STUDIES IN THE CONSTRUCTION OF DAMS: EARTHEN AND MASONRY

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IN

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ARRANGED ON THE PRINCIPLE OF QUESTION AND ANSWER FOR ENGINEERING STUDENTS AND OTHERS.

BY

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WITH THIRTY DIAGRAMS.

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PREFACE.

THIS little book is intended to be of assistance to Engineering Students who may be preparing for the "Associate Membership" Examination of the Institution of Civil Engineers, the Examination of the Institution of Municipal and County Engineers, the B.Sc. (Engineering) of our Universities, or other similar Exams. The text takes the "Question" and "Answer" form, which has been found by experience to be a most useful method of disciplining the mind of the Student to grasp essential teaching and at the same time learn how to express his knowledge. The matter is dealt with in a manner suited to fundamental principles, and the numerous diagrams form an integral part of the studies.

E. R. MATTHEWS.

UNIVERSITY COLLEGE,
UNIVERSITY OF LONDON,
March, 1919.

SYMBOLS AND ABBREVIATIONS.

The following nomenclature is employed throughout this work :—

τ = weight in lbs. of a cubic foot of water (62·5), or in cwts. (0·557).

τ' = weight in lbs. of a cubic foot of mud, 85.

Δ_τ = weight in lbs. of a cubic foot of masonry.

H = head of water in feet.

h_1 = head of water above the liquid mud level.

h_2 = head of liquid mud.

φ = the angle that the water-face of the dam makes with the vertical.

E_τ = thrust of earth back fill in lbs.

δ = angle that E_τ makes with horizontal.

β = angle R makes with the vertical.

f = the co-efficient of friction for masonry on masonry (usually 0·6 to 0·75).

$P = \frac{\tau H^2}{2}$ = the horizontal static thrust of the water in lbs.

$W = A\Delta_\tau$ = the total weight in lbs. or cwts. of masonry in a 1-foot length of the wall.

R = the resultant of P and W.