

MUNICIPAL DEPARTMENT

PROGRESS OF MUNICIPAL ENGINEERING.*

By C. H. RUST.

Upon my election as president last year I had the honour to read a short address to the members, wherein I suggested the advisability of adopting the practice of a number of other engineering societies of having the president's address at the close of the year instead of at the commencement, but I had no idea the executive committee in my absence would place my name upon the programme for another address at this meeting, which signals the close of my term of office. Had I been present at the meeting of the executive when this subject was broached I would certainly have objected to inflicting another address upon the members of the Club. This evening I will attempt to give a short review of the progress made in a few branches of municipal engineering during the past decade.

Dealing first with the question of sewage disposal: Ten years ago, if purification of sewage were necessary, the system generally adopted was precipitation by chemical means. The number of chemicals that were used or advocated as precipitation

* Presidential address before the Engineers' Club of Toronto, Thursday, January 14, 1904.

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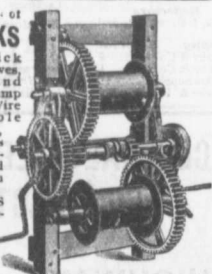
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agents were numerous, many of them on practical tests proving worthless. Others were abandoned on account of the expense, and after a number of experiments it was found that lime and sulphate of alumina were the most reliable and satisfactory. The process of precipitation removes from 50 to 60 per cent. of the organic matter, and while fairly satisfactory is objectionable on account of the large amount of sludge resulting, and the difficulty of disposing of the same. A number of cities at the present time are still using this method of disposal. The system of broad irrigation and intermittent downward filtration are satisfactory, providing a sufficient quantity of land of a suitable soil can be procured at a reasonable cost, and proper supervision is exercised, but in many cases, through carelessness and on account of placing more sewage upon the land than it could possibly dispose of, a nuisance has been created, and other means of treatment had to be adopted.

These methods of treatment have in some instances been superseded by septic tanks and contact beds, which has to some extent remedied the sludge nuisance. It is estimated, I believe, that the sludge produced after septic tank treatment is only one-seventh of that resulting from chemical precipitation. After tank treatment the effluent is passed on to contact beds, composed generally of cinders, although broken stone and gravel have been experimented upon with fairly good results, coke which was generally used having proved unsatisfactory. A number of towns and cities in England have been experimenting with this method of sewage disposal for a number of years and the

results have been, on the whole, satisfactory, so much so that Manchester has adopted this system, and the works are now under construction. The method of disposal in that town up to the present time has been precipitation by chemical means.

Two important points which have not yet been fully decided upon is the life-time of the beds and the annual cost of operation. I, however, think that in this country where suitable land can be obtained at a reasonable cost, septic tank treatment followed by after purification upon land will be found the most satisfactory method of disposal. I do not anticipate any difficulty owing to our severe climate. In England, in some cities, the sewage is placed upon the contact beds by means of a continuous revolving sprinkler, which has been found very satisfactory, but I do not think it would be possible to adopt this system during our winter months.

I need hardly point out to the members of the Club that in the operation of any sewage disposal works it is absolutely necessary, in order to ensure good results, that the works are placed in charge of experienced men, and that a chemist be employed to make frequent analyses of the effluent.

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