CONTENTS

Foreword, *by Louis N. Ridenour* v

Preface, *by Rolf K. M. Landshoff* vii

List of Notations x

SECTION 1 **THEORETICAL WORK**

An Introductory Discussion of Magnetohydrodynamics
A. R. Kantrowitz and H. E. Petschek 3

Some Dimensional Aspects of Hydromagnetic Phenomena
W. M. Elsasser 16

The Build-Up of Large Magnetic Fields Inside Stars
F. Hoyle 29

Penetration of a Shock Wave into a Magnetic Field
J. M. Burgers 36

Dynamics of a Pinched Gas
M. Rosenbluth 57

SECTION 2 **LABORATORY EXPERIMENTS**

Scaling Laws as an Aid to Experimental Studies
R. K. M. Landshoff 69

Magnetically Driven Shock Waves 74

Experiments at U.S. Naval Research Laboratory
A. C. Kolb 76

Experiments at Lockheed Missile Systems Division
S. W. Kash 92

Experiments at AVCO
H. E. Petschek 99

Shock Waves Passing Through a Magnetic Field Region
A. Kantrowitz 101

Liquid Sodium Instability Experiment
S. A. Colgate 104

The Hydromagnetic Wave Guide
W. A. Newcomb 109