of exposure to silicate dust.

Asbestosis - According to authorities cited by Drinker & Hatch in their book "Industrial Dusts", the pathology produced by asbestos is not like that of silicosis. Dr. L. U. Gardner of Saranac Lake is of the opinion that the asbestos fibers group about the neck of an alveolus and shut it off, causing what is known as "Atelectasis". There is no definite migration or transportation of the dust particles to the lymph nodes and no fibrous nodules. As the atelectatic areas increase the reduction in lung area causes serious dyspnea or laborered breathing. Dr. A. J. Lanza (U.S.Health Repts., 50; 1 - 1935) suggests that the enlarged hearts noted frequently in his cases of second stage Asbestosis may be due to the increased load on the heart. It takes more work to pump blood through the fibrosed than through the normal lung. Recent pathological studies from human lungs from cases of asbestosis have indicated a diffuse type of interstitial fibrosis with a certain amount of emphysema.

IV - WHAT IS THE MAXIMUM PERMISSABLE DUST CONCENTRATION? - There appears to be a wide variation in the maximum concentration of dust which might be inhaled without subsequent injury to workmen. Some dusts (as lead) are determined by chemical methods and the concentrations in air are recorded gravimetrically as milligrams per cubic meter. However, the available information on the amount of lead dust that is harmful and the methods of determining lead are better and more accurate than those for silica dust. It is rather well agreed that an intake of about 1.5 milligrams of lead a day, whether this is acquired by breathing dust or by drinking water that contains lead, is the maximum allowable quantity. Others (as silica, where size is a factor in determining dangerous particles), are usually given by count. Neither method tells the whole story, but in both cases it may be possible to secure the information necessary for the purpose.

The maximum silica dust concentration considered permissible in the air breathed by a workman at any point in the normal breathing zone has not been definitely established. There is considerable difference of opinion regarding the range of particles that are counted when using the Public Health Service technique and light field illumination. Bloomfield of the United States Public Health Service and Brown of the United States Bureau of Mines contend that they count particles from one micron and upward, or even 0.7 micron and upward. The Industrial Commission of Wisconsin and its Advisory Committee, composed of both employers and scientists, however, agreed in 1932 on a tentative figure of 15 million countable particles under 10 microns in longest dimension with free silica content of 35 per cent in a cubic foot of air as determined by United States Public Health Service technique. Variations in free silica content will make proportional inverse changes in this standard. In the case of practically pure silica, the permissible dust count should probably never exceed 5,000,000 countable particles. By countable particles is meant those particles between 0.5 to 10 microns in the longest dimension. Particles of this size are the ones that are believed to cause the greatest damage and form no visible cloud. Dust particles smaller than 0.5 microns in the longest dimension are not ordinarily countable. Dust particles larger than 10 microns in longest dimension do not ordinarily reach parts of the lung where they can produce injury of a respiratory nature. Most industrial dusts have but few particles above two or three microns in size. They are usually about 90 to 95 per cent. below two or three microns and 50 per cent. below about 0.5 to 0.7 microns. An exception to this would be a dust sample taken close to the point of generation of dust and before the larger particles had time to settle out of the air.

In South Africa the figure is 1 milligram per cubic meter (or 300 particles per cubic centimeter, or approximately 8.5 million per cubic foot.) Dr. Lanza found in 1917 in the Joplin, Missouri district that with good engineering practice, a figure of 1 milligram per 100 liters of air could be attained. This value attributed to Lanza appears too high in comparison with the South African standards. As there