

(2). In consequence of the fog prevalence, there are fewer hours of sunshine in the city than in the country.

(3). The sunshine is less intense than in the surrounding country, the light of short wave length (the blue light in the spectrum) suffering the greater depletion.

(4). Daylight, which often depends entirely upon diffuse daylight from the sky, is depleted by smoke in greater proportion than direct sunlight.

(5). Minimum temperatures are markedly higher in cities than in the country, in part, of course, because of city heating, but principally because the smoke acts as a blanket to prevent the escape of heat at night.

We find, when using a chemical method for determining the intensity of daylight, that, ten miles from the centre of Pittsburgh, on many days there is two or three times the light as measured by chemical action, that there is in the city proper.

The amount of soot in the air varies between 21 and 430 mg. per 1,000 cubic feet of air, depending upon the direction and strength of the wind. That is, we have twenty times the soot in the air on a dark day that we have on a clear, bright day.

Visibility determinations (the distance one can see) vary greatly from day to day. With the accumulation of more data we hope to trace a relationship between these determinations and the amount of soot in the air.

**Determina-  
tion of  
Soot-fall**      The soot-fall (the amount of soot which falls on a given area in a given period of time) is of interest to us from many view-points. A large number of determinations have been made, and, although they vary greatly in different parts of the city, those made at the same stations remain remarkably constant. The total fall varies between 28.42 and 225.6 tons per square mile per month for the cleanest and dirtiest parts of Pittsburgh, respectively. These figures represent the entire dust fall, which is jet black and is considered here, as elsewhere, to represent the soot-fall. Analyses are, however, being made for tar, organic and inorganic matter.

#### HOW VEGETATION IS AFFECTED BY SOOT

Trees and shrubs add to the beauty of a city. They are not intended primarily as a source of income. The effect of soot on vegetation may, therefore, be considered more particularly a question of æsthetics. Then, too, as the smoke nuisance is usually