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of dams on rock, on sand and on clay. A complete example of the method of calculation of a hollow reinforced concrete dam is also given. Expansion joints in dams and reinforced concrete retaining walls are also included in this chapter. Reference is also made to earth dams and hydraulic fill dams.

Chapter 8, on "Movable Crests for Dams," contains a good deal of information which is not available in the other books, and describes flash boards, automatic crest gates and their protection. Stoney roller gates, Stickney gate, automatic gates with rolling counterweight, Taintor gates and rolling dams.

Chapter 9, on "Headworks," refers to stop logs, log booms and the analysis of the forces acting upon them, trash racks, loss of head through racks, head-gates, head-gates hoists, and the Johnston valve.

In Chapter 10, on "Water Wheels," the author very wisely limits his discussion to the mixed flow reaction turbine and the curved-bucket impulse wheels which are the two kinds in use at the present time. The principal headings of this chapter are: The theory of the reaction turbine; unit quantities; relationship between speed, power, discharge and diameter; turbine characteristics; efficiency and size of wheels; wheel setting; details of turbine design; design of concrete scroll cases and draft tubes (two of the most valuable features in this chapter and due to Mr. A. G. Hillberg); the theory of the impulse wheel and details of its construction and regulation.

Chapter 11, "Speed regulation of Water Wheels and Abnormal Penstock Pressures," contains much information hitherto scattered in various publications. Its principal sections are: Speed regulation of water wheels; energy delivered by flywheels; the moment of inertia of generators; acceleration of moving column of water; effect of change in head on water wheels; time period of governor; water hammer; relief valves; surge tanks; computations for surge tanks; differential surge tanks; pipe vents; vent or air valves and water wheel governor.

The author's invitation to "criticisms from engineers who are new in the art," is probably responsible for this somewhat lengthy review of his book. In closing, the writer would like to say that, notwithstanding the few remarks made, this work compares most favorably with the half dozen or so of other American books on the same subject. The engineer engaged in the design of hydraulic plants proper, not including the design of the hydraulic machinery, will probably find Mr. Lyndon's book the most useful one yet published in English.

Practical Sanitation. By Dr. George Reid. Published by Charles Griffen & Co., London, Eng. 18th edition, revised. 356 pages, 5 x 7½ ins. Price 6d. (Reviewed by R. O. Wynne-Roberts, Toronto.)

The fact that this book has now reached its eighteenth edition is an indication of its value, for few books survive long enough to demand several editions. It has been written more particularly for the use of inspectors and those connected with sanitary inspection in Great Britain. The context deals with sanitation generally as it is considered in temperate climes. But there are many conditions in Canada which are peculiarly Canadian and the reader must bear this in mind when perusing the book. For example, houses are built differently in many respects, heating, ventilation or the absence thereof, drainage, insulation, and so on have to be provided in a different manner. Soil pipes are always placed outside the dwelling in temperate countries, but difficulties would ensue if that practice was observed here. Ventilation, especially

in the winter time, is a problem not always easy to solve, and consequently some of the methods advocated in this book will not be practicable. Water will no doubt improve in quality by prolonged storage. Dr. Houston, one of the eminent authorities on water purification, has the greatest confidence in this factor in the treatment of water. During the winter, however, the open reservoirs will be frozen over for many weeks and the effects of the sun and the atmosphere are greatly modified, and the bacteriological improvement will no doubt be slight. Sterilization is a common method of treating doubtful waters in North America, but in other countries it is not by any means so generally carried out. Slow sand filters are the standard types in temperate countries, but rapid sand filters are probably more largely adopted in these parts.

The quantity of water used and misused on the American continent is greatly in excess of that in Europe and the standards of practice in the distribution and waste detection are somewhat different. Few cities in other parts of the world resort to the general use of meters to conserve the water, whilst many cities in North America have adopted meters as a measure for preventing waste.

Natural ventilation of large buildings in Canada is hardly feasible; mechanical means of propelling and withdrawing the air have to be installed, and the air warmed, humidified, washed and cooled according to the season and circumstances. Fire places are virtually ornaments in these parts, excepting in few instances, and yet if the matter was properly investigated it would, no doubt, be found that suitable grates and fire places would be beneficial, comfortable and economical.

Plumbing work, as a rule, is under rigid control and inspection in the larger cities, and should be in all villages and towns, for the health and amenity of the people are matters of great importance to a community.

Dr. Reid refers to the aeration of sewage by mechanical means as being too costly, and further on deals with the activation process as being in an experimental stage. Having regard to the amount of investigation which has been made and to the works which are now in operation in England and America, it would appear that this subject has not received the fullest consideration.

When treating with infection and disinfection and food, Dr. Reid presents facts which are useful in all parts of the world, and as sanitation in its general principles is international in character, this book will be found useful to those interested in the subject.

Compressed air water supplies, testing of drains by compressed air under pressure exceeding one or two pounds, and the general principles of domestic lighting are not referred to. Water testing of drains is not uniform in character, especially when regard is paid to the plumbing in higher buildings and in winter weather, whereas compressed air under, say, 5 or 10 lbs. pressure would be not only uniform but available under almost all conditions. This volume contains numerous clear illustrations and is well got up.

Practical Oil Geology.—By Dorsey Hager. Published by the McGraw-Hill Book Co., Inc., New York. Second edition, 1916. 187 pages, illustrated, 5 x 7½ ins., leather. Price, \$2.00 net. (Reviewed by J. B. Tyrrell, mining engineer, Toronto.)

The dedication is "To the Practical Oil Man of America, with the hope that the book will bring him to a better understanding of the relation of the Geologist to the Petroleum Industry." Part of its usefulness is here