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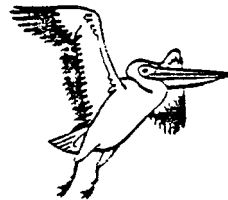
A PELICAN BOOK

DONALD HUNTER

ME

Health in Industry

Diseases and accidents
to which workers in industry
are liable, and how they
may be treated or prevented



A VOLUME OF THE
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A PELICAN BOOK

95c

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DUST DISEASES OF THE LUNGS

Preventive treatment consists of rigorous dust suppression. In asbestos mining, which is carried out on a large scale in Canada, wet rock drilling is imperative. In Great Britain in factories and textile mills the principle of locally applied exhaust ventilation is enforced to prevent the escape of asbestos dust into the air of any room in which work is done. In the manufacture of asbestos textiles, hand cleaning of the cylinders of carding machines is prohibited while any other person is present, nor may it be done by hand strickles or other hand tools. Those cleaning cylinders, filling insulating mattresses, and entering chambers containing loose asbestos, should be provided with an efficient apparatus by means of which they can breathe air free from dust (Plate 12). Suppression of dust in the cleaning of carding machines is best ensured by the use of a revolving brush fitted with a cover and connected to a portable vacuum cleaner. By the use of closed-in machines, handling should be reduced to a minimum. In one factory, spinning frames have been totally enclosed in *Perspex* with an ingenious device which permits easy access to bobbins. Education of the worker must aim at a high standard of good housekeeping. Dr E. R. A. Merewether, late H.M. Senior Medical Inspector of Factories to the Ministry of Labour and National Service, made extensive investigations of the dust hazard in this industry and upon this work the present methods of protection are based.

BYSSINOSIS

Byssinosis occurs in workers in the cotton industry employed for many years in cotton rooms, blowing rooms, or card rooms where the spinning of raw cotton is carried on. The workers are exposed to the inhalation of dust arising in these processes. The course of the disease suggests that it may be the result of the type of sensitivity known as allergy.

The established condition is one of chronic bronchitis and emphysema. The symptoms are progressive dyspnoea, sometimes asthmatic in type, with cough and, at first, scanty sputum. The early stages are often called *Monday fever* because there is a difficulty in breathing on resuming work on Monday mornings or after an interval away from work. At first this quickly passes,

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then the falling trend has been maintained and in 1954 the rate was 9.2 per 1000 men employed. As was to be expected, measures for dust suppression have been quicker to show results in the South-western Division than elsewhere. Already working conditions in the South Wales pits have altered out of all knowledge, the levels of air-borne dust in the pits in 1956 being one-tenth part of those prevailing in 1942. Elsewhere in the British Isles it seems that too many cases still go undiagnosed. The rate of certification per 1000 men employed in divisions other than South Wales rose from 0.3 in 1943 to 1.9 in 1947, and the rate for the last complete year, 1954, was 5.8.

ASBESTOSIS

Asbestosis is a special form of pneumoconiosis caused by the inhalation of asbestos dust. Asbestos is a mixture of fibrous silicates, mainly magnesium silicate. Occupations with a possible risk are those involving the working or handling of asbestos, cleaning the carding machines, spinning, weaving, the repair of asbestos textiles, the manufacture of brake linings, and the lagging of boilers and hot-water pipes.

The lesion in the lungs is not in the shape of discrete nodules but instead there is diffuse fibrous scarring accompanied by pleural thickening and emphysema. The inhaled asbestos fibres undergo a change in the lungs and become converted by the deposition of fibrin into the characteristic *asbestosis bodies*. Under the microscope these are seen to be club-shaped segmented rods up to 200 microns in length. They are formed around asbestos fibres.

The symptoms are dyspnoea, cough, and expectoration. The physical signs are cyanosis, clubbing of the fingers, and fine crepitations at the bases of both lungs. The sputum contains *asbestosis bodies* which may be regarded as of diagnostic significance only if they are present in clumps. Radiographic changes are late in developing, and the symptoms and signs may be present before they appear. The first x-ray findings are a ground-glass appearance or a very fine stippling of the bases of the lungs; the heart shadow may present a shaggy outline and the diaphragmatic border is obscured.