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SEWERAGE

Reviewed by R. O. Wynne-Roberts
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By *A. Prescott Folwell.* Published by John Wiley & Sons, Inc., New York; Canadian selling agents, Renouf Publishing Co., Montreal. Eighth edition, 462 pages text, 5¾ x 8¾ ins., cloth. Price, $3.00 net.

This book was first published about twenty years ago but has since passed through many revised editions. The aim throughout is to cover the fundamental principles and approved practices of both sewerage and sewage treatment, giving the latest development in each. Such is the statement contained in the preface to the eighth edition. It is well printed and contains 80 illustrations and 27 tables. The subject of sewerage is dealt with in 300 pages and sewage treatment in about 123 pages.

In connection with the definition of terms the writer agrees that "sanitary sewage" is an absurd misnomer. The American Society of Municipal Improvements has adopted the term "house sewage" and the author states that domestic sewage and industrial sewage are commonly combined for removal and called house sewage. On page 12, industrial sewage is shown to often contain pickling acids, grease, alkalis, dyes, and so on. It would appear more logical to apply the simple term "sewage" to liquid wastes from premises which are not industrial in character.

The chapter on storm sewage is interesting and instructing, inasmuch as the author deals with the subject in comprehensive manner, showing the rational method of arriving at the approximate quantity of rain water that may be estimated to reach the storm sewers. Many formulas have been devised by engineers to estimate the runoff, but they are not reliable, hence the development of what is called the rational method, which has been adopted by many of the leading engineers. Although the author has gone fully into this matter, the example given by him on pages 54-57 needs to be amplified, because certain assumptions or assertions are made without giving reasons for the same. With such amplifications the example of runoff calculation would be more easy of comprehension.

The question of combined versus separate sewers is discussed in a thorough manner. Having regard to the cost of the treatment of sewage and the cost of construction of the work, it is strange that the question of adopting the separate instead of the combined system has not been more extensively considered. There are, of course, many difficult problems involved in arriving at a decision in this connection and the author presents the case for the reader's attention.

It is not clear what "a" represents on page 157, and on page 164 the statement that "the demands of economical construction and the necessity for sufficient fall in house connections should not, however, be sacrificed to reduce velocities to less than 10 or 12 feet or increase them above 2½ feet which, however, should be the limit allowed," needs to be clarified.

Specifications and contract are dealt with in Chapter 10 and standard specifications, as adopted by the American Society of Municipal Improvements after two years' discussion, are given and occupy 39 pages.

Sewage disposal, which must be such that it will "lose permanently its power for evil," is discussed by the author in the last third of the book. Disposal by dilution, removal of suspended matter, oxidation methods and other forms of treatment are dealt with. The former ideas of disposal by dilution are gradually assuming different standards. The Chicago drainage canal, the New York sewage disposal problem, as well as other dilution disposal schemes, involve questions of immense importance and enormous expenditures, as the reports on contemplated improvements indicate. Certain rivers and waters have been seriously deteriorated in this manner and the authorities controlling the sanitation of waterways, as well as those contributing to the evil, are confronted with the problem of how best to ameliorate the conditions. This matter is fully discussed by the author. Dispersion and diffusion of sewage and the limit of deoxygenation of streams are most important factors in the disposal of sewage by dilution.

The removal of suspended matter by different methods is described. Screens, rough filters, tanks, chemical precipitation, and the activated sludge process are dealt with under this head. The oxidation methods include filtration and irrigation, although it would appear reasonable to place the activated sludge process in this category. The other treatment methods include disinfection, aeration of filters, electrolytic treatment, etc.

The activated sludge process has received but a limited consideration despite the fact that it is being applied in North America and in Britain on a practical scale, and with good results.

This volume is to be recommended as a valuable addition to a municipal engineer's library.

PORTS AND TERMINAL FACILITIES

Reviewed by Frederick W. Cowie
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By *Roy S. MacElwee,* Ph.D. Published by McGraw-Hill Book Co., Inc., New York. First edition, 1918. 315 pages, more than 117 illustrations, cloth, 6 x 9 ins.

This volume on ports and terminal facilities, by a lecturer in economics and foreign trade in one of the leading American universities, comes at an opportune moment. The last year has demonstrated in North America that although railroad design and construction in America has surpassed all competition, the ports and ocean terminals have been left to unco-ordinated effort and that in the present emergency of self-preservation they have woefully fallen down for lack, in the past, of study of the requirements and skill in design.

Grave fears may also be expressed that in the present imperative corrective effort by the greatest executive