been published. Phosphine was found to be non-toxic to the blood-forming system. Workers at the London School of Hygiene devoted themselves to problems of hygiene (ventilation, warmth measurement, dust sampling, and lighting). The most interesting work, with the greatest promise for the future, was conducted at the Applied Psychology Research Unit at Cambridge. Much information was collected on selection, and on the behaviour of the human mind under varying conditions of stress and confusion. The work on display and control, started under the direction of Craik (who most unfortunately was killed in a street accident in 1945) has special application to industry. Industrial psychology, particularly the cause of absenteeism, was studied at Manchester.

The mode of infection of injuries occurring at work was investigated at the Birmingham Accident Hospital. Most infection of wounds of the hand are due to Staphylococcus aureus and Streptococcus pyogenes, the former entering at the time of injury and the latter later in the history of the wound.

The Report is itself a brief review of activities varying from investigations into high-altitude flying to the conservation of human milk. Unless another review of the same size is to be written, the majority of the activities undertaken by the Medical Research Council cannot even be mentioned. As an account of what can be accomplished under the difficulties of war the Report is unique; as a list of different specialist subjects within the purview of medicine, it cannot be surpassed.

T. A. Lloyd-Davies.

A REVIEW OF THE LITERATURE RELATING TO AFFECTIONS OF THE RESPIRATORY TRACT IN INDIVIDUALS EXPOSED TO COTTON DUST

By B. H. Caminita, W. E. Baum, P. A. Neal, and R. Schneider


This review gives an account of all processes of the cotton industry, from the farm to the finished article when it leaves the factory. These include harvesting, ginning, baling, grading, bale-breaking, carding, combing, spinning, and weaving. The dangers of respiratory disease are greatest in ginning, bale-breaking, and carding. Since 1827, thirty-six surveys of the health of cotton workers in various countries have been carried out. They show that upper respiratory-tract affections ranging from chronic irritation of the nose and throat to bronchitis complicated by asthma or emphysema, are particularly common among those with the heaviest exposure to cotton dust. These occupational diseases of cotton workers can be divided into four groups: mill fever, byssinosis, weaver's cough, and a disease which the authors believe is related to Aerobacter cloacae, a gram-negative, non-sporulating, rod-shaped organism.

Mill fever is characterized by upper respiratory irritation, cough, chills, fever, and vomiting. Onset of symptoms occurs usually in five or six hours, often on Monday after absence from work during the week-end, and hence it is sometimes called "Monday fever." It clears rapidly on removal of the patient from the dusty environment. Tolerance of the dust develops after a few days. Acclimatization may be limited, so that exposure to a concentration of cotton dust higher than that usually encountered may result in recurrence of symptoms.

Byssinosis is the late result of many years of mill fever. The Byssinosis Act (1940) lays down twenty years' employment in a cotton factory as being necessary before compensation can be granted. The disease is characterized by chronic bronchitis complicated by emphysema and, in the later stages of some cases, asthma. Respiratory irritation, cough, and progressive dyspnea occur, and some subjects develop right heart failure. Radiographs show only emphysema and slight fibrosis.

Weaver's cough occurs among workers, both old and new, who handle mildewed yarn; examination of the dust revealed Penicillium, Mucor, Aspergillus, and numerous other fungi. The symptoms consist of constriction of the chest, mild dyspnea, fever, cough, and aching of the limbs, back, and head. Onset usually occurs in four or six hours, and there is rapid improvement in from twenty-four to forty-eight hours after removal from the source of dust.

Exposure to the dust of low-grade stained cotton has been described by the authors of this review as giving rise to an illness which they consider to be due to Aerobacter cloacae endotoxin. Both old and new personnel are affected. Headache, generalized body aches, fever, nausea, and vomiting are common, and the latter later develop right heart failure, and upper respiratory irritation are the usual symptoms. Onset occurs in from one to six hours, while rapid improvement results in from twenty-four to forty-eight hours after removal from the offending environment.

If these observations are correct, it appears probable that mill fever and byssinosis are merely stages of the same condition; and weaver's cough and the illness said to be due to Aerobacter cloacae are at least diseases which resemble one another closely. It would also seem as though these diseases are closely allied to those which attack workers inhaling the dust of other plant products such as grain, flax, hemp, jute, and bagasse.

The report ends by stating "that investigation of dusts of plant origin from the standpoint of health hazard has hardly been initiated." This is emphatically true of cotton dust. There is need for engineering studies to determine degree of dust exposure and the factors governing dust production in the cotton industry, for complete data on the chemical and physical properties of the dust, for compilation of mortality and morbidity statistics in cotton operatives, and for experimental work on the mechanism of the production of the various disease entities associated with the inhalation of cotton dust.

K. M. A. Perry.

HEALTH OF ARC WELDERS IN STEEL SHIP CONSTRUCTION


The fact that arc welding became very important during the war has led to this report on the health of welders in steel ship construction. It is based on a survey carried out in 1944 on 4,650 men and women working in seven shipyards on the Atlantic, the Mexican Gulf, and the Pacific coast. The fume to which the workers were exposed was analysed. It was highest in the most confined welding spaces, but it contained more than 30 mg. of ferric oxide per cubic metre of air for all welding locations and more than 15 mg. of zinc oxide per cubic metre in several. The fume consisted mostly of ferric oxide 50 per cent., titanium dioxide 15 per cent., silica 8 per cent., and a mixture of acid soluble metals such as magnesium, calcium, aluminium, manganese, chromium, copper, and sodium. More than half the samples of gas were found to contain fewer than five parts per million of nitrogen oxide.