P R E F A C E

The present work is an outcome of the studies made by me under the supervision of Dr. V. K. Singh, Lecturer in the department of Mathematics and Statistics, Bundelkhand University, Jhansi and is being submitted for the award of M.Phil. Degree in Mathematics.

This Thesis has been divided into three Chapters and each Chapter has been sub-divided into sections. The Chapter-I gives an idea about the continuum concept of fluid; Basic equations governing the flow of a conducting fluid; Shock-waves, their existence and conditions; Radiation phenomenon; Similarity principle for a self-similar flow and the concept of the self-gravitation. Chapter II and III consist of the solutions of the two research papers which are enclosed at the end of the work. A list of notation is given in the starting which is used throughout the work. At the end of the thesis references are given which include research papers and texts which have been consulted during the preparation of this work.

I am under great obligation to my distinguished teacher, Dr. V. K. Singh for his extremely valuable suggestions, guidance and keen interest throughout the progress of my work.

I am grateful to Dr. P. N. Shrivastava, Reader and Head, Department of Mathematics and Statistics, Bundelkhand University, for his valuable comments and useful suggestions in course of my dissertation work.

I am thankful to Dr. V. K. Sainghal of the department for
their continuous encouragement and interest in my work.

I would like to express my sincere gratitude to my parents who have always been a source of encouragement and inspiration in my life.

My thanks are also due to my class mates for many useful discussions and for their assistance in many ways.

Finally, I am thankful to Mr. V.S.Srivastava who typed this manuscript very interestingly.

Dated, Jhansi
December 25th, 1989

Neeta Agarwal
( Neeta Agarwal )