cation of a theory might not be unreasonable were it not that we knew from results that no such power exists in any of those germs known to us.

Let us consider the number of polluted liquids which pass from the houses and hospitals from such a city as Glasgow, and the fact that so many of its inhabitants go down to the banks of the Firth, towards which the waters of the Clyde flow, and receive their health and strength themselves and their families, and we shall see how absurd the ideas have been concerning the power of individual germs, or even multitudes of germs, in such situations.

From the sewage of a room, as we may call these impurities, we may readily pass on to a subject which has always been important in the eyes of those who have any appreciation of the importance of the attention to public health. It is a subject which impresses upon the attention of every town, and it is one which for many years caused the inhabitants of Glasgow to think seriously, viz., the treatment of sewage. It has happened that some of my latest work, as indeed some of my earliest, has been upon sewage.

It is remarkable how rapidly sewage enters into putrefaction, and to know the results of this putrefaction has been a considerable difficulty. The gases from sewers have been found guilty of producing a peculiar form of fever, very well known to medical men, in some of its stages, and apparently so definite that it may be considered as ranking with one of the chemical tests in its strictness. The gases which come from it are the results of the decomposition of organic matter, and the number of compounds into which the material of animals may be broken up is so varied that at present it may be said to be entirely beyond our ken. These compounds vary in character to such a degree that they may form the most innocent gases, the most wholesome food, or the most virulent poisons, venomous substances that destroy entirely vital functions of the human body in a scarcely appreciable time. Some of these obnoxious bodies arise from the decomposition of sewage, and, as already said, seemed to be formed at some particular proportion of the supply of air.

It is easy to see that it is a mistake to suppose that by sending putrefying liquids down to the lands we are giving these lands all the sustenance which the sewage originally contained. If we wish to use them as sewage it is better to use them before putrefaction, the loss by putrefaction being great. I suppose we can scarcely doubt that putrefaction takes place more rapidly when the organic matters are diluted to a very considerable extent with water. Having made many experiments in order to learn the condition of the air found lying over somewhat solid putrid substances compared with the same substances very diluted with water, it was found that the greatest amount of ammonia and the most offensive odors were from the more solid. This is quite in accordance with the explanation given of the more complete disruption of the organic matter in water, and it was these experiments that led me first to think of driving the air through sewage matter in order to produce oxidation, expecting readily to form nitrates, and in the belief also that excess of air would be offensive to the microzymes, although a small amount seemed necessary for their activity.

The most complete experiments on aeration which I was able to perform were done by the apparatus of Dr. Storer and Mr. Cranston. The Messrs. Storer were good enough to put at my service two of their revolving screws, which are used to agitate the water, to draw down air into the centre, and to send it out at the circumference of the vessel. For this purpose they put also up in my laboratory a gas engine, to drive these screws, and I was thus provided with very efficient apparatus, for which I cannot sufficiently thank them. The result of the aeration of sewage, and of other liquids, containing organic matter to a similar extent, was, that in all cases putrefaction was delayed by aeration. The dissolved oxygen also recovers itself in the aerated specimens better than in the non-aerated. This shows that aeration not only prevented putrefaction, but prevented also the chemical action consequent upon it. It had, in fact, to a large extent, and for a considerable time, rendered the organic matter inert, or nearly so.