

(1). The topography of the country is an important factor in the mitigation of the evil. A hilly country, such as that in which Pittsburgh is situated, confines the smoke to the valleys, so that it is not readily carried away by the wind as it is in Chicago and other cities built on a flat country.

(2). The situation of the smoke-producing plants with reference to the residence district must be taken into consideration. In many places, this proves a source of great annoyance; in others, it tends to simplify the problem. In Pittsburgh, the mills are situated along the Ohio, Allegheny and Monongahela rivers, which run through the city, bounding at least three sides of the best residential districts. Recalling the topography of the city, one can see that this does not facilitate abatement.

(3). The necessity for burning soft coal in private dwellings is a great bane, the methods for burning it without smoke not being nearly as well perfected as in the case of large installations. About six per cent of the coal burned in fire-places and other domestic installations escapes through the chimney as soot, while only about 0.5 per cent of that burned in power plants is thus wasted. That is, weight for weight, the coal burned in domestic installations is twelve times more a nuisance than that burned in a hotter furnace under a boiler. Cities which have at their disposal a supply of natural or other cheap gas, are greatly favoured.

(4). Cities, such as Philadelphia, which have access to cheap hard coal, should have very little need of consideration in connection with the smoke problem. Anthracite coal is a smokeless coal. On the other hand, soft coals vary greatly in the ease with which they are burned without smoke. Different types of mechanical stokers and other kinds of installations are required in many cases. Each district presents new engineering problems. An installation which gives perfect satisfaction with one kind of fuel will not of necessity do so with another.

(5). Smoke abatement is not a difficult task in non-manufacturing towns, where power-plants are the exception rather than the rule. In manufacturing towns, on the other hand, long continued campaigns of education are necessary before even the enforcement of an ordinance is possible.

After a thorough perusal of literature on smoke and a general survey of the smoke-producing plants in the Pittsburgh district, a number of facts were firmly established: