

Although this vulnerability was first observed with solid irritants, gaseous, as well as liquid irritants, have also demonstrated a proclivity to localize their primary damage in the proximal portion of the racemus. Because dust deposition and clearance normally take place simultaneously it is difficult under the usual experimental conditions of inhalation exposure to determine where dust particles visible on the alveolar surface in the proximal portion of the racemus were deposited during inhalation or later. Therefore, it is necessary to segregate as completely as possible the clearance process from the deposition of the dust burden. A short-term study of the clearance of various lung dust burdens was conducted in rats, using the inhalation and the intratracheal injection techniques for loading the lungs. Four kinds of dust were used: antimony trioxide, ferric oxide, quartz, and coesite, the last being a crystalline variety of silica different from quartz. It was demonstrated that the proximal portion of the racemus, consisting (in the rat) of the respiratory bronchiole and adjoining alveolar ducts, had a greater concentration of dust, initially, than the more distal regions. At that deposition the dust was situated predominantly upon the surface; but within three to four days, the dust upon the surface of the proximal portion of the racemus had largely disappeared, presumably having been transported to the ciliated epithelium. At the same time, the evaginating alveoli of this region became filled with a considerably greater amount of dust than was present in this region initially. Simultaneously, the dust in the peripheral alveoli became scantier. Stasis in the evaginating alveoli of the proximal part of the racemus may be related to the fact that the respiratory bronchiole is similar to the small end of a large funnel with a possible ratio of surface area to the area drained as small as 1:500. This concept explains the greater vulnerability of the proximal portion of the racemus to inhaled irritants—whether they be solids, gaseous, or liquid.

- 880 Prevalence of Byssinosis and Dust Levels in Flax Preparers in Northern Ireland. P.C. Elwood, et al. *Brit. J. Ind. Med.* 23, 188-193 (July, 1966).

The association between the prevalence of both byssinosis and chronic bronchitis and the level of airborne dust was examined in workers in preparing departments in flax mills in Northern Ireland. A weak association between the dust level and byssinosis was found but not between the dust level and chronic bronchitis. It is suggested that the disparity of these associations may have arisen because the diagnosis of byssinosis, as in most recent published studies, was based on relatively acute and reversible symptoms which are more likely to be closely related to the current dust levels than the slowly developing symptoms on which the diagnosis of chronic bronchitis was based. Furthermore, an association between chronic bronchitis and the dust levels is likely to be obscured to some extent by the effects of other non-industrial respiratory irritants such as tobacco smoke. Some hypotheses of the basic etiology of byssinosis are discussed.

-- Authors' abst.

- 881 Relevance of Respiratory Symptoms and Signs to Ventilatory Capacity Changes After Exposure to Grain Dust and Phosphate Rock Dust. B. Gandevia and B. Ritchie. *Brit. J. Ind. Med.* 23, 181-187 (July, 1966).

Ventilatory capacity was measured before and after exposure to high concentrations of wheat dust in 24 men, 18 of whom were similarly studied while working with calcium phosphate rock. Changes in ventilatory capacity were examined in relation to respiratory symptoms as commonly elicited in occupational surveys, and to the presence or absence of a productive cough on request and under observation. A significant decrease in the forced expiratory volume at one second was observed within half an hour of beginning work in the wheat dust, and this decrease was maintained throughout the work shift. A smaller significant decrease was found on exposure to phosphate rock over several hours, no significant change occurring within the first half-hour. Greater or more consistent decreases were recorded in those men who gave a history of persistent cough and sputum, and more particularly in those who had a productive cough on request, than in those without these features. A history of symptoms on exposure failed to define a group showing a more severe ventilatory reaction on exposure to wheat dust than the average. Some of the factors influencing the history of symptoms in occupational populations are reviewed, and the advantage of an objective sign, as provided by a deliberate cough, is indicated in defining an "abnormal" group within such a population.

-- Authors' abst.

- 882 Pine Pollen Pneumoconiosis in the Rat and Its Relation to Sarcoidosis. C. Göthe. *Acta. Med. Scand.* 178, 375-383 (Sept. 1965).

Female albino rats were injected intratracheally with 20 mg. of ground pine pollen (*Pinus sylvestris*) suspended in 1 ml. of physiologic saline. The animals were sacrificed at 1, 2, 4, and 6 months after administration of the pollen. The weight and the hydroxyproline contents of the lungs were determined, and the tissue reactions in the lungs, and the hilar and paratracheal lymph nodes