

Editorial

THE "GLAGSESTEN" THEORY IN THE STORAGE OF IMPURE WATER.

In investigations which he has long had under way, Dr. A. C. Houston, director of water examination to the Metropolitan Water Board, of London, Eng., has become convinced that storage of impure water is not only demonstratively a process making for safety, but that a most important influence is at work, *viz.*, the devitalization of the undesirable bacteria, owing to their finding water a most unsuitable medium for their sustained activity. In his recent report, a section of which enlarges upon the value of storage in water purification, cognizance is given of such factors as the influence of glass on bacteria, and the effect of agglutination, sedimentation, sticking and enshrouding processes. With due consideration for the opinions of other writers on the theory that these factors really have an influence, he gives to it, for the sake of brevity, the name "glagsesten." The property of glass by which it imparts certain constituents to water, although relatively insoluble, is taken into consideration in conjunction with the storage of water in reservoirs, experiments in the latter confirming laboratory results with the former. It is concluded that the same principle of gradual devitalization is at work in both cases, although, perhaps, with a difference in degree.

The agglutination or clumping together of bacteria is readily explained by the apparent loss of vitality under conditions of storage. "If," Dr. Houston remarks, "we compare stored water with unstored water, we find that the former contains far fewer excremental bacteria than the latter, and the results on the average are not appreciably affected by preliminary violent shaking of the samples with lead shot sand and a mixture of shot and sand. Still it might be maintained that the shaking operations were not sufficiently drastic to break up the clumps, and if this is true the only difference between drinking raw river water and the same water after storage in reservoirs may conceivably be, that in the former case we ingest separated bacilli, and in the latter case clumps or balls of bacilli."

The sedimentation is, of course, a great factor in the importance of storage, and its influence is frequently quite noticeable in even less than twenty-four hours. As for particles in suspension tending to stick to various materials, it was demonstrated that shaking operations with shot and sand failed to explain all the observed facts relating to the storage of the impure water, indicating that sedimentation in itself was not wholly accountable. It was remarked that if the bacteria stick so closely as to be undetachable when subjected to the above process there is good ground to believe that they will stick so long to the sides and bottoms of reservoirs as to lose their vitality and die.

Discussing the enshrouding process, Dr. Houston does not appear to lay much importance upon it in his report. If, however, the enshrouding during the physical and chemical changes which occur under conditions of storage is so complete as to resist all shot and sand shaking operations, and so manifold that when a suitable nutrient medium is introduced no growth takes place, there would appear to be some ground for believing that

ingestion of such a water would not be followed by any evil results.

The agglutination, sedimentation, sticking and enshrouding processes, concludes Dr. Houston, all make for the retention of pathogenic bacteria much longer in storage reservoirs than would otherwise be the case; so long, indeed, as perhaps to exceed the most extravagant estimate as to the length of time such microbes can live in water.

ENGINEERING ETHICS.

The Council of the Canadian Society of Civil Engineers has circulated among the members a ballot for the proposed amendment of several by-laws, to be considered at the next annual meeting of the Society. An important one among them is a proposed code of ethics, for adoption in place of the existing code. The regulations are as follows, and relate to every corporate member:—

(1) He shall act in all professional matters strictly in a fiduciary manner with regard to any clients whom he may advise and his charges to such clients shall constitute his only remuneration in connection with such work, except as provided by Clause 4.

(2) He shall not accept any trade commissions, discounts, allowances, or any indirect profit in connection with any work which he is engaged to design or superintend or with any professional business which may be entrusted to him.

(3) He shall not, while acting in a professional capacity, be at the same time, without disclosing the fact in writing to his clients, a director or member, or a shareholder in, or act as agent for, any contracting or manufacturing company or firm or business with which he may have occasion to deal on behalf of his clients or have any financial interest in such a business.

(4) He shall not receive directly or indirectly any royalty, gratuity or commission, on any patented or protected article or process used on work which he is carrying out for his clients, unless and until such royalty, gratuity or commission has been authorized in writing by those clients.

(5) He shall not improperly solicit professional work, either directly or by an agent nor shall he pay, by commission or otherwise, any person who may introduce clients to him.

(6) He shall not be the medium of payments made on his clients' behalf to any contractor or business firm (unless specially so requested by his clients) but shall only issue certificates or recommendations for payment by his clients.

Any alleged breach of these regulations or any alleged professional misconduct by a corporate member which may be brought before the Council, properly vouched for and supported by sufficient evidence, shall be investigated, and if proved, shall be dealt with by the Council, either by the expulsion of the offender from the Society or in such other manner as the Council may think fit.