as entirely preventive. Assuming that a man works in an atmosphere of silica dust for several months, during which time he is bound to absorb a certain amount of the dust which produces permanent damage in his lungs; he is then removed and the possibilities are that the damage which is already done will be sufficient to continue on and progress to the point where in later years he will develop symptoms.

"Therefore, if we take to rotating men in this type of work we are facing the possibility of, in later years, developing a large number of cases of a moderate silicosis with some permanent disability. The only safe expedient which can be used is complete prevention and this can only be done by eliminating the dust."

During our survey we found that men engaged in sand-blasting, that is handling the nozzle or attending the sand-blast machine, were more or less properly protected while actually doing the work but often times they removed their protective equipment before getting completely away from the working area.

A large amount of very small particles is produced by sand-blasting. In an analysis of dust samples collected both outdoors and indoors during sand-blasting, the following distribution (Public Health Bulletin No. 217 - p.52) on a size frequency basis was found:

Size Group in Microns	Per Cent of Total
0.00 - 0.49	1.4
0.50 - 0.99	19.7
1.00 - 1.49	34.7
1.50 - 1.99	20.3
2.00 - 2.49	12.6
2.50 - 2.99	5.2
3.00 - 3.49	2.8
3.50 - 3.99	1.6
4.00 - 4.49	1.1
4.50 - 4.99	0.2
5.00 - 5.49	0.2
5.50 - 5.99	0.2

While it has been estimated that free silica dust particles, 1 micron in diameter, require 8 hours to fall 6 ft. in still air; particles 5 microns in diameter require less than 1 hour to fall the same distance. Considering this fact, it is apparent that the dust hazard from a particular operation may, even though carried out for short periods, be acute throughout the working day. In view of the fact that the condition of still air is rarely, if ever achieved, and that dangerous particles exist in sizes below one micron, it is evident that a hazard exists.

Fortunately most of the outside sand-blasting is done in more or less isolated locations which makes it rather improbable that there will be any unsafe silica dust exposure to other workmen. However, should it become necessary for any work to be done in the vicinity of sand-blasting operations either on process units or the sand-blast sheds or yards, it should be remembered that there may be silica dust in the air even though it can not be seen. Dust counts as high as 5,344,160 particles ten microns or less per cubic foot were found in samples taken about 50 feet "downwind" (wind blowing about 15 to 20 miles per hour) while sand-blasting cracking coil tubes; about 95% of these dust particles appeared angular crystalline under the Konimeter microscope and were about five microns or less in size. Samples taken about 100 feet "downwind" from sand-blasting operation had counts as high as 1,812,480 particles per cubic foot.