

**ELEMENTS OF PLANE
SURVEYING
(INCLUDING LEVELING)**

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Elements of Plane Surveying (Including Leveling) by Samuel Marx Barton

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SAMUEL MARX BARTON

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(INCLUDING LEVELING)

BY

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PREFACE

THE primary object of this work is to give a brief treatise on Plane Surveying, adapted for a short course in colleges, or as a preparatory course in technological institutions. It has been the aim of the author to make clear points that, in his fifteen years' experience, both in the class-room and the field, he has found troublesome to beginners.

In dealing with fundamental principles and operations he has endeavored to answer "simple questions that confound." In carrying this idea out, he has put into the book a few things that he has looked for in vain in existing text-books. The work is brief, and yet is not an outline for a lecture course. On the contrary, it is a book that might be studied privately, or be used by a teacher of but little practical experience. While the work is intended primarily as a text, in its preparation the author has kept in view the possibility of its falling into the hands of county surveyors who may not have had the advantages of a collegiate course.

While the work is elementary, it is believed that it will be found to be scientific, and that the user of the book will not learn anything that he will have to unlearn in more advanced study of surveying or engineering.

Especial attention is called to the following points:

1. Careful description of instruments and their adjustments.
2. The explicit statement of the methods of making a re-survey, in accordance with the different data to be had.
3. The discussion of the declination of the needle, and the excellent isogonic chart at the beginning of the book.
4. The simple methods of obtaining a true meridian line.
5. Suggestive forms for field notes and for purposes of reduction.
6. Many illustrative examples.
7. The clear and complete set of tables.

As the advantages of stadia work are becoming more and more recognized, the fundamental proofs of the theory are given together

Rec'd. 12-2-09

with forms for the field notes. In the closing chapter plane leveling is treated in a manner and scope sufficient, it is thought, for the needs of the general surveyor.

In the preparation of the book the standard American works have been consulted.

The author takes this opportunity of thanking Professor Webster Wells for his courtesy in allowing him to reproduce his excellent six-place logarithmic tables and his table of the natural trigonometric functions, which are given here as Tables XVII, XVIII, and XIX, respectively. He acknowledges his indebtedness to the U. S. Coast and Geodetic Survey for courtesies extended through Superintendent O. H. Tittman.

He desires also to acknowledge his indebtedness to the following instrument-makers for use of their cuts or diagrams: Messrs. W. & L. E. Gurley, Troy, N.Y.; George N. Saegmuller, Washington, D.C.; Young & Sons, Philadelphia; Brown & Sharpe Mfg. Co., Providence, R. I.; and Eugene Dietzgen Co., Chicago.

SAMUEL M. BARTON.

REVISED EDITION

IN making this revision, the Tables giving the position of Polaris, etc., have been brought up to date; some minor changes have been made in the chapter on the Declination of the Needle; and a new isogonic map, compiled for the year 1910, has been put in the place of one for an earlier date. To make the matter on adjustments somewhat clearer and more in accordance with practice, two new pages have been added.

The author takes this opportunity to thank Professor B. L. Coulson for helpful suggestions.

S. M. B.

SEWANEE, TENNESSEE,
May, 1913.

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