange in the lungs. It is advisable in submitting silicotic patients to sulphur crenotherapy to estimate the vital capacity and, if this is markedly reduced, to apply the treatment with care in order to prevent undesirable immediate effects. The improvement in the general condition of the patients, as well as the local effect on the lungs, must be attributed to the action of the sulphur.

E. L. Middleton

HÜNER, O. & MÜLLER, G. Mineralogische und physikalisch-chemische Untersuchungen an einer Talk-Staublung und an Talk-Hautgranulomen. [Mineralogical and Physico-Chemical Investigation of Talc Pneumoconiosis and Talc Skin Granuloma] *Arch. f. Gewerbepath. u. Gewerbehyg.* 1957, v. 15, No. 5, 440-46, 7 figs.

Talc, a hydrated magnesium silicate, was formerly regarded as harmless, but recently this opinion has been revised. The authors describe a method of separation and examination of mineral residues from 2 sources: (1) The lung of a man who had been employed for 20 years in a rubber factory, mixing and sieving talc, kaolin and other mineral substances; radiological examination had shown changes suggesting silicosis. He died at the age of 67; the lungs showed massive, diffuse fibrous thickening. (2) The scar tissue 4 months after an operation for hydrocele in a youth of 17.

Concentrates of the mineral content of the tissues in each case were prepared by ashing with sulphuric acid, washing and centrifuging; the white concentrates consisted almost solely of talc. This was examined by polaroscopic methods which are very fully described; the refractive indices were those of talc. The solubility of talc in water was investigated by titration with idrenol (the disodium salt of ethylene-diamine-tetraacetic acid) as described by one of the authors (MÜLLER, G., *Neues Jb. Geol.*, 1956, 330). By this method talc can be dissolved; after 270 hours of stirring, saturation point is reached giving a value = 0.0013 gm. Mg per 100 cc. water. It is suggested that in the tissues eventually Mg and Si would separate, the silica combining to form organic compounds of silicic acid and bringing about the injurious action, talcosis thus being similar to silicosis in its final action.

E. L. Middleton

INDIA, GOVERNMENT OF: MINISTRY OF LABOUR. Silicosis Amongst Hand Drillers in Mica Mining in Bihar. [M. N. GUPTA.] 12 mimeographed pp., 2 figs. on 2 pls. 1956. Report No. 12. New Delhi: Office of the Chief Adviser Factories, Ministry of Labour & Employment.

This report gives detailed information on 62 hand-drillers drawn from 3 mica mines in Bihar. Of 1,010 mica mines in India, in 1952, drilling was done by hand in 829, and with compressed-air drills in 181 mines. In 1956 hand-drilling was done without dust-traps in 74% of mica mines. Dust control was not required by law up to the end of 1952 but wet drilling is now being enforced and mechanical ventilation is

recommended in addition. The mean dust counts in pulmo-dry and in moist rock drilling were of the order of 97 and 21 million particles per cubic foot (m.p.p.c.f.) respectively. The main Report of 1956 by the Government of Bihar showed that hand-drillers had an average exposure to dust of 45 m.p.p.c.f.

Of the 62 hand-drillers examined 17 (27.4%) had silicosis: 10 in stage 1, 5 in stage 2, and 2 in the conglomerate stage. There was no correlation between age and incidence of silicosis but the incidence increased with the number of years of underground work. The 2 patients in the conglomerate stage had worked 15 and 20 years respectively; the 15 with silicosis had an average exposure of 11 years. The time-intensity factor (number of years of work multiplied by concentration of dust in m.p.p.c.f.) shows a progressive increase in frequency rates of silicosis: a rate of 41% is reached in the 12 hand-drillers with time-intensity levels over 800. Active tuberculosis was found in 4 of the 62 hand-drillers; silicosis was also present in 2 of these.

Similar investigations are necessary in mica mines of other States.

E. L. Middleton

INDIA, GOVERNMENT OF: MINISTRY OF LABOUR. Silicosis Amongst Supervisory Staff in Mica Mining in Bihar. [M. N. GUPTA.] 6 mimeographed pp., 1955. Report No. 8. New Delhi: Office of the Chief Adviser Factories, Ministry of Labour & Employment.

This is a detailed account of the health of 42 members of the supervisory staff employed in the mica mines. In their underground work they were exposed to dust, though to a somewhat less extent than the miners. The ages of the group ranged from 20 to 50 and the periods of employment from 1 to 30 years. The incidence of silicosis increased with age and with employment; the earliest evidence of silicosis was found at the age of 27, and employment of 7 years underground. After 15 years' work underground 42% showed radiographic evidence of silicosis. Of 42 the group 19 (45.2%) showed silicosis: 12 in stage 1, 3 in stage 2, and 4 in the conglomerate stage. There were 8 cases of tuberculosis and in all of these silicosis was also present: 4 in stage 1, 2 in stage 2, and 2 in the conglomerate stage. Cardiac involvement was diagnosed in 3 cases, 1 each of enlarged heart, enlarged aorta, and hypertension.

E. L. Middleton

MOLFINO, F. & ZANNINI, D. Malattie polmonari da polveri nei lavoratori dei porti. [Lung Diseases due to Dust in Dock Workers] *Fior. Med.* 1956, June, v. 39, No. 6, 525-30, 4 figs. [19 refs.]

This is a study of lung diseases due to dust among dock workers in Genoa. Of 341 coal-handlers examined, 8, all with more than 20 years' experience of the work, were found to have a varying degree of dissemination of nodules, particularly in the lower and middle areas. Incidence of suspected active tuberculosis among these workers was 3.85, and the

pulmonitis was also above average. 11 cases of asbestosis were found among workers handling non-conducting material: 5 have been described by Canepa and 6 by the authors during the period 1949-56. The development of asbestosis in these cases was extremely slow. A fairly high proportion of workers in ships' cockpits showed diffuse dry bronchitis, often asthmatic in type. Of 32 electrical welders on board ships being fitted out or undergoing repairs, 2 had a very well-marked pulmonary micronodulation, and 2 a thickening of the root shadows with little nodulation. These lesions were probably caused by siderosis.

E. Vigliani

Fielda, J. S. Haematite Pneumoconiosis in Cumberland Miners. *J. Clin. Path.* 1957, Aug., v. 10, No. 3, 187-89. 17 figs. [40 refs.]

After reviewing briefly the literature on the effects of iron oxide on the lungs the author traces the history of Cumberland iron-ore mining from the time of Roman workings. The iron-ore of north-west England is almost entirely in the form of ferric oxide or haematite and exists in large masses in the deep layers of the carboniferous limestone at depths approaching 1,500 feet. Until the introduction of pneumatic drilling in 1913 the ore was mined by hand-chisel and blasting; the use of pneumatic drills increased the rate of working and the amount of blasting so that dense dust clouds were produced. After 1925 wet drilling was introduced but the use of water was often evaded.

Investigations between 1912 and 1923 into the mortality rates for pulmonary diseases among the miners showed evidence of bronchitis and emphysema, but mortality from bronchitis, pneumonia and pulmonary tuberculosis was not outstanding. In 1931-33 the death rate for tuberculosis was 70% higher than that of all males of comparable age, and 3 times that of coal miners in Staffordshire and Yorkshire. Local statistics also showed a high rate for tuberculosis in the haematite mining area. This was attributed to selection in ill-ventilated and dusty mines, a high proportion of Irish workers, and mechanization in mining methods. From 1930 onwards cases of silico-tuberculosis began to be recognized clinically and at autopsy.

Progressive massive fibrosis of haematite miners is a modified form of infective pneumoconiosis, which is considered to be tuberculous when first described [STEWART and FAULDS, this *Bulletin*, 1934, v. 9, 659] it may not be invariably so. In the last 2½ years autopsies on 58 iron-ore miners showed that 30% died of pulmonary tuberculosis; the author takes the view that the tuberculosis is a terminal event. In most cases, the dust in the lungs predisposing to infection and to development of the disease. A relative increase in the amount of silica in the lungs is a contributory factor and the action of iron-ore must also be considered.

There is an increased incidence of lung tumours in iron-ore miners. The striking feature is the location of the primary tumour at the sites where fibrosis is most commonly found. They appear to arise from

the damaged epithelial cells at the edge of the fibrous mass, and they spread from there to the hilum and not in the reverse direction. Illustrations show the sites of tumours and the pathogenesis is discussed. In 238 necropsies on iron-ore miners, of average age 61 years, there were 24 cases of carcinoma—10% compared with 2.7% in males over 30 who were not haematite miners.

Lymphadenitis of hilar glands with ulceration into a bronchus is occasionally seen in iron-ore miners. 2 such cases are described.

Measures taken for dust suppression 20 years ago, and carried out with the active cooperation of both employers and workers, have brought about a reduction in the abnormal chest radiographs of miners, with 10-20 years' work underground, from 30% to 1%.

E. L. Middleton

MINISTRY OF LABOUR AND NATIONAL SERVICE. *Dust in Card Rooms. Third Interim Report of the Joint Advisory Committee of the Cotton Industry* [BETTESON, A. S., (Chairman)]. 30 pp., 15 pls. & 1 graph. 1957. London: H.M. Stationery Office. [2s. 6d.]

This report describes an exhaust system for carding engines devised by the British Cotton Industry Research Association at the Shirley Institute.

The Shirley Institute studied the points on the carding engine from which dust is liberated, and applied a system of exhaust ventilation to the most important sources of the dust.

The effects of the device on dust concentrations in the atmosphere of cardrooms have been tested under both "laboratory" and "mill" conditions. Most of the dust measurements were of the smaller particles of 5µ and less, and indicated that the efficiency of the dust extraction was greater for the larger particles than for the smaller ones. Its overall efficiency in the particles of up to 4µ in size was about 60%. The few gravimetric measurements made of dust consisting of particles greater than 0.2µ indicated an efficiency of about 75%.

The Chief Inspector of Factories recommends that the cotton spinning industry should use this new device. It seems to be easily the best available for reducing dust in cardrooms and thus preventing byssinosis.

R. S. F. Schilling

WASS, C. A. A. *et al.* Some Instruments and Instrument Techniques in use at the Safety in Mines Research Establishment. Reprinted from *Instrument Practice*. 1957, June, 3-16, 32 figs. [54 refs.]

This paper was given at a conference of the British Occupational Hygiene Society which was devoted to the consideration of instruments for use in occupational hygiene. It describes instruments used in the study of underground explosions, pneumoconiosis and mining accidents.

Continued propagation of a dust explosion depends on the ability of the blast ahead of the flame to raise