

**STUDIES IN THE  
CONSTRUCTION  
OF DAMS:  
EARTHEN AND MASONRY**

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Studies in the Construction of Dams: Earthen and Masonry by E. R. Matthews

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**E. R. MATTHEWS**

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STUDIES  
IN  
THE CONSTRUCTION OF DAMS:  
EARTHEN AND MASONRY.

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

BY

PROFESSOR E. R. MATTHEWS,  
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## PREFACE.

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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.

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The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author outlines the various methods used to collect and analyze the data. This includes both primary and secondary data collection techniques. The primary data was gathered through direct observation and interviews, while secondary data was obtained from existing reports and databases.

The third section details the statistical analysis performed on the collected data. This involves the use of descriptive statistics to summarize the data and inferential statistics to test hypotheses. The results of these analyses are presented in a clear and concise manner, highlighting the key findings of the study.

Finally, the document concludes with a summary of the findings and their implications. It discusses the limitations of the study and suggests areas for future research. The overall goal is to provide a comprehensive overview of the research process and its results.



## SYMBOLS AND ABBREVIATIONS.

The following nomenclature is employed throughout this work :—

- $\tau$  = weight in lbs. of a cubic foot of water (62.5), or in cwts. (0.557).  
 $\tau'$  = weight in lbs. of a cubic foot of mud, 85.  
 $\Delta\tau$  = weight in lbs. of a cubic foot of masonry.  
 $H$  = head of water in feet.  
 $A_1$  = head of water above the liquid mud level.  
 $h_2$  = head of liquid mud.  
 $\phi$  = the angle that the water-face of the dam makes with the vertical.  
 $E_r$  = thrust of earth back fill in lbs.  
 $\delta$  = angle that  $E_r$  makes with horizontal.  
 $\beta$  = 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  $W$ .

