are 1,000 liters in a cubic meter, it would indicate that Larza's estimation represents something of the order of 80 million particles per cubic foot. With good engineering practice, lower concentrations than this can be obtained. In fact the experience in South Africa and also the present experience in this country indicates that it can readily be kept below one-tenth of this value by using ordinary good practices. The United States Public Health Service in its recent study in the anthracite region of Pennsylvania, found that 50 million particles per cubic foot with 5 per cent. quartz in the coarse dust and 10 million particles per cubic foot with 35 per cent. quartz were apparently satisfactory and often were attained. The figure of 10-20 million particles per cubic foot for granite dust with 35 per cent. quartz content is often quoted from the Vermont granite studies of the United States Public Health Service. From a consideration of general experience, Cummings suggests 5 million particles per cubic foot as a threshold for dusts high in quartz. This figure is based upon a combination of South Africa, Australian and American experience but lacks entirely any published data in its support.

According to studies quoted by Philip Drinker and Theodore Hatch in their book "Industrial Dusts" 10 to 20 million particles per cubic foot by the impinger sampling method, light field counting is a reasonable figure for cement and limestone. Recent work by Dreessen confirms the universally accepted opinion that dusts high in calcite and low in quartz do not produce disabling fibrosis. The threshold figure of 0.15 milligram per cubic meter is given for lead dust, presumably litharge and white lead, or other soluble lead salts.

It should be noted that many of the data were not determined as the Medical requirement, but as being attainable in good practice and apparently satisfactory from a safety standpoint. It should be further noted that the accepted figures are only relative due to the indefinite powers of resistance of an individual which are an unknown quantity. One individual might resist a proportion of 200 particles per cubic centimeter, while another would react unfavorably to 50 particles. The worker's physical condition prior to the exposure is of great importance, since a young, healthy individual usually can stand a higher concentration or longer exposure before the first stage of silicosis is developed. However, far greater influence than physical condition might be the ability of the nose and respiratory passages to arrest dust.

In their report to the National Silicosis Conference the Committee on Prevention of Silicosis through Medical Control pointed out that since standards of safe atmospheric dust concentration, based on medical findings have been established for only a few industrial dusts, and in view of the fact that considerable study and investigation will be required to establish standards for other industrial dusts, some tentative standard would be useful. It was also stated that this arbitrary standard should be based upon what is believed to be within the limits of good engineering practice provided, it will largely control the silicosis hazard for most industrial exposures. They, therefore, suggest that

"<u>The maximum permissible concentration of silica in the air breathed</u> might be expressed by the following formula. (Determination of dust concentration according to technique described by United States Public Health service in Reprint No. 1520 from Public Health Reports, March 18, 1932):

Multiply the percentage of free silica by the total particle dust count. If the result is under 5 million, the condition may be considered permissible. If the result is over 5 million, the condition may be considered too high. For example,

10% free silica with an average total dust concentration of 30 million particles per cubic foot would give .10 times