

ed after cooking by touch, from the air, and by contact, while fruit is mostly removed from its peel or skin, and therefore from the greater part of its bacterial life. Useful bacteria can therefore have drinking water as a possible conveyer only.

It is not known what action harmless germs have on the human body, and the body's curative agents have power to combat the inroads of harmful bacteria, when their numbers are not too great. As the proportion of harmful bacteria to harmless is small, an efficient filter removing about 98% of the total bacteria count in drinking water can leave few, if any, pathogenic germs to play havoc with the consumer. Even the few which might escape will perform good work in providing exercise for the resistive forces of the body, and preventing their becoming defunct through disuse.

Potable waters in Canada after filtration are invariably treated by chlorine as an additional preventive, with the tendency to produce bacterial sterility. This has been brought about by the use of filters whose operation is not all that can be desired, and is a slur on the engineering profession generally, which may have very far-reaching consequences. There are filters which can be relied on, without the use of sterilizing agents, and the sooner engineers make use of them, or design others to perform first-class work, the sooner will doubtful practice be removed.

Any of the types of filters described can be made to give such results if they are not hampered by considerations of cutting down cost.

The greatest evil is facing modern times in resorting to practice of whose effect we are ignorant, when natural means of treatment will give a margin of certain safety.

As has been pointed out, water may be the only source of organisms necessary for the proper performance of bio-chemical functions in the body. The removal of these germs would make the functions of the body entirely chemical, a position which might lead to the destruction of the body's tissues until it could be adjusted to the new order of things.

Chlorination, sterilization by ozone, distillation, and other means of securing final sterilization, are being carried on at the present time in entire ignorance of all the uses of the body of those very properties which are being destroyed.

The whole tendency of modern therapeutics is towards prevention of disease by sanitation, or the use of antitoxines, or its retardation by small doses of reactionary drugs to stay the progress of the disease, until the recuperative powers can reassert themselves.

Why, then, should these very recuperative powers be weakened by extreme preventive measures?

A census of operative cases, such as appendicitis, in cities using chlorination, or other sterilization treatment, might produce interesting results. In cases of strangers succumbing to disease when in strange cities, a census might also be taken and consideration given as to whether their resistive powers had not been weakened by the water treatment in their home town.

Would it not be wise to withhold drastic treatment until the need for it has been scientifically demonstrated, and its effect on the body placed beyond doubt?

The importance of this point is too great to be neglected and affords excuse for the somewhat lengthy discussion of bacterial life at the beginning of this paper.

PROGRAMME OF AMERICAN GOOD ROADS CONGRESS, PHILADELPHIA.

Plans for the Fourth American Good Roads Congress, to be held under the auspices of the American Road Builders' Association in the First Regiment Armory, Philadelphia, Pa., are being worked out in detail by the Convention Committee and officials having the matter in charge.

The following outline of programme shows the subjects to be discussed at this convention:—

Subject A—Organization:

1. Highway Officials—Their Duties and Powers.
2. Division of Expense, of Responsibility and of Authority Between the Various Municipal and Other Units Participating in a Road or Street Improvement.
3. The Relation to Each Other of the Contractor, the Chief Engineer, the Resident Engineer and the Inspector.
4. Details of Arrangements for the Use of Convict Labor.

Subject B.—Construction:

1. The Proper Determination of the Amount of Re-alignment and of Grading to be Done.
2. The Factors Governing a Proper Selection of a Road or Street Pavement or Surfacing.
3. Materials and Methods Suitable for Road Surfaces.
4. Unit Price vs. Lump Sum Contracts.
5. Plant Equipment.
6. Preliminary Traffic Census.
7. Efficiency and Economy of Using One Size Crusher Run Stone Bituminous Concrete Pavements as a Substitute for Bituminous Pavements Constructed by Penetration Methods.
8. Dirt Roads.

Subject C—Maintenance:

1. Sub-organization for Securing Efficient Maintenance.
2. General Methods of Repairs and Renewals.
3. Methods of Dust Prevention.
4. Maintenance of Different Road Surfaces.

The general plan of providing for discussion of subjects, rather than long papers, which has been so successful in the past, will be adopted at this meeting. The speakers are being selected with reference to their fitness to discuss the various questions, and announcement of these assignments will shortly be made. The list of speakers will include the men who are recognized as the leading authorities in the United States and Canada.

In connection with the Congress and Convention, there will, as usual, be held an exhibition of road machinery, materials and appliances. This exhibition will be known as the Fifth Annual Good Roads Exhibition, and will include everything that enters into the construction, repair and maintenance of roads and pavements. This exhibition will also be held in the First Regiment Armory.

This association was the first to inaugurate these exhibitions and they have uniformly been successful, each having been larger and more complete than the one previous.