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THE DUST HAZARD IN TREMOLITE TALC MINING, INCLUDING ROENTGENOLOGICAL FINDINGS IN TALC WORKERS

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FROM time to time the attention of the Division of Industrial Hygiene has been drawn, through compensation claims, to incapacitating fibrosis in talc workers. Since silicate dusts, of which talc is one, have been considered relatively innocuous in the opinion of most authorities (the single exception being asbestos), the occurrence of these diseases has raised several questions—the obvious question as to whether this incapacity has resulted from talc exposure alone, and the second more interesting question as to whether industrial hygienists, with few exceptions, have erred in considering asbestos to be the only injurious silicate dust.

In an attempt to answer these questions, the study here reported was undertaken. It consisted of an investigation of the talc industry and an examination of talc miners and mill workers in northern New York State (St. Lawrence County) made, in 1940-1941, as a joint enterprise of the Division of Industrial Hygiene of the State Department of Labor and the Division of Tuberculosis of the State Department of Health.

NATURE OF TALC

Talc is a hydrous magnesium silicate with the formula $H_2Mg_3(SiO_3)_4$, composed, according to Ladoo¹² of about 63 per cent SiO_2 , 32 per cent MgO , and 5 per cent H_2O . It is usually a secondary mineral resulting from the alteration of other magnesium silicates or carbonates. While its own silica is present in the combined form, most talcs mined commercially contain varying amounts of such impurities as quartz, calcite, dolomite, iron oxide, etc.

Talc has a characteristic soapy feeling and a pearly lustre. It may be pure white, silvery white, gray or green and, when impure, yellow, brown or reddish. The most common commercial variety is a massive, foliated, or granular type, but it may also occur in a micaceous, or in a fibrous form.

Soapstone is a closely related substance, being essentially an impure talc, and when pulverized it may be used for the same purposes. Tremolite, which is a calcium magnesium silicate, changes over to talc. It may be mined with it and subsequently ground and sold as talc.

GEOGRAPHICAL DISTRIBUTION

The United States produces about 65 per cent of the world's supply of talc, the leading states in its production being Vermont, New York, California, North Carolina and Georgia.

THE INDUSTRIAL USES OF TALC

According to the Minerals Year Book (1938) of the United States Bureau of Mines, the use of talc and soapstone is steadily increasing. Ladoo¹² states that at least 60 different uses for talc have been noted, though most of them are of minor importance. Its value depends chiefly on its usefulness as a filler, inert extender, dusting powder and absorbent. In 1921, according to Ladoo, the marketed, ground talc production in this country was industrially distributed as follows: paper 38 per cent, paint 23 per cent, prepared roofing 18 per cent, rubber 9.5 per cent, textiles 4 per cent, toilet powder 2.5 per cent, other uses 5 per cent.