

THE FILTRATION OF PUBLIC WATER-SUPPLIES

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The filtration of public water-supplies by Allen Hazen

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ALLEN HAZEN

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PUBLIC
WATER-SUPPLIES**

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THE FILTRATION

OF

PUBLIC WATER-SUPPLIES.

BY

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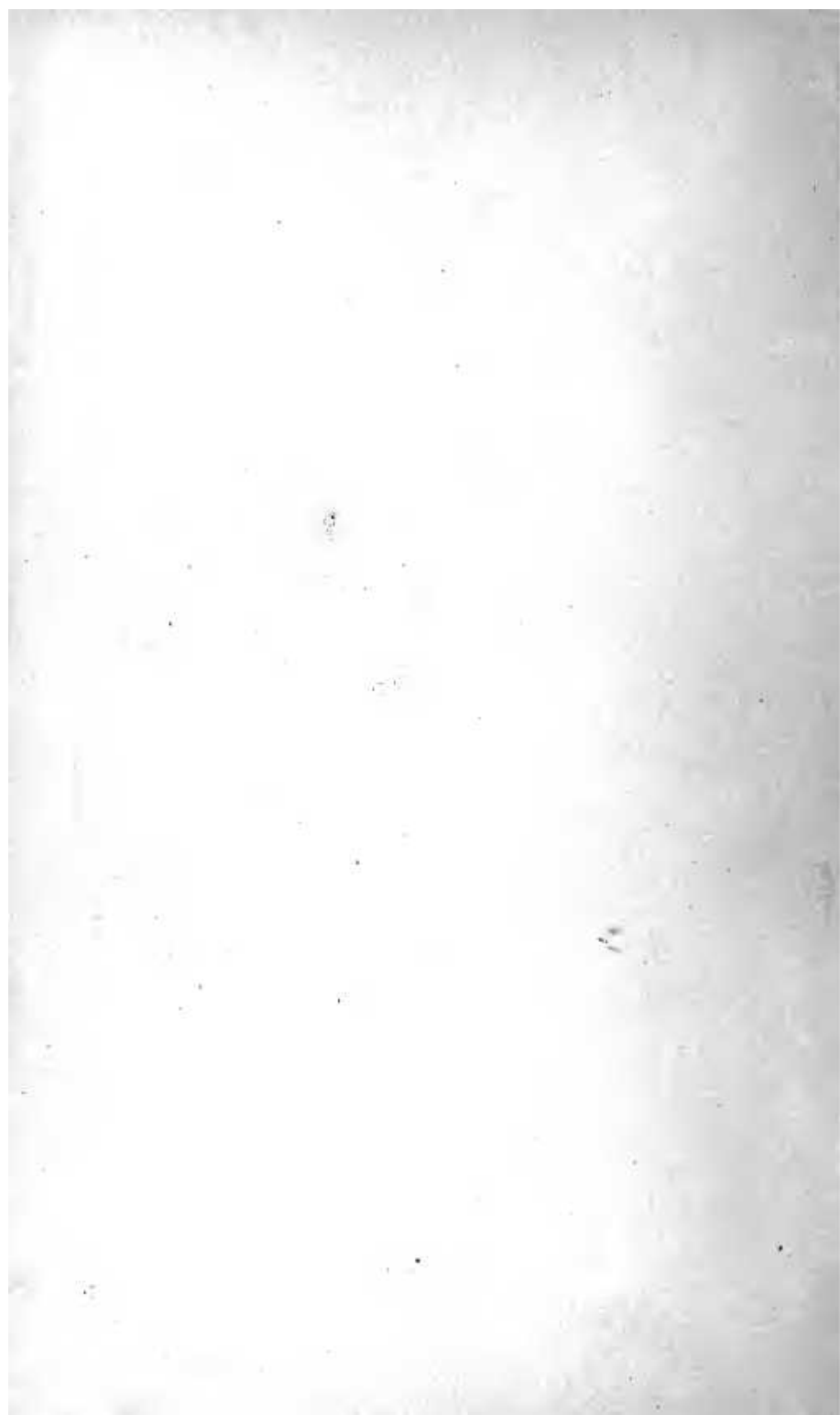
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PREFACE.

THE subject of water-filtration is commencing to receive a great deal of attention in the United States. The more densely populated European countries were forced to adopt filtration many years ago, to prevent the evils arising from the unavoidable contaminations of the rivers and lakes which were the only available sources for their public water-supplies; and it has been found to answer its purpose so well that at the present time cities in Europe nearly if not quite equal in population to all the cities of the United States are supplied with filtered water.

Many years ago, when the whole subject of water-supply was still comparatively new in this country, filtration was considered as a means for rendering the waters of our rivers suitable for the purpose of domestic water-supply. St. Louis investigated this subject in 1866, and the engineer of the St. Louis Water Board, the late Mr. J. P. Kirkwood, made an investigation and report upon European methods of filtration which was published in 1869, and was such a model of full and accurate statement combined with clearly-drawn conclusions that, up to the present time, it has remained the only treatise upon the subject in English, notwithstanding the great advances which have been made, particularly in the last ten years, with the aid of knowledge of the bacteria and the germs of certain diseases in water.

Unfortunately the interest in the subject was not maintained in America, but was allowed to lag for many years; it was cheaper to use the water in its raw state than it was to purify it; the people became indifferent to the danger of such use, and

the disastrous epidemics of cholera and typhoid fever, as well as of minor diseases, which so often resulted from the use of polluted water, were attributed to other causes. With increasing study and diffusion of knowledge the relations of water and disease are becoming better known, and the present state of things will not be allowed to continue; indeed at present there is inquiry at every hand as to the methods of improving waters.

The one unfortunate feature is the question of cost. Not that the cost of filtration is excessive or beyond the means of American communities; in point of fact, exactly the reverse is the case; but we have been so long accustomed to obtain drinking-water without expense other than pumping that any cost tending to improved quality seems excessive, thus affording a chance for the installation of inferior filters, which by failing to produce the promised results tend to bring the whole process into disrepute, since few people can distinguish between an adequate filtration and a poor substitute for it. It is undoubtedly true that improvements are made, and will continue to be made, in processes of filtration; so it will often be possible to reduce the expense of the process without decreasing the efficiency, but great care must be exercised in such cases to maintain the conditions really essential to success.

In the present volume I have endeavored to explain briefly the nature of filtration and the conditions which, in half a century of European practice, have been found essential for successful practice, with a view of stimulating interest in the subject, and of preventing the unfortunate and disappointing results which so easily result from the construction of inferior filters. The economies which may possibly result by the use of an inferior filtration are comparatively small, and it is believed that in those American cities where filtration is necessary or desirable it will be found best in every case to furnish filters of the best construction, fully able to do what is required of them with ease and certainty.

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