

Introduction

THIS issue contains the Proceedings of the International Symposium on Magneto-Fluid Dynamics which was held at Williamsburg, Virginia, and Washington, D. C., in January, 1960. The Symposium was sponsored by the International Union of Theoretical and Applied Mechanics in cooperation with the National Academy of Sciences—National Research Council.

In planning the program of the Symposium, considerable emphasis was given to the continuum aspects of magneto-fluid dynamics. The main purpose was to bring out new information in areas which seem to need clarification and where direct contact between investigators would have the greatest value. The first session was devoted to an introductory survey of the field of magneto-fluid dynamics and plasma physics and consisted of the first four papers of the present issue. In each of the sessions, discussion was recorded and after considerable editing was prepared for publication by Session Reporters whose names are given with the comments published here. Readers will understand that there has been no attempt to reproduce all of the discussion but only those portions that in the opinion of the Session Reporters and the Editors elicited new information or valuable conjectures.

The contributions and discussions presented at specially arranged symposia often contain ideas and suggestions which are not well formulated or tested and would not otherwise have been reported in the scientific literature. Since the number of participants is necessarily limited they, and only they, are able to reap the fruits of those new ideas unless the proceedings of the symposium are made available to a wider group of scientists. We are, therefore, particularly happy that Dr. E. U. Condon has agreed to include the Proceedings of the Symposium on Magneto-Fluid Dynamics in this issue of the *Reviews of Modern Physics*. It is our firm conviction that this method of publication, which puts the Proceedings in the regular literature of physics, is much preferable to any other. The preparation of the Proceedings was influenced by the intent of presenting them in a way appropriate for a scientific journal rather than reporting all the discussions and all the remarks in their historical succession. Since the authors had the opportunity to revise or prepare their manuscripts after the Symposium, many of the questions asked during

the sessions were clarified in the manuscripts and the published discussion could consequently be shortened considerably.

About one hundred scientists took part in the Symposium. The technical sessions of the Symposium were held in Williamsburg, Virginia from January 18 to January 23, 1960. After the January 23 session, which was devoted to a general discussion, most of the participants went to Washington, D. C., where a special series of public lectures on magneto-fluid dynamic phenomena in astrophysics and geophysics was given on January 25 in the National Academy of Sciences. These lectures were arranged by the National Academy of Sciences—National Research Council and included addresses by Ludwig Biermann, Bo Lehnert, E. H. Vestine, and V. C. A. Ferraro. (The last address has not been included in the Proceedings.)

The members of the Scientific Committee of the Symposium included: H. L. Dryden (U. S. A.), Chairman; J. Ackeret (Switzerland); H. Alfvén (Sweden); G. K. Batchelor (U. K.); M. Łunc (Poland); M. Roy (France); L. I. Sedov (U. S. S. R.); and F. N. Frenkiel (U. S. A.) and W. R. Sears (U. S. A.), Joint Secretaries. The local arrangements were handled by J. S. Coleman, R. Jastrow, and O. F. Schuette in cooperation with the Joint Secretaries.

We are most appreciative of the financial assistance given by several United States agencies in providing funds to the National Academy of Sciences—National Research Council for the necessary arrangements. These agencies include National Aeronautics and Space Administration, National Science Foundation, Office of Naval Research, and Office of Scientific Research of the Air Force. These funds, together with those provided by the International Union of Theoretical and Applied Mechanics and by the United Nations Educational, Scientific and Cultural Organization, contributed in covering the expenses of arranging the Symposium and in the publication of the Proceedings.

FRANÇOIS N. FRENKIEL
Applied Mathematics
Laboratory
David Taylor Model Basin
Washington 7, D. C.

WILLIAM R. SEARS
Graduate School of
Aeronautical Engineering
Cornell University
Ithaca, New York