



# SURVEYING

## VOL. II



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# **SURVEYING**

## **(VOLUME II)**



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## SURVEYING—II

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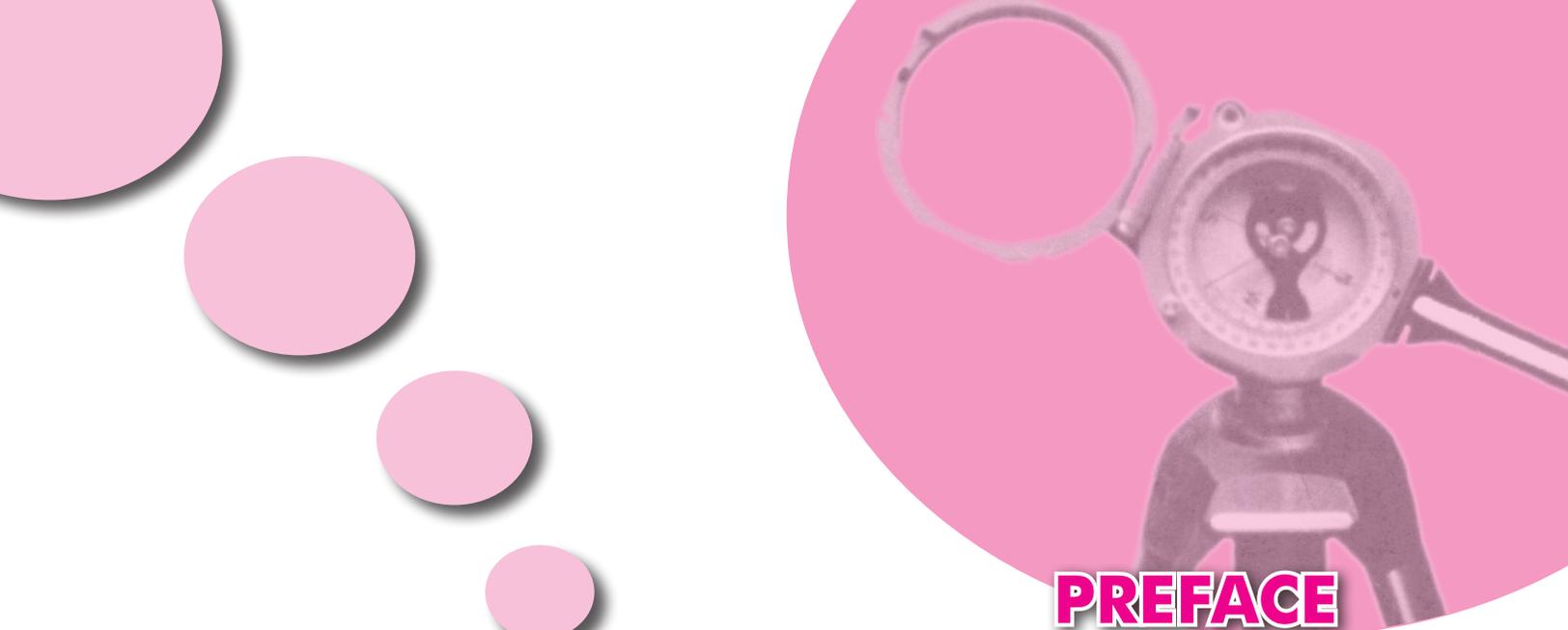
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**TO MY FATHER**



A decorative graphic at the top of the page features several pink circles of varying sizes on the left side. On the right side, there is a large pink circular area containing a detailed illustration of a surveying instrument, specifically a theodolite or tacheometer, mounted on a tripod. The word "PREFACE" is written in a bold, pink, sans-serif font across the bottom of this circular area.

## PREFACE

This volume is in continuation with Volume I, and deals with advanced topics of plane and geodetic surveying. The book covers, in six chapters, the syllabi of second paper in surveying for Degree, Diploma and A.M.I.E. examinations. The book is mainly written in metric units and wherever possible, formulae have been developed in the M.K.S. Units. A number of solved examples have been included to illustrate the theory. Few examples in F.P.S. system have also been given.

In the first chapter on tacheometric surveying, the effect of various errors on the different systems of tacheometry have been discussed thoroughly. Special emphasis has been laid on the design of anallactic tacheometer. In the second chapter on curve surveying, all the formulae are given in metric units. However, formulae in F.P.S. system have also been given side by side for comparison. Special problems on curve design and its realignment have been included along with the illustrative examples. The third chapter on trigonometrical levelling deals separately the problems of heights and distances, and of geodetic observations. The fourth chapter deals with elements of triangulation, and for detailed study the reader is advised to refer to any standard work on the subject. The modern instruments have, however, been illustrated in detail. Fifth and Sixth chapters briefly discuss the more common operations of hydrographic and mine surveying (underground surveys) respectively.

I shall like to express my thanks to M/s Vickers Instruments Ltd. (successors to M/s Cooke, Troughton & Simm's) M/s Wild Heerbrugg Ltd., M/s Hilger and Watts Ltd. and M/s W.F. Stanley Co. Ltd. for permitting me to use certain illustrations from their catalogues or providing special photographs. My thanks are also due to various Universities and examining bodies of professional institutions for permitting me to reproduce some of the questions from their examination papers.

This is the first Indian text-book on surveying in metric units. In spite of every care taken to check the contents of the various formulae in metric units, and the numerical work, some errors may remain, and I shall be obliged for any intimation of these which readers may discover.

JODHPUR

**B.C. PUNMIA**

15th August, 1966

### **PREFACE TO THE SECOND EDITION**

In this edition, the subject-matter has been revised thoroughly and the chapters have been rearranged. Three new chapters have been added : Chapter 7 on *Survey Adjustments and Theory of Errors*, Chapter 8 on *Topographic Surveying* and Chapter 9 on *Route Surveying*. Detailed *Stadia Tables* have also been added in the Appendix. Account has been taken throughout of suggestions offered by the many users of the book and grateful acknowledgement is made to them. Further suggestions will be greatly appreciated.

JODHPUR  
August 15, 1970

**B.C. PUNMIA**

### **PREFACE TO THE THIRD EDITION**

In the Third Edition, subject-matter has been updated. New articles on 'Tides Prediction' and 'Mean Sea Level as Datum' has been added to the chapter on Hydrographic Surveying.

JODHPUR  
May 15, 1975

**B.C. PUNMIA**

### **PREFACE TO THE FOURTH EDITION**

In the Fourth Edition of the book, the subject-matter has been thoroughly revised and enlarged. In the first chapter, an article has been added on *Electronic Tacheometers*. An Appendix on *Measurement of Distance by Electronic Methods* has also been added.

JODHPUR  
October 15, 1977

**B.C. PUNMIA**

### **PREFACE TO THE FIFTH EDITION**

In the Fifth Edition of the book, the subject-matter has been thoroughly revised and updated.

JODHPUR  
Nov. 15, 1979

**B.C. PUNMIA**

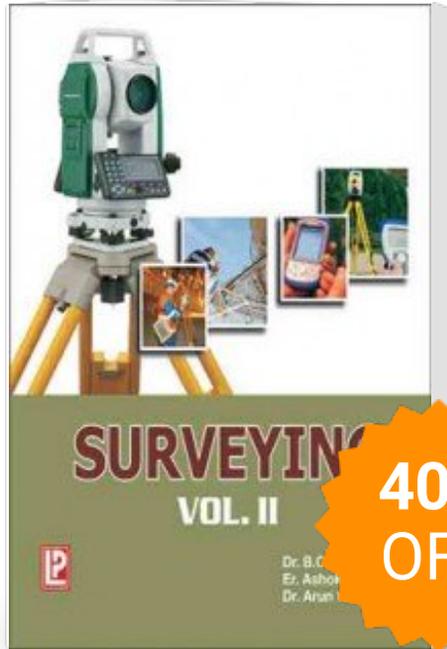
### **PREFACE TO THE SIXTH EDITION**

In the Sixth Edition of the book, the subject-matter has been thoroughly revised and updated.

JODHPUR  
MAHAVEER JAYANTI  
17th April, 1981

**B.C. PUNMIA**

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