

Table of Contents

Biographical Data	ix
Preface	xi
Foreword by D. M. Barnett	xvii
Foreword by B. Bilby	xxv
Foreword by A. Seeger	xxix
Foreword by J. R. Willis	xxxiii
Full List of J.D. Eshelby's Publications and Acknowledgements	xxxv

Collected Works of J. D. Eshelby

#1 Dislocations as a Cause of Mechanical Damping in Metals	3
#2 Uniformly Moving Dislocations	25
#3 Edge Dislocations in Anisotropic Materials	33
#4 The Fundamental Physics of Heat Conduction	43
#5 The Equilibrium of Linear Arrays of Dislocations	47
#6 The Force on an Elastic Singularity	61
#7 Dislocations in Thin Plates	87
#8 Anisotropic Elasticity with Applications to Dislocation Theory	93
#9 Screw Dislocations in Thin Rods	103
#10 The Equation of Motion of a Dislocation	107
#11 A Tentative Theory of Metallic Whisker Growth	115
#12 Geometrical and Apparent X-Ray Expansions of a Crystal Containing Lattice Defects	117
#13 Distortion of a Crystal by Point Imperfections	119

#14 The Elastic Interaction of Point Defects	127
#15 Note on the Heating Effect of Moving Dislocations	131
#16 Supersonic Dislocations and Dislocations in Dispersive Media	135
#17 The Continuum Theory of Lattice Defects	143
#18 The Determination of the Elastic Field of an Ellipsoidal Inclusion, and Related Problems	209
#19 A Note on the Gomer Effect. Discussion to “Some observations on field emission from mercury whiskers” by R. Gomer (1958)	231
#20 Charged Dislocations and the Strength of Ionic Crystals	235
#21 The Twist in a Crystal Whisker Containing a Dislocation	251
#22 The Elastic Model of Lattice Defects	259
#23 Stress Induced Ordering and Strain-Ageing in Low Carbon Steels	265
#24 Scope and Limitations of the Continuum Approach	269
#25 The Elastic Field Outside an Ellipsoidal Inclusion	287
#26 Elastic Inclusions and Inhomogeneities	297
#27 Dislocations in Visco-Elastic Materials	351
#28 The Interaction of Kinks and Elastic Waves	363
#29 The Energy and Line Tension of a Dislocation in a Hexagonal Crystal	389
#30 The Distortion and Electrification of Plates and Rods by Dislocations	397
#31 The Distribution of Dislocations in an Elliptical Glide Zone	405
#32 On the Elastic Interactions between Inclusions	409
#33 A Simple Derivation of the Elastic Field of an Edge Dislocation	413
#34 The Velocity of a Wave along a Dislocation	419
#35 The Interpretation of Terminating Dislocations	429
#36 Stress Analysis: Theory of Elasticity	435
#37 Stress Analysis: Fracture Mechanics	453
#38 The Flow of Energy into the Tip of a Moving Crack	473
#39 Dislocations and the Theory of Fracture	479

#40 The Elastic Field of a Crack Extending Non-Uniformly under General Anti-Plane Loading	563
#41 Axisymmetric Stress Field around Spheroidal Inclusions and Cavities in a Transversely Isotropic Material	587
#42 The Starting of a Crack	589
#43 Energy Relations and the Energy-Momentum Tensor in Continuum Mechanics	603
#44 The Fracture Mechanics of Flint-Knapping and Allied Processes	643
#45 Fracture Mechanics	657
#46 Dislocation Theory for Geophysical Applications	677
#47 The Calculation of Energy Release Rates	685
#48 Point Defects	701
#49 The Change of Shape of a Viscous Ellipsoidal Region Embedded in a Slowly Deforming Matrix Having a Different Viscosity	743
#50 The Elastic Energy-Momentum Tensor	753
#51 The Change of Shape of a Viscous Ellipsoidal Region Embedded in a Slowly Deforming Matrix Having a Different Viscosity – Some Comments on a Discussion by N. C. Gay	769
#52 Interaction and Diffusion of Point Defects	771
#53 Boundary Problems	779
#54 The Force on a Disclination in a Liquid Crystal	835
#55 The Energy-Momentum Tensor of Complex Continua	845
#56 Aspects of the Theory of Dislocations	861
#57 The Stresses on and in a Thin Inextensible Fibre in a Stretched Elastic Medium	903
#58 Lectures on the Elastic Energy-Momentum Tensor (Brown University, 1977)	907