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The Impact of Air Power. Edited by Eugene M. Emme. Van Nostrand. 914 pages. \$12.50.

This book is intended to be a comprehensive and annotated volume of readings from a wide range of informed sources. Although the era of air power is still in its infancy as far as time is concerned (a scant fifty years), yet never in such a period of time has the course of history past and to come been altered so completely.

This book attempts to make clear the problems created by air power as an instrument of national policy and by its influence upon national security.

Although most of the book was compiled before Sputnik I, the thesis of the volume is well confirmed. Air power has been made more complex by the rise of ICBM's, but the prominence of air power is no more tied to any one type of air power than sea power is tied to sails. Air space and outer space are a single and indivisible medium.

The book is divided into three parts. A brief account of the parts would show:

Part I—The Nature of Air Power—which includes (1) The Evolution of Air Power, (2) The New Mobility.

Part II—The Revolution in Warfare—which includes—(1) Classical Theories of Air Warfare, and (2) World War II, (3) Lessons of WWII, (4) Small Wars and (5) Future Wars.

Part III—(1) Soviet Air Power, (2) American Air Policy, (3) Air Power in Europe and Asia, and (4) Astronautics.

High Altitude and Satellite Rockets. A symposium. 136 pages. Philosophical Library. \$15.

This volume is a collection of the papers presented at a symposium sponsored by the

Royal Aeronautical Society, The British Interplanetary Society and the College of Aeronautics held at Cranfield, England, 18th-20th July 1957.

Presented before the Russians launched their first satellite, the twelve papers are of interest because of the nature of the problems they deal with in detail. Ranging from propulsion problems of high altitude rockets, recovery after re-entry, high temperature materials, instrumentation, telemetry and guidance and some of the advanced technical problems to the very human problem of what to do with man in space and how to keep him alive.

Realities of Space Travel. Selected Papers of the British Interplanetary Society. Ed. By L. J. Carter. 431 pages. McGraw-Hill. \$7.50.

Especially noteworthy is the section of this book that is devoted to the research being done on the "weight condition" man will undergo when he rockets into pure space. The papers cover methods of air purification, the use of algae for food and atmosphere control, and how the length of time projected for the individual trip will affect and control the food requirements of the space traveler.

The book also covers in detail other aspects of astronautics— aerodynamic braking, escape velocity, testing of rocket performance, cosmic rays, limiting factors of chemical rockets, and others.

The engineering problems are discussed in concise and simple terms. The data in the book will be of interest to the scientist, engineer, or researcher interested in this field. *Nuclear Rocket Propulsion.* By R. W. Bussard and R. D. DeLauer. 375 pages. McGraw-Hill. \$10.

This book presents to the engineering man a sound basis for understanding the engineering problems of mobile reactor systems, problems that cover such areas as heat genera-

tion and removal, fluid distribution, and flow and structural integrity of the rocket itself. The authors' presentation is primarily descriptive: the fundamentals in each area are given without extensive mathematical proofs, but realistic physical bases are provided for all analyses.

The book surveys the fuel elements, moderators, control elements, and structural materials of rocket reactors in the light of how they affect and control the type of material used in the nuclear reactor. Some of the materials discussed are graphite, tungsten, molybdenum, tantalum, niobium, rhenium, and the refractory borides, among others for their potential use for high-temperature-reactor fuel elements.

As a source of information about the fundamentals, Nuclear Rocket Propulsion is very timely in this rapidly growing field. *The Prediction of Ballistic Missile Trajectories from Radar Observations.* By Irwin I Shapiro. 208 pages. McGraw-Hill. \$7.00

This book develops methods, based on the statistical theory of parameter estimation, that can be used to determine ballistic missile trajectories.

With very slight modifications, the methods can also be used to determine the osculating parameters of satellite orbits.

The information upon which the estimates are based is obtained from observations of the missile by monostatic radars located at one or more sites.

The method given prime consideration is the method of maximum likelihood.

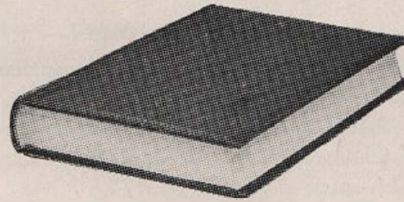
Several different procedures, appropriate for different practical situations, are described which can be used to find explicitly the maximum likelihood parameter estimates.

An extension analysis of the random errors associated with predictions based on the maximum likelihood method is also given. Such an error analysis provides a good approximation to the maximum predication accuracy obtainable for systems containing monostatic radars.

Several chapters cover the changes in the predictions methods necessary to account for the earth's oblateness.

The appendix include: Iterative Solutions to the Kepler Equation and An Error Analysis of Milne's Method.

*Here's a full scientific report
on space flight—its past,
present . . . and future!*



SPACE FLIGHT

Satellites, Spaceships, Space Stations and
Space Travel

By CARSBIE C. ADAMS

President, National Research and Development
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of what is involved in space flight
—and how our scientists and
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perts.**

From man's earliest skyward thoughts to *today's ACTUAL plans for flight in space* . . . the men, discoveries, and technological advances responsible are now brought before you in a striking review.

The treatment is soundly technical, fully annotated, and fascinating in its portrayal of far-reaching concepts and the growth of the means of their realization.

Here is an integrated picture of the ways in which the many fields that lend their knowledge to astronautics are working together to make space flight a reality. You learn about the contributions made by:

- astrophysics
- communications
- geophysics
- psychology
- materials
- space medicine
- chemistry
- and other fields

Dr. Wernher von Braun says of the book in his preface, "I am certain that it will soon attain the stature of one of the few great classics on this fascinating and many-faceted subject." It thoroughly covers the theories, methods, equipment, and pivotal scientific and human factors—for everyone with either a functional or general interest in any aspect of the development of practical space flight.



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