AIR POLLUTION IN PITTSBURGH

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PITTSBURGH

IT IS PART of the duty of the Bureau of Smoke Prevention of Pittsburgh to determine just what is in the air over the city. Our problem is to obtain samples from the air for chemical analysis. After long consideration we fixed on a method for continuous recording, and the easiest seemed to be one in which the dust was caught in cans placed on the roofs of buildings.

We are all familiar with the objections to cans—namely, that strong winds blow the light dust particles across the top and they are lost. Again, heavy winds can blow up dust from the streets, from vacant lots and the like. But such factors balance out, and we really feel that collection of the samples from the cans—say, once a month—so reduces the work of the chemical laboratory and simplifies our routine procedure that the cans are a preferred method.

We have eight cans placed about the city in key locations. These are of uncoated stainless steel, 6 in. (15 cm.) in diameter by 8 in. (20 cm.) high, and placed 3 ft. (91 cm.) above the roof on steel standards. Water is placed in the cans (alcohol in freezing weather), and each month an analysis is made of the soluble solids and of the insoluble ones. The results are combined and reported by our chemist as in the table.

A rough particle size distribution is made on United States Bureau of Standards sieves. The sizes run practically uniform for the whole city. Seventy-five per cent by weight passes a 100 mesh (149 micron) screen, 15 per cent goes through a 325 mesh (44 micron) screen and 10 per cent is smaller than 44 microns.

We notice that the analysis from each area in the city is quite constant from month to month. A few items show the effect of location. Ferric oxide, Fe_2O_3, is greatest in can 3 which is east of the Jones and Laughlin Steel Corporation and of the Carnegie-Illinois Steel mills at Homestead, where the prevailing winds are responsible for bringing it up to 18.5 per cent. Actually, no. 3 can is in a popular residence section where good ground is available and many good houses have been built. In most cities in this district, however, the western area is the popular one because it is supposed to be cleaner.

The table shows a large item for sulfur, 18.9 per cent in 1948 and 18.5 per cent in 1949. These figures amount to about ½ p.p.m. Most of it comes from the

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