

THEORY OF ELASTIC HEAD WAVE PROPAGATION  
ALONG A PLANE INTERFACE SEPARATING  
TWO SOLID MEDIA

Patrick Aidan Heelan, S.J., B.A., M.A.

A Dissertation Presented to the Faculty of the Graduate School  
of Saint Louis University in Partial Fulfillment of the  
Requirements for the Degree of Doctor of Philosophy

1952

# TABLE OF CONTENTS

	Page
LIST OF TABLES . . . . .	iv
LIST OF ILLUSTRATIONS . . . . .	v
LIST OF IMPORTANT SYMBOLS . . . . .	vii
Chapter	
I. REVIEW OF THE PROBLEM OF HEAD WAVES . . . . .	1
II. RADIATION FROM A CYLINDRICAL SOURCE OF FINITE LENGTH . . . . .	12
III. WAVES REFLECTED AND REFRACTED FROM A PLANE BOUNDARY. . . . .	52
IV. RESOLUTION OF WAVE SYSTEMS IN THE UPPER MEDIUM. . . . .	66
V. RESOLUTION OF WAVE SYSTEMS IN THE LOWER MEDIUM. . . . .	119
VI. THE HEAD WAVE SYSTEM ASSOCIATED WITH $P_1 P_2$ . .	146
VII. SUMMARY AND CONCLUSIONS . . . . .	162
BIBLIOGRAPHY. . . . .	177
VITA AUCTORIS . . . . .	188