CONTENTS TO VOLUME ONE

PREFACE TO THE DOVER EDITION	v
PREFACE TO THE FIRST EDITION	vii
TABLES IN VOLUME ONE	xiii
SYMBOLS AND ABBREVIATIONS	xv
CHAPTER I	
Introduction	1
CHAPTER II	
Crystallography	9
CHAPTER III	
Crystal Elasticity	39
Introduction—Primary and Secondary Effects—Thermodynamic Potentials—Stresses and Strains—Tables for the Nine Groups—Poisson's Ratio—Flexure—Torsion—Compressibility—Adiabatic Constants.	
CHAPTER IV	
Rotated Axes and Transformation of Elastic Constants	65
Transformation of Components of Strain and Stress—General Equations—Specialization for Certain Groups—Terminology for Crystal Cuts—Notation for Orientation of Transformed Axes—References.	
CHAPTER V	
Vibrations of Crystals	84
Introduction—Normal Modes—Longitudinal Vibrations of Rods—Equivalent System with Single Degree of Freedom—Harmonics—Forces Applied Locally—Effect of Cross Section—Thickness Vibrations of Plates—Conservation of Angular Momentum—Comparison of Wave Velocities for Various Types of Vibration—Flexural Vibrations—Torsional Vibrations—References.	
CHAPTER VI DOSSODES -	
Elastic Constants of Crystals	116
Experimental Methods—Data for Rochelle Salt, Quartz, Tourmaline, and Other Crystals—Effects of Stress and Temperature. CHAPTER VII	
Dielectric Properties of Crystals	160
Basic Equations, and Application to Crystals—Rotated Axes—Air Gap and Surface Impurities—Molecular Nature of Polarization—Dissipation of Energy—References.	

CHAPTER VIII	PAGE
Principles of Piezoelectricity	177
Introduction—Fundamental Equations—Piezoelectric Classes—Rotated Axes—Electrostriction—References.	
CHAPTER IX THE TRANSPORT THE TRANSPORT HERE	
Special Piezoelectric Properties of Certain Crystals	200
Specialized Formulas for Rotated Axes—Values of the Piezoelectric Constants of Various Crystals—Qualitative Data on Miscellaneous Crystals—Electrets—References.	200
CHAPTER X	
Production and Measurement of Piezoelectric Effects	236
Orientation and Electrodes—Compression, Shear, Flexure, and Torsion—Measurement of Piezoelectric Constants—Qualitative Tests.	(Ingel
CHAPTER XI	
Alternative Formulations of Piezoelectric Theory	245
Thermodynamic Equations—Polarization, Displacement, and Molecular-field Theories—Equations of the Polarization Theory—Comparison with Voigt's Theory.	
CHAPTER XII	
Secondary Piezoelectric Effects	260
Correlation between Elastic and Dielectric Phenomena—Free and Clamped States—Piezoelectric Contribution to the Dielectric and Elastic Constants—Illustrations of Piezoelectric Reactions—Numerical Examples—Piezoelectric Reaction on Elastic Cycles.	
CHAPTER XIII	
The Piezoelectric Resonator	284
Introduction—Theory of Lengthwise and Thickness Vibrations—Equivalent Electric Constants—Effect of Gap—Overtone Frequencies—Procedure for Deriving Elastic Constants—Effects of Vibrations on X-ray Reflections—References.	
CHAPTER XIV	
The Electrical Equivalent of the Piezo Resonator	333
Introduction—Resonance Circle—Critical Frequencies—Effects of Gap—Resonance Curves—Insertion of Other Circuit Elements—Circle for Motional Admittance.	Elm
CHAPTER XV	
The Dynamic Measurement of Piezoelectric and Equivalent Electric Constants	384
Qualitative Tests—Methods of Quantitative Measurement—Reduction of Observations—References.	
AUTHOR INDEX	i
Subject Index	ix