CHAPTER II

ELASTIC WAVES IN ANISOTROPIC MEDIA by M. J. P. Musgrave

1.	INTRODUCTION	63								
GENERAL EXPOSITION										
2.	GENERALIZED RELATION BETWEEN STRESS AND STRAIN	64								
3.	The equations of motion and plane waves	66								
4.	VELOCITY AND SLOWNESS SURFACES	67								
5.	WAVE SURFACE	68								
6.	$\operatorname{correspondences}$ between the slowness and wave surfaces .	69								
7.	DECAY FUNCTION	70								
8.	REFLECTION AND REFRACTION OF PLANE WAVES AT A PLANE BOUNDARY	72								
9.	SURFACE WAVES	73								
10.	NON-HOOKEAN QUASI-ELASTIC MEDIA	74								
11.	ABSORPTIVE MEDIA	75								
12.	HEXAGONAL MEDIA	77								
13.	CONICAL REFRACTION	82								
14.	SURFACE WAVES - PARTICULAR CASES	83								
REI	FERENCES	84								

CHAPTER III

ELASTIC INCLUSIONS AND INHOMOGENEITIES by J. D. Eshelby

1.	INTRODUCTION	į
2.	THE GENERAL TRANSFORMED INCLUSION	
	2.1 The elastic field 91 2.2 Energy relations 98	
3.	THE ELLIPSOIDAL INCLUSION	
	3.1 The elastic field	
	3.2 The inhomogeneous inclusion \ldots \ldots \ldots \ldots \ldots \ldots 110	,
4.	THE ELLIPSOIDAL INHOMOGENEITY	2
	4.1 The elastic field	
	4.2 Energy relations)
5.	RELATION TO THE THEORY OF DISLOCATIONS)
6.	APPLICATIONS	5
REI	$Ferences \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots $)

CHAPTER IV

PLASTIC WAVES

by J. W. Craggs

1.	INTRODUCTION \ldots \ldots \ldots \ldots \ldots 143					
2.	equations of plasticity					
	2.1Elasticity1452.2Stress-strain curves for metals1462.3Yield surface1472.4Stress-strain relations in the plastic zone1482.5Hardening and perfect plasticity1492.6Unloading1502.7Influence of hydrostatic stress1502.8Rate of strain effects1512.9Standard plastic models151					
3.	WAVES OF UNIAXIAL STRESS					
	3.1Lagrangian method for longitudinal, loading waves1533.2General solutions for waves without unloading1553.3Longitudinal waves with unloading1583.4Shock waves1583.5Examples1603.6Transverse waves in flexible strings1623.7Use of Eulerian coordinates1643.8Validity of the approximation of uniaxial stress165					
4.	propagation of plane waves					
	4.1 Uniaxial strain 166 4.2 General plane wave 168					
5.	SPHERICAL AND CYLINDRICAL WAVES					
	5.1 Spherical waves 173 5.2 Cylindrical waves 175					
6.	bending of beams					
	6.1 Basic equations1776.2 Solutions with dynamic similarity1776.3 Rigid-plastic solutions180					
7.	plates and shells					
	7.1Axially symmetric, co-planar deformation of a plate1817.2Transverse deflection of a thin plate1867.3Deformation of a thick plate1877.4Cylindrical shells189					
8.	EXPERIMENTAL METHODS					
	8.1Measurement of uniaxial strain1928.2Use of waves of plastic strain superimposed on an existing strain1938.3Surface waves1948.4Other experiments194					
NOTATION						
RE	Ferences					

CHAPTER V

THE MEASUREMENT OF DYNAMIC ELASTIC PROPERTIES by K. W. Hillier

1.	INTRODUCTION	01
2.	RESONANCE METHODS	03 05
3.	wave propagation methods 2 3.1 Continuous wave propagation 2 3.2 Pulse propagation methods 2 3.3 Large amplitude pulse methods 2	19
	DIRECT STRESS-STRAIN MEASUREMENTS	34
	conclusions .	

CHAPTER VI

DISCONTINUITY RELATIONS IN MECHANICS OF SOLIDS by R. Hill

1.	INTRODUCTION	247
2.	HADAMARD'S COMPATIBILITY RELATIONS	248 248 250
3.	EXTENDED COMPATIBILITY RELATIONS	252 253 254
4.	KINEMATIC RELATIONS	256
5.	STRESS-RATE DISCONTINUITY	260 261 263
6.	DISCONTINUITIES IN CLASSICAL ELASTIC SOLIDS	266 266 269 270
7.	DISCONTINUITIES IN RIGID/PLASTIC SOLIDS7.1Velocity jumps7.2Stress jump (traction continuous)7.3Strain-rate jump (stress and velocity continuous)7.4Stress gradient jump (stress, velocity, and strain-rate continuous)	271 271 273 274 275
REI	FERENCES	276

,

CHAPTER VII

THE STABILITY OF ELASTIC-PLASTIC STRUCTURES by M. R. Horne

I. GENERAL PRINCIPLES

1.	THE CONDITIONS FOR ANY THEORETICAL STATE	279
2.	THE PROBLEM OF UNIQUENESS	280
3.	THE STABILITY CONDITION	283
4.	DYNAMIC INSTABILITY	284
	THE BIFURCATION OF EQUILIBRIUM, AND THE TANGENT AND REDUCED MODULUS LOADS	285

II. METHODS OF ANALYSIS

6.	INTRODUCTION	288								
7.	AIDS TO THE ANALYSIS OF ELASTIC STRUCTURES	289								
8.	THE EQUILIBRIUM AND COMPATIBILITY CONDITIONS	292								
9.	THE STABILITY CONDITION FOR ELASTIC STRUCTURES	294								
10.	THE STABILITY CONDITION FOR INELASTIC STRUCTURES	298								
11.	. USE OF THE VIRTUAL WORK EQUATION TO ESTABLISH STABILITY CON- DITIONS									
III. REVIEW OF SOLUTIONS OF THE STABILITY PROBLEM										
FOR ELASTIC-PLASTIC STRUCTURES										
12.	INTRODUCTION	303								
13.	3. THE FIRST YIELD LOAD, THE ELASTIC CRITICAL LOAD AND THE RIGID- PLASTIC COLLAPSE LOAD OF A STRUCTURE									

13.	THE FIRST YIELD I PLASTIC COLLAPSE								5
14.	THE IDEALISED LOADS								9
15.	THE CONCEPT OF D	ETERI	ORATEI	CRITI	CAL LOAI	DS		313	3
16.	THE LAST HINGE M	ETHOD	FOR E	STIMAT	ING FAII	URE LOAD	s	317	7
17.	SOLUTION OF ELAS	TIC-PL	ASTIC S	TRUCT	URES BY	DIGITAL	COMPUTER	319)
18.	CONCLUSIONS							320)
REF	ERENCES							321	1
AU	THOR INDEX .							323	3
SU	BJECT INDEX.							328	3