

**A MANUAL OF CEMENT  
TESTING: FOR THE USE OF  
ENGINEERS AND CHEMISTS IN  
COLLEGES AND IN THE FIELD**

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A Manual of Cement Testing: For the Use of Engineers and Chemists in Colleges and in the Field by William Allyn Richards & Henry Briggs North

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**WILLIAM ALLYN RICHARDS & HENRY BRIGGS NORTH**

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A MANUAL OF  
CEMENT TESTING

FOR THE USE OF ENGINEERS  
AND CHEMISTS IN COLLEGES  
AND IN THE FIELD

BY

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ILLUSTRATED

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## PREFACE.

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IN order to insure uniformity of results in the testing of cement, it is essential that each test should invariably be made in precisely the same manner and under exactly the same conditions. A committee of the American Society of Civil Engineers has, with this aim in view, prepared and published a set of Standard Methods of Testing Cement, and these methods are to-day employed throughout the United States.

This little volume, as its name implies, is a laboratory manual on cement testing, and is intended to assist in bringing about uniformity in the testing of cement. The authors have endeavored to present, in a somewhat condensed form, such directions as will enable a student in the laboratory or an operator in the field office to correctly interpret the Standard Methods of Testing and Specifications for Cement as published by the committee of the American Society of Civil Engineers, American Society for Testing Materials, Association of American Portland Cement Manufacturers, and the American Railway Engineers and Maintenance of Way Association; they have endeavored to give sufficient detail to enable all students to learn the same manipulations and thus be able to perform each test in a certain well defined and similar manner.

All of the tests described have been performed in the laboratory under the eyes of the writers and have been found to produce uniformly good results.

Acknowledgment has been made to various authorities on the subject by special mention or as references at the end of the several chapters.

Any corrections or suggestions will be gratefully received.

W. A. R.

H. B. N.

*June 15th, 1912.*

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