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### EXPERIMENTAL STUDIES OF ASBESTOSIS

ARTHUR J. VORWALD, Ph.D.(Path.), M.D.

THOMAS M. DURKAN

AND

PHILIP C. PRATT, M.D.

SARANAC LAKE, N. Y.

ASBESTOSIS is a form of pneumoconiosis resulting from prolonged inhalation of asbestos dust. The name "asbestos," literally "unburnable," is not that of a specific mineral but is a term applied to a number of different minerals whose characteristic feature is a structure composed of long, parallel, flexible fibers. This structure is unique because the fibers are capable of repeated longitudinal subdivision to units of molecular proportions. In length the fibers vary from a few microns to 6 or more inches (15 or more cm.). Some varieties are stiffer than others, but many are sufficiently flexible to be spun into yarn and woven on modified textile machinery.

The asbestos minerals are silicates of variable composition and belong to the serpentine and the amphibole groups. Listed below are the more common varieties.

Amphibole group: actinolite, amosite, amphibole, anthophyllite, crocidolite and tremolite.

Serpentine group: chrysotile.

The bulk of the asbestos of commerce is chrysotile,  $3\text{MgO} \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$ , which is mined on this continent principally in the Thetford region of the Province of Quebec, Canada, and in Vermont. Crocidolite and amosite also are used commercially but in much smaller amounts. Chrysotile occurs as veins in serpentine, a mineral of similar chemical composition, which exists in massive form and is made up of microscopic fibers without the parallel orientation characteristic of chrysotile. The massive, bluish black serpentine, which is smooth and soapy to the touch, is traversed by veins of fibrous chrysotile varying in width from a barely perceptible line to 6 (15 cm.) or more inches. The fibers run across the vein and not lengthwise with the formation.

From the Saranac Laboratory of the Edward L. Trudeau Foundation.

This series of studies of asbestosis, initiated at the Saranac Laboratory more than twenty years ago by the late Dr. Leroy U. Gardner, director of the laboratory, was nearly completed at the time of his death in October 1946. Although partial reports and informal reviews of some of the experiments had been given from time to time by Dr. Gardner, this paper presents for the first time a complete survey of the entire experimental investigation.