Preface to the First Edition

Since the publication of Modern Underpinning in 1917, the general methods of doing underpinning work have changed but little. The technique, however, has been revolutionized and the scope of the underpinning field has vastly increased, and has assumed an importance then unsuspected, partly because of its intimate connection with new foundation methods. In addition, much advance has been made in the science of soil mechanics. The old book has been out of print and out of date for many years, and a new one on the subject has appeared necessary.

For several years the authors have felt that they owed to the profession the duty of preparing a new book and through this period of time have been gathering data with this volume in mind. This work was facilitated by the fact that, fortunately, their company (Spencer, White and Prentis) and its affiliated companies have been very actively engaged in the construction field, particularly in subway construction, foundation and underpinning work, and their staffs have coöperated in every way. Where a particular advance has been made, careful records and drawings have been prepared for the purpose of illustration. In this way a large amount of original material has been gathered by the authors for use here, scarcely any from the old volume being used. Unless otherwise noted, all the material is their own.

Some of the methods, appliances, and machinery described are the result of a great deal of experimental work by the authors themselves and by the staffs of their companies, involving a considerable expenditure of time and money. They
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might be considered trade secrets, although some are covered by patents. Nevertheless they are published here—even at the risk of losing the trade advantage of methods known only to the authors—one compensation to them being the feeling that they have perhaps benefited the profession to which they owe so much.

They have also kept abreast of the recent developments in the science of foundations, and have gathered much material on the subject, both from their own and from outside sources. They have also had some part, through experiments conducted by themselves, and otherwise, in adding to the store of information on this subject. Particularly have they been fortunate in their friendship and association with Dr. Karl Terzaghi, whose work in this line is outstanding. Much of the material in Chapter VII has been taken from his work and, more important, his has been the guiding spirit. This chapter was a difficult one, as the science of foundations is still in the formative period. It is felt that the present knowledge of soil mechanics, however imperfect, is a great aid in understanding how foundations act, and is a great help in avoiding many of the mistakes made in the past. Even though it is likely that within the next few years the theories advanced here will seem crude, yet the authors feel that their publication, if it helps engineers to choose better and safer foundations, will have been justified. They feel further that engineers are often suddenly confronted with the problem of a structure on insecure or too shallow foundations, or of adapting old foundations to a new purpose. To aid them they have gathered together in this volume many examples of different kinds of underpinning and have given details of methods and apparatus with the hope of helping them in their problems.

EDMUND ASTLEY PRENTIS
LAZARUS WHITE

New York
June 1, 1931