

MUNICIPAL DEPARTMENT

TO MUNICIPAL OFFICERS.

The CONTRACT RECORD is desirous of publishing, as far as possible, advance information regarding projected works of construction in all parts of Canada, such as sewerage and waterworks systems, railways, street pavements, public and private buildings, etc. Municipal officers would confer a favor upon the publisher by placing at our disposal particulars of such undertakings which are likely to be carried out in their vicinity, giving the name of the promoter, character of the work, and probable cost. Any information thus furnished will be greatly appreciated.

PURE WATER.

We have recently given various indications of the practical way in which German engineers look at things municipal, and we now give the results of their investigations relating to pure water. Of course, there is nothing new in stating that "pure water" is unwholesome; but the ordinary public must be made acquainted with the fact that "pure" drinking water is not "pure" in the chemical sense. Hence we pointedly direct attention to the following remarks from the *Kölnische Zeitung*:

That chemically pure water tastes insipid and nasty is a well-known fact, but few understand that its effect is actually injurious. Even the so-called "distilled water" of commerce destroys single-celled organisms, and in consequence of poverty in suspended matter it absorbs the salts from the tissues and cell partitions, causing inflammation, whereby the ability of the same to retain the soluble stuffs necessary to support life is lost. Water in a distilled form acts, therefore, as a protoplasmic poison. In the stomach it causes inflammation and consequent straining of the outer tissues, whereby these die, and consequently fall off. Besides nausea, this may give rise to vomiting until a pronounced symptom of the inflammation is indicated, although this does not necessarily exclude the possibility of beneficial results ultimately accruing from such process of local poisoning, since place may thereby be made for the formation of new and more vigorous tissue. It may be taken in general as proven, however, that the frequent rinsing of the stomach with distilled water is injurious, and for such purpose preference is now given to the so-called "physiological solution of common salt," or, as an alternative, water from a salt spring. Distilled water is, however, far from being chemically pure in the strict sense of the term, and by testing its electrical conductivity the actual degree of impurity may be precisely determined. According to the researches of Kohlrausch and Heydweiller,

absolutely pure water possesses a conductivity mathematically computed at 0.038 (relative figures are concerned here), while that of the purest water which science has hitherto succeeded in obtaining amounts to 0.0425. Such water can, however, only be produced with infinite care, and is then by no means preservable, mere contact with the air polluting it. Koeppe of Gieszen found well-preserved distilled water of commerce to possess a conductivity of 492; which figure may, indeed, be reduced by repeated distillation to about 100, and further through the medium of repeated freezings to 50. But such water only plays a role in the laboratory of the researcher; in practice it has no importance. The fact, however, that even the ordinary distilled water of commerce is undoubtedly attended with injurious effects led Koeppe to investigations as to whether waters existed in nature and found employment which by reason of their great purity were dangerous to health, and, indeed, the question must be answered in the affirmative. Nature produces by the process of freezing immense volumes of water which considerably excel in purity the distilled water of commerce. As Koeppe communicated through the medium of the *D. Med. Wochenschr.*, he obtained by the simple melting of natural ice, which had been supplied to him for the household refrigerator, water possessing the low conductivity of 80—thus a water not only exceeding in purity that obtained at the chemist, but even that of water prepared at much trouble in the laboratory by distillation. This unexpected result may be attributed solely to the slowness of natural freezing compared with the quick process pertaining where artificial production of ice is concerned; for artificially prepared ice which Koeppe tested for the sake of comparison yielded water possessing a conductivity of 1370, whilst the values relative to samples of water taken from three Gieszen springs varied from 3440 to 7010. The results obtained in the case of the ice water also threw a new light upon the experiences common to mountain expeditions relative to the drinking of snow or glacier water, or of water taken from the clear mountain brooks, against which practice all guides make it their custom to caution the unsuspecting tourists. Hitherto one has, indeed, scarcely thought the danger of such a drink could consist principally in its purity. But this conjecture gains in

probability if we compare the data relating to known investigations of such water. For instance, Waltenhofen tested the Gasteimer Ache and found its electrical conductivity to be 31.8; likewise that of a Gasteimer spring, which for ages past has been denominated "Poison Spring," and whose conductivity was determined at 31.9, both of which values fall considerably short of that of distilled water. The water of the so-called "Poison Spring" is, as a matter of fact, generally despised and regarded as harmful, although no chemical analysis has proved the presence therein of any one of the known poisons. Naturally Koeppe's investigations also suggest caution with regard to medical prescriptions of ice-pills, etc., the frequent injurious effect of which was formerly attributed to the fissure-fungus (*Spaltpilzgehalt*) common to natural ice. This exists, however, only on the surface, and if artificially-produced ice has already been given preference in many instances for ice draughts, the justification lies in all probability, not in greater, but just in its lesser purity, which gives it a closer resemblance to ordinary good drinking water. Just as with distilled water, so would the insipid taste betray too pure ice were it not depreciated through the coldness.—Contract Journal.

LEGAL DECISIONS AFFECTING MUNICIPALITIES.

Judgment by Mr. Justice Robertson in the High Court of Justice, Toronto, in the case of *Caldwell vs. the Town of Galt*, on motion to quash By-law No. 618 of the Town of Galt, which provided for the issue of debentures to the amount of \$10,000 and for levying the necessary rates for payment thereof. Held, that the municipality should be held to the strict requirements of the law, and they had not proceeded regularly by first exercising the power of expropriation by law, and then placing themselves in a position to expend the amount proposed to be raised by the issue of debentures. Order made quashing by-law with costs.

A paper entitled "Sand Filtration of Public Water Supplies" was presented by Mr. R. S. Lea before the Canadian Society of Civil Engineers, Montreal, on Thursday, January 19th. Mr. Lea gave numerous illustrations and diagrams, and treated the subject at great length.

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