Company Alumdum wheel operating at 1650 RPM. A rather ineffective dust collector has been installed, but the average high dust concentration (10,931,521 particles per cubic foot) shows that it is inadequate. About 80% of the dust particles in samples taken during the sharpening of a Circular Slab Cut-off Saw were opaque in appearance, two microns or less in size; 20% were slightly angular crystalline, five microns or less in size. There were also a large number of minute black opaque particles.

P - "HOG KNIFE" GRINDER: Uses a 1-1/2" x 24" Carborundum wheel operating at 300 RPM. This grinder is completely enclosed by a metal hood, but the dust is discharged onto the floor through an opening in the lower part of the hood. The average dust produced by the operation of this grinder is 1,869,120 particles per cubic foot. About 75% of these dust particles were angular crystalline in appearance under the Konimeter microscope and four microns or less in size; 25% were round, black opaque, two microns or less in size.

Q - CUTTER GRINDER: Uses a 3-1/2" x 2-1/2" x 1/2" Norton Alumdum wheel (3846 K B 5). The amount of dust produced depends upon the material being ground as is shown by the following:

Grinding a steel counter sink..... 736,320 particles per cu. ft.
" " " reamer.....1,019,520 " " " " "

The dust particles are about 98% opaque metallic in appearance and about one micron or less in size.

What Precautions Should Be Adopted For Safeguarding Those Who Use Grinding Wheels? Authorities generally agree (Jour. Indust. Hyg. Vol. VII No. 8 August 1925 p. 351) that workers who habitually use grinding wheels will run but slight risk of developing pneumoconiosis if they use certified abrasive rather than sandstone wheels for all grinding operations and if the machines upon which the artificial abrasive wheels are mounted are properly hooded and excessive dust removed by suction.

Control of Dust From Grinding, Polishing and Buffing Wheels. Exhaust systems for grinding, polishing and buffing wheels vary widely in design. In the case of grinding, the hoods used serve not only to provide means for capturing the dust but also act to protect the worker in case the wheel bursts. The chief difficulty to be overcome in grinding wheels, according to U. S. Public Health Bulletin No. 217, "The Determination and Control of Industrial Dust" (1935), is the outward sweep of air, a fan action, due to the revolving wheel. This effect is very marked with high speed and rough wheels and is so strong that in many instances it is sufficient to counteract the normal inward flow of air. The same effect exists with polishing and buffing wheels but to a less marked degree.

Practically all industrial States have codes regulating the construction and dust connections for grinding, polishing and buffing wheels. They also regulate the air required for wheels of various sizes in terms of static suction in the connecting ducts. These codes possess no uniformity. However, the requirements designated by State codes must be followed. In States where no codes have been adopted it is desirable to provide exhausts on all grinding wheels with a suction at the connection to the hood sufficient to produce a difference of level of at least two inches of water between the two sides of a U-shaped tube.

A number of the wheels have been provided with suction exhaust produced by a motor driven fan or a hood, with a two-inch pipe one end of which is immersed in a bucket of water. The dust is drawn in by the rapid revolution of the wheels (1750 RPM). This simple arrangement is particularly effective. Three samples taken near the discharge of a motor driven suction fan connected with the hood of 1-1/2" x 10"